

इंटरनेट

मानक

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Mazdoor Kisan Shakti Sangathan

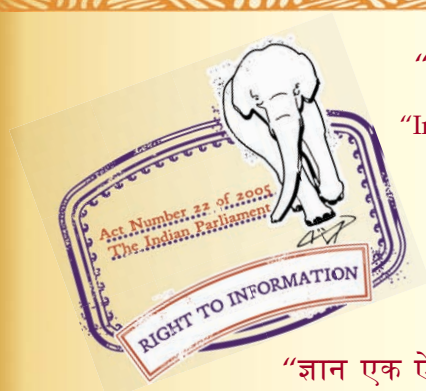
“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

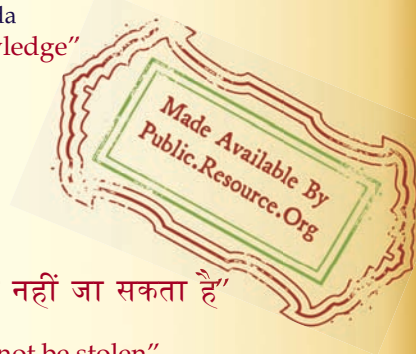
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“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

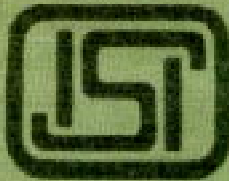
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(Reaffirmed 2005)

ISI HANDBOOK
OF
MATHEMATICAL PHYSICAL,
CHEMICAL AND ENGINEERING
TABLES



INDIAN STANDARDS INSTITUTION

ISI HANDBOOK OF MATHEMATICAL, PHYSICAL, CHEMICAL AND ENGINEERING TABLES



INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
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ISI HANDBOOK OF MATHEMATICAL, PHYSICAL, CHEMICAL AND ENGINEERING TABLES

0. FOREWORD

0.1 This publication covering mathematical, physical, chemical and engineering tables, is intended to serve as a reference in examinations by students of engineering and technology. The data are given in the metric system and these generally correspond to the Handbook of Mathematical, Physical and Engineering Tables of the Union Public Service Commission which had been serving, before the introduction of metric system, the purpose of such reference in the competitive examinations held by UPSC.

0.2 The metric data furnished in the tables are derived from various Indian Standards and relate to the products as manufactured by the Indian industries.

0.3 The data relating to physical and chemical quantities and units have been, as far as possible, based on the latest references available. The symbols and nomenclature used, are in accordance with the relevant ISO standards on quantities and units.

0.4 The metric sections for structural steel which are covered in these tables conform to the Indian Standards. It will be noted that these have wider flange, thinner web and greater depth and have, therefore, greater structural efficiency compared to the inch sections earlier in use in India.

0.5 The data covered in this document are based on the following publications:

Handbook of Mathematical, Physical, Chemical and Engineering Tables. 1960. Union Public Service Commission, New Delhi

ISI Handbook of Quantities, Conversion Factors, Formulae and Tables

Indian Railway Specification T-12.64 Specification for Flat Bottomed Rails. 1964. Ministry of Railways, Government of India

IS: 277-1969 Galvanized steel sheets (plain and corrugated) (*second revision*)

IS: 282-1963 Hard-drawn copper conductors for overhead power transmission (revised)

IS: 808-1964 Rolled steel beam, channel and angle sections (revised)

IS: 1173-1967 Hot rolled and slit steel tee bars (*first revision*)

IS: **1252-1958** Rolled steel sections, bulb angles

IS: 1730-1961 Dimensions for steel plate, sheet and strip for structural and general engineering purposes

IS: 1731-1961 Dimensions for steel flats for structural and general engineering purposes

IS: 1732-1961 Dimensions for round and square steel bars for structural and general engineering purposes

IS: 2982-1965 Copper conductors in insulated cables and cords

ISO/R31/XI-1961 Recommendation for mathematical signs and symbols for use in the physical sciences and technology.

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SECTION I
MATHEMATICAL TABLES
(TABLES I-12)

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TABLE 1 LOGARITHMS OF NUMBERS

(*In the case of these numbers, the first two digits for logarithms shown in line 1 of second column should be increased by one.)

NO.	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS			
100	00 000	043	087	130	173	217	260	303	346	389		44	43	42
101	432	475	518	561	604	647	689	732	775	817	1	4,4	4,3	4,2
102	860	903	945	988	*030	*072	115	*157	*199	*242	2	8,8	8,6	8,4
103	01284	326	368	410	452	494	536	578	620	662	3	13,2	12,9	12,6
104	703	745	787	828	870	912	953	995	*036	*078	4	17,6	17,2	16,8
105	02 119	160	202	243	284	325	366	407	449	490	5	22,0	21,5	21,0
106	531	572	612	653	694	735	776	816	857	898	6	26,4	25,8	25,2
107	938	979	019	060	*100	*141	*181	*222	*262	302	7	30,8	30,1	29,4
108	03 342	383	423	463	503	543	583	623	663	703	8	35,2	34,4	33,6
109	743	782	822	862	902	941	981	*021	*060	*100	9	39,6	38,7	37,8
110	04 139	179	218	258	297	336	376	415	454	493		41	40	39
111	532	571	610	650	689	727	766	805	844	883	1	4,1	4,0	3,9
112	922	961	999	*038	077	*115	*154	192	*231	269	2	8,2	8,0	7,8
113	05 308	346	385	423	461	500	538	576	614	652	3	12,3	12,0	11,7
114	690	729	767	805	843	881	918	956	994	032	4	16,4	16,0	15,6
115	06 070	108	145	183	221	258	296	333	371	408	5	20,5	20,0	19,5
116	446	483	521	558	595	633	670	707	744	781	6	24,6	24,0	23,4
117	819	856	893	930	967	004	*041	*078	*115	*151	7	28,7	28,0	27,3
118	07 188	225	262	298	335	372	408	445	482	518	8	32,8	32,0	31,2
119	555	591	628	664	700	737	773	809	846	882	9	36,9	36,0	35,1
120	918	954	990	*027	063	099	135	*171	207	*243		38	37	36
121	08 279	314	350	386	422	458	493	529	565	600	1	3,8	3,7	3,6
1 2 2	636	672	707	743	778	814	849	884	920	955	2	7,6	7,4	7,2
123	991	026	*061	*096	*132	167	*202	*237	*272	*307	3	11,4	11,1	10,8
124	09 342	377	412	447	482	517	552	587	621	656	4	15,2	14,8	14,4
125	691	726	760	795	830	864	899	934	9 6 8	*003	5	19,0	18,5	18,0
-126	10 037	072	106	140	175	209	243	278	312	346	6	22,8	22,2	21,6
127	380	415	449	483	517	551	585	619	653	687	7	26,6	25,9	25,2
128	721	755	789	823	857	890	924	958	9 9 2	*025	8	30,4	29,6	28,8
129	11059	093	126	160	193	227	261	294	327	361	9	34,2	33,3	32,4
130	394	428	461	494	528	561	594	628	661	694		35	34	33
131	727	760	793	826	860	893	926	959	9 9 2	*024	1	3,5	3,4	3,3
132	12 057	090	123	156	189	222	254	287	320	352	2	7,0	6,8	6,6
133	385	418	450	483	516	548	581	613	646	678	3	10,5	10,2	9,9
134	710	743	775	808	840	872	905	937	9 6 9	*001	4	14,0	13,6	13,2
135	13 033	066	098	130	162	194	226	258	290	322	5	17,5	17,0	16,5
136	354	386	418	450	481	513	545	577	609	640	6	21,0	20,4	19,8
137	672	704	735	767	799	830	862	893	925	956	7	24,5	23,8	23,1
138	988	*019	*051	082	*114	*145	*176	*208	*239	*270	8	28,0	27,2	26,4
139	14 301	333	364	395	426	457	489	520	551	582	9	31,5	30,6	29,7
140	613	644	675	706	737	768	799	829	860	891		32	31	30
141	922	953	983	*014	*045	*076	*106	137	*168	*198	1	3,2	3,1	3,0
142	15 229	259	290	320	351	381	412	442	473	503	2	6,4	6,2	6,0
143	534	564	594	625	655	685	715	746	776	806	3	9,6	9,3	9,0
144	836	866	897	927	957	987	*017	047	*077	107	4	12,8	12,4	12,0
14	16 137	167	197	227	256	286	316	346	376	406	5	16,0	15,5	15,0
145	435	465	495	524	554	584	613	643	673	702	6	19,2	18,6	18,0
147	732	761	791	820	850	879	909	938	967	997	7	22,4	21,7	21,0
148	17 026	056	085	114	143	173	202	231	260	289	8	25,6	24,8	24,0
145	319	348	377	406	435	464	493	522	551	580	9	28,8	27,9	27,0
150	609	638	667	696	725	754	782	811	840	869				
No	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS			

(Continued)

TABLE 1 LOGARITHMS OF NUMBERS — *Contd*

NO.	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS		
150	17 609	638	667	696	725	7.54	782	811	840	869		29	28
151	898	926	955	984	*013	041	*070	*099	*127	*156	1	2,9	2,8
152	18 184	213	241	270	298	327	355	384	412	441	2	5,8	5,6
153	469	498	526	554	583	611	639	667	696	724	3	8,7	8,4
154	752	780	808	837	865	893	921	949	977	*005	4	11,6	11,2
155	19 033	061	089	117	145	173	201	229	257	285	5	14,5	14,0
156	312	340	368	396	424	451	479	507	535	562	6	17,4	16,8
157	590	618	645	673	700	728	756	783	811	838	7	20,3	19,6
158	866	893	921	948	976	*003	030	*058	085	*112	8	23,2	22,4
159	20 140	167	194	222	249	276	303	330	358	385	9	26,1	25,2
160	412	439	466	493	520	548	575	602	629	656		27	26
161	683	710	737	763	790	817	844	871	898	925	1	2,7	2,6
162	952	978	*005	*032	*059	*085	*112	139	*165	*192	2	5,4	5,2
163	21 219	245	272	299	325	352	378	405	431	458	3	8,1	7,8
164	484	511	537	564	590	617	643	669	696	722	4	10,5	10,4
165	748	775	801	827	854	880	906	932	958	985	5	13,5	13,0
166	22 011	037	063	089	115	141	167	194	220	246	6	16,2	15,6
167	272	298	324	350	376	401	427	453	479	505	7	18,9	18,2
168	531	557	583	608	634	660	686	712	737	763	8	21,6	20,8
169	789	814	840	866	891	917	943	968	994	019	9	24,3	23,4
170	23 045	070	096	121	147	172	198	223	249	274		25	
171	300	325	350	376	401	426	452	477	502	528	1	2,5	
172	553	573	603	629	654	679	704	729	754	779	2	5,0	
173	805	830	855	880	905	930	955	980	005	*030	3	7,5	
174	24 055	080	105	130	155	180	204	229	254	279	4	10,0	
175	304	329	353	378	403	428	452	477	502	527	5	12,5	
176	551	576	601	625	650	674	699	724	748	773	6	15,0	
177	797	822	846	871	895	920	944	969	993	*018	7	17,5	
178	25 042	066	091	115	139	164	188	212	237	261	8	20,0	
179	285	310	334	358	382	406	431	455	479	503	9	22,5	
180	527	551	575	600	624	648	672	696	720	744		24	23
181	768	792	816	840	864	888	912	935	959	983	1	2,4	2,3
182	26 007	031	055	079	102	126	150	174	198	221	2	4,8	4,6
183	245	269	293	316	340	364	387	411	435	458	3	7,2	6,9
184	482	505	529	553	576	600	623	647	670	694	4	9,6	9,2
185	717	741	764	788	811	834	858	881	905	928	5	12,0	11,5
186	951	975	998	*021	*045	*068	*091	114	*138	*161	6	14,4	13,8
187	27 184	207	231	254	277	300	323	346	370	393	7	16,8	16,1
188	416	439	462	485	508	531	554	577	600	623	8	19,2	18,4
189	646	669	692	715	738	761	784	807	830	852	9	21,6	20,7
190	875	898	921	944	967	989	*012	*035	*058	*081		22	21
191	28 103	126	149	171	194	217	240	262	285	307	1	2,2	2,1
192	330	353	375	398	421	443	466	488	511	533	2	4,4	4,2
193	556	578	601	623	646	668	691	713	735	758	3	6,6	6,2
194	780	803	825	847	870	892	914	937	959	981	4	8,8	8,4
195	29 003	026	048	070	092	115	137	159	181	203	5	11,0	10,5
196	226	248	270	292	314	336	358	380	403	425	6	13,2	12,6
197	447	469	491	513	535	557	579	601	623	645	7	15,4	14,7
198	667	688	710	732	754	776	798	820	842	863	8	17,6	16,8
199	885	907	929	951	973	994	016	*038	*060	*081	9	19,8	18,9
200	30 103	125	146	168	190	211	233	255	276	298			
NO.	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS		

(Continued)

TABLE 1 LOGARITHMS OF NUMBERS — *Contd*

No.	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS		
200	30 103	12.5	146	168	190	211	233	255	276	298		22	21
201	320	341	363	384	406	428	449	471	492	514	1	2,2	2,1
202	535	557	578	600	621	643	664	685	707	728	2	4,4	4,2
203	750	771	792	814	83.5	856	878	899	920	942	3	6,6	6,3
204	963	984	*006	*027	*048	*069	*091	112	*133	*154	4	8,8	8,4
205	31 17.5	197	218	239	260	281	302	323	345	366	5	11,0	10,5
206	387	408	429	450	471	492	513	534	555	576	6	13,2	12,6
207	597	618	639	660	681	702	723	744	765	785	7	15,4	14,7
208	806	827	848	869	890	911	931	952	973	994	8	17,6	16,8
209	32 015	035	056	077	C98	118	139	160	181	201	9	19,8	18,9
210	222	243	263	284	305	325	346	366	387	408		20	
211	428	449	469	490	510	531	552	572	593	613	1	2,0	
212	634	654	675	695	715	736	756	777	797	818	2	4,0	
213	838	858	879	899	919	940	960	980	*001	*021	3	6,0	
214	33 041	062	082	102	122	143	163	183	203	224	4	8,0	
215	244	264	284	304	325	345	365	385	405	425	5	10,0	
216	445	465	486	506	526	546	566	586	606	626	6	12,0	
217	646	666	686	706	726	746	766	786	806	826	7	14,0	
218	846	866	885	905	92.5	945	965	985	*005	*025	8	16,0	
219	34 044	064	084	104	124	143	163	183	203	223	9	18,0	
220	242	262	282	301	321	341	361	380	400	420		19	
221	439	459	479	498	518	537	557	577	596	616	1	1,9	
222	635	655	674	694	713	733	753	772	792	811	2	3,8	
223	830	850	869	889	908	928	947	967	986	005	3	5,7	
224	35 025	044	064	083	102	122	141	160	180	199	4	7,6	
225	218	238	257	276	295	315	334	353	372	392	5	9,5	
226	411	430	449	468	488	507	526	545	564	583	6	11,4	
227	603	622	641	660	679	698	717	736	755	774	7	13,3	
228	793	813	832	851	870	889	908	927	946	965	8	15,2	
229	984	*003	*021	*040	*059	*078	*097	116	*135	*154	9	17,1	
230	36 173	192	211	229	248	267	286	305	324	342		18	
231	361	380	399	418	436	455	474	493	511	530	1	1,8	
232	549	568	586	605	624	642	661	680	698	717	2	3,6	
233	736	754	773	791	810	829	847	866	884	903	3	5,4	
234	922	940	959	977	996	014	*033	*051	*070	*088	4	7,2	
23.5	37 107	125	144	162	181	199	218	236	254	273	5	9,0	
236	291	310	328	346	365	383	401	420	438	457	6	10,8	
237	475	493	511	530	548	566	585	603	621	639	7	12,6	
238	658	676	694	712	731	749	767	785	803	822	8	14,4	
239	840	858	876	894	912	931	949	967	98.5	*003	9	16,2	
240	38 021	039	057	075	093	112	130	148	166	184		17	
241	202	220	238	256	274	292	310	328	346	364	1	1,7	
242	382	399	417	435	453	471	489	507	525	543	2	3,4	
243	561	578	596	614	632	650	668	686	703	721	3	5,1	
244	739	757	77.5	792	810	828	846	863	881	899	4	6,8	
245	917	934	952	970	987	*005	*023	*041	*058	*076	5	8,5	
246	39 094	111	129	146	164	182	199	217	235	252	6	10,2	
247	270	287	305	322	340	358	37.5	393	410	428	7	11,9	
248	445	463	480	498	515	533	550	568	585	602	8	13,6	
249	620	637	655	672	690	707	724	742	759	777	9	15,3	
250	794	811	829	846	863	881	898	915	933	950			
No.	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS		

(Continued)

TABLE 1 LOGARITHMS OF NUMBERS — *Contd*

NO.	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS	
250	39 794	811	829	846	863	881	898	915	933	950		18
251	967	985	002	*019	037	*054	*071	088	*106	*123	1	1,8
252	40 140	157	175	192	209	226	243	261	278	295	2	3,6
253	312	329	346	364	381	398	415	432	449	466	3	5,4
254	483	500	518	535	552	569	586	603	620	637	4	7,2
255	654	671	688	705	722	739	756	773	790	807	5	9,0
256	824	841	858	875	892	909	926	943	960	976	6	10,8
257	993	*010	*027	044	061	*078	*095	*111	*128	*145	7	12,6
258	41 162	179	196	212	229	246	263	280	296	313	8	14,4
259	330	347	363	380	397	414	430	447	464	481	9	16,2
260	497	514	531	547	564	581	597	614	631	647		17
261	664	681	697	714	731	747	764	780	797	814	1	1,7
262	830	847	863	880	896	913	929	946	963	979	2	3,4
263	996	012	029	045	*062	078	095	*111	*127	*144	3	5,1
264	42 160	177	193	210	226	243	259	275	292	308	4	6,8
265	325	341	357	374	390	406	423	439	455	472	5	8,5
266	488	504	521	537	553	570	586	602	619	635	6	10,2
267	651	667	684	700	716	732	749	765	781	797	7	11,9
268	813	830	846	862	878	894	911	927	943	959	8	13,6
269	975	991	008	*024	040	*056	*072	*088	104	*120	9	15,3
270	43 136	152	169	185	201	217	233	249	265	281		16
271	297	313	329	345	361	377	393	409	425	441	1	1,6
272	457	473	489	505	521	537	553	569	584	600	2	3,2
273	616	632	648	664	680	696	712	727	743	759	3	4,8
274	775	791	807	823	838	854	870	886	902	917	4	6,4
275	933	949	965	981	996	012	028	044	*059	*075	5	8,0
276	44091	107	122	138	154	170	185	201	217	232	6	9,6
277	248	264	279	295	311	326	342	358	373	389	7	11,2
278	404	420	436	451	467	483	498	514	529	545	8	12,8
279	560	576	592	607	623	638	654	669	685	700	9	14,4
280	716	731	747	762	778	793	809	824	840	855		15
281	871	886	902	917	932	948	963	979	994	*010	1	1,5
282	45 025	040	056	071	086	102	117	133	148	163	2	3,0
283	179	194	209	225	240	255	271	286	301	317	3	4,5
284	332	347	362	378	393	408	423	439	454	469	4	6,0
285	484	500	515	530	545	561	576	591	606	621	5	7,5
286	637	652	667	682	697	712	728	743	758	773	6	9,0
287	788	803	818	834	849	864	879	894	909	924	7	10,5
288	939	954	969	984	000	*015	030	045	*060	*075	8	12,0
289	46 090	105	120	135	150	165	180	195	210	225	9	13,5
290	240	255	270	285	300	315	330	345	359	374		14
291	389	404	419	434	449	464	479	494	509	0523	1	1,4
292	538	553	568	583	598	613	627	642	657	672	2	2,8
293	687	702	716	731	746	761	776	790	805	820	3	4,2
294	835	850	864	879	894	909	923	938	953	967	4	5,6
295	982	997	*012	026	*041	*056	*070	*085	*100	*114	5	7,0
296	47 129	144	159	173	188	202	217	232	246	261	6	8,4
297	276	290	305	319	334	349	363	378	392	407	7	9,8
298	422	436	451	465	480	494	509	524	538	553	8	11,2
299	567	582	596	611	625	640	654	669	683	698	9	12,6
300	712	727	741	756	770	784	799	813	828	842		
NO.	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS	

(Continued)

TABLE 1 LOGARITHMS OF NUMBERS — *Contd*

NO.	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS
300	47 712	727	741	756	770	784	799	812	828	842	
301	857	871	885	900	914	929	943	958	972	986	
302	48 001	015	029	044	058	073	087	101	116	130	
303	144	159	173	187	202	216	230	244	259	273	15
304	287	302	316	330	344	359	373	387	401	416	1 1,5
305	430	444	458	473	487	501	515	530	544	558	2 3,0
306	572	586	601	615	629	643	657	671	686	700	3 4,5
307	714	728	742	756	770	785	799	813	827	841	4 6,0
308	855	869	883	897	911	926	940	954	968	982	5 7,5
309	996	*010	*024	*038	*052	066	080	*094	108	*122	6 9,0
310	49 136	150	164	178	192	206	220	234	248	262	7 10,5
311	276	290	304	318	332	346	360	374	388	402	8 12,0
312	415	429	443	457	471	485	499	513	527	541	9 13,5
313	554	568	582	596	610	624	638	651	665	679	
314	693	707	721	734	748	762	776	790	803	817	
315	831	845	859	872	886	900	914	927	941	955	14
316	969	982	996	*010	*024	*037	*051	065	*079	*092	1 1,4
317	50 106	120	133	147	161	174	188	202	215	229	2 2,8
318	243	256	270	284	297	311	325	338	352	365	3 4,2
319	379	393	406	420	433	447	461	474	488	501	4 5,6
320	515	529	542	556	569	583	596	610	623	637	5 7,0
321	651	664	678	691	705	718	732	745	759	772	6 8,4
322	786	799	813	826	840	853	866	880	893	907	7 9,8
323	9 2 0	934	947	961	974	987	*001	014	028	*041	8 11,2
324	51055	068	081	095	108	121	135	148	162	175	9 12,6
325	188	202	215	228	242	255	268	282	295	308	
326	322	335	348	362	375	388	402	415	428	441	
327	455	468	481	495	508	521	534	548	561	574	13
328	587	601	614	627	640	654	667	680	693	706	1 1,3
329	720	733	746	759	772	786	799	812	825	838	2 2,6
330	851	865	878	891	904	917	930	943	957	970	3 3,9
331	983	996	*009	*022	*035	*048	*061	075	*088	*101	4 5,2
332	52 114	127	140	153	166	179	192	205	218	231	5 6,5
333	244	257	270	284	297	310	323	336	349	362	6 7,8
334	375	388	401	414	427	440	453	466	479	492	7 9,1
335	504	517	530	543	556	569	582	595	608	621	8 10,4
336	634	647	660	673	686	699	711	724	737	750	9 11,7
337	763	776	789	802	815	827	840	853	866	879	
338	592	905	917	930	943	956	969	982	994	*007	
339	53 020	033	046	058	071	084	097	110	122	135	12
340	148	161	173	186	199	212	224	237	250	263	1 1,2
341	275	288	301	314	326	339	352	364	377	390	2 2,4
342	403	415	428	441	453	466	479	491	504	517	3 3,6
343	529	542	555	567	580	593	605	618	631	643	4 4,8
344	656	668	681	694	706	719	732	744	757	769	5 6,0
345	782	794	807	820	832	845	857	870	882	895	6 7,2
346	908	920	933	945	958	970	983	995	*008	*020	7 8,4
347	54 033	045	058	070	083	095	108	120	133	145	8 9,6
348	158	170	183	195	208	220	233	245	258	270	9 10,8
349	283	295	307	320	332	345	357	370	382	394	
350	407	419	432	444	456	469	481	494	506	518	
No	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS

(Continued)

TABLE 1 LOGARITHMS OF NUMBERS — *Contd*

No.	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS	
350	54 407	419	432	444	456	469	481	494	506	518		
351	531	543	555	568	580	593	605	617	630	642		
352	654	667	679	691	704	716	728	741	753	765		
353	777	790	802	814	827	839	851	864	876	888		13
354	900	913	925	937	949	962	974	986	998	1 011	1	1,3
355	55 023	035	047	060	072	084	096	108	121	133	2	2,6
356	145	157	169	182	194	206	218	230	242	255	3	3,9
357	267	279	291	303	315	328	340	352	364	376	4	5,2
358	388	400	413	425	437	449	461	473	485	497	5	6,5
359	509	522	534	546	558	570	582	594	606	618	6	7,8
360	630	642	654	666	678	691	703	715	727	739	7	9,1
361	751	763	775	787	799	811	823	835	847	859	8	10,4
362	871	883	895	907	919	931	943	955	967	979	9	11,7
363	991	*003	*015	027	*038	050	*062	*074	*086	*098		
364	56 110	122	134	146	158	170	182	194	205	217		
365	229	241	253	265	277	289	301	312	324	336		12
366	348	360	372	384	396	407	419	431	443	455	1	1,2
367	467	478	490	502	514	526	538	549	561	573	2	2,4
368	585	597	608	620	632	644	656	667	679	691	3	3,6
369	703	714	726	738	750	761	773	785	797	808	4	4,8
370	8 2 0	832	844	855	867	879	891	902	914	926	5	6,0
371	937	949	961	972	984	996	*008	*019	*031	1 043	6	7,2
372	57 054	066	078	089	101	113	124	136	148	159	7	8,4
373	171	183	194	206	217	229	241	252	264	276	8	9,6
374	287	299	310	322	334	345	357	368	380	392	9	10,8
375	403	415	426	438	449	461	473	484	496	507		
376	519	530	542	553	565	576	588	600	611	623		
377	634	646	657	669	680	692	703	715	726	738		11
378	749	761	772	784	795	807	818	830	841	852	1	1,1
379	864	875	887	898	910	921	933	944	955	967	2	2,2
380	978	990	*001	*013	024	*035	*047	*058	*070	*081	3	3,3
381	58 092	104	115	127	138	149	161	172	184	195	4	4,4
382	206	218	229	240	252	263	274	286	297	309	5	5,5
383	320	331	343	354	365	377	388	399	410	422	6	6,6
384	433	444	456	467	478	490	501	512	524	5 3 5	7	7,7
385	546	557	569	580	591	602	614	625	636	647	8	8,8
386	659	670	681	692	704	715	726	737	749	760	9	9,9
387	771	782	794	805	816	827	838	850	861	872		
388	883	894	906	917	928	939	950	961	973	984		
389	995	006	*017	*028	*040	*051	*062	*073	*084	*095		10
390	59 106	118	129	140	151	162	173	184	195	207	1	1,0
391	218	229	240	251	262	273	284	295	306	318	2	2,0
392	329	340	351	362	373	384	395	406	417	428	3	3,0
393	439	450	461	472	483	494	506	517	528	539	4	4,0
394	550	561	572	583	594	605	616	627	638	649	5	5,0
395	660	671	682	693	704	715	726	737	748	759	6	6,0
396	770	780	791	802	813	824	835	846	857	868	7	7,0
397	879	890	901	912	923	934	945	956	966	977	8	8,0
398	988	999	*010	1 021	*032	1 043	*054	*065	*076	*086	9	9,0
399	60 097	108	119	130	141	152	163	173	184	195		
400	206	217	228	239	249	260	271	282	293	304		
No.	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS	

(Continued)

TABLE 1 LOGARITHMS OF NUMBERS — *Contd*

NO.	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS
400	60 206	217	228	239	249	260	271	282	293	304	
401	314	325	336	347	358	369	379	390	401	412	
402	423	433	444	455	466	477	487	498	509	520	
403	531	541	552	563	574	584	595	606	617	627	
404	638	649	660	670	681	692	703	713	724	735	
405	746	756	767	778	788	799	810	821	831	842	
406	853	863	874	885	895	906	917	927	938	949	
407	959	970	981	991	*002	013	023	034	*045	*055	11
408	61 066	077	087	098	109	119	130	140	151	162	1 1,1
409	172	183	194	204	215	225	236	247	257	268	2 2,2
410	278	289	300	310	321	331	342	352	363	374	3 3,3
411	384	395	405	416	426	437	448	458	469	479	4 4,4
412	490	500	511	521	532	542	553	563	574	584	5 5,5
413	595	606	616	627	637	648	658	669	679	690	6 6,6
414	700	711	721	731	742	752	763	773	784	794	7 7,7
415	805	815	826	836	847	857	868	878	888	899	8 8,8
416	909	920	930	941	951	962	972	982	993	1 003	9 9,9
417	62 014	024	034	045	055	066	076	086	097	107	
418	118	128	138	149	159	170	180	190	201	211	
419	221	232	242	252	263	273	284	294	304	315	
420	325	335	346	356	366	377	387	397	408	418	10
421	428	439	449	459	469	480	490	500	511	521	1 1,0
422	531	542	552	562	572	583	593	603	613	624	2 2,0
423	634	644	655	665	675	685	696	706	716	726	3 3,0
424	737	747	757	767	778	788	798	808	818	829	4 4,0
425	839	849	859	870	880	890	900	910	921	931	5 5,0
426	941	951	961	972	982	992	*002	*012	*022	*033	6 6,0
427	63 043	053	063	073	083	094	104	114	124	134	7 7,0
428	144	155	165	175	185	195	205	215	225	236	8 8,0
429	246	256	266	276	286	296	306	317	327	337	9 9,0
430	347	357	367	377	387	397	407	417	428	438	
431	448	458	468	478	488	498	508	518	528	538	
432	548	558	568	579	589	599	609	619	629	639	
433	649	659	669	679	689	699	709	719	729	739	
434	749	759	769	779	789	799	809	819	829	839	
435	849	859	869	879	889	899	909	919	929	939	9
436	949	959	969	979	988	998	008	018	028	*038	1 0,9
437	64 048	058	068	078	088	098	108	118	128	137	2 1,8
438	147	157	167	177	187	197	207	217	227	237	3 2,7
439	246	256	266	276	286	296	306	316	326	335	4 3,6
440	345	355	365	375	385	395	404	414	424	434	5 4,5
441	444	454	464	473	483	493	503	513	523	532	6 5,4
442	542	552	562	572	582	591	601	611	621	631	7 6,3
443	640	650	660	670	680	689	699	709	719	729	8 7,2
444	738	748	758	768	777	787	797	807	816	826	9 8,1
445	836	846	856	865	875	885	895	904	914	924	
446	933	943	953	963	972	982	992	*002	*011	*021	
447	65 031	040	050	060	070	079	089	099	108	118	
448	128	137	147	157	167	176	186	196	205	215	
449	225	234	244	254	263	273	283	292	302	312	
450	321	331	341	350	360	369	379	389	398	408	
No.	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS

(Continued)

TABLE 1 LOGARITHMS OF NUMBERS-Co&d

NO.	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS
450	65 321	331	341	350	360	369	379	389	398	408	
451	418	427	437	447	456	466	475	485	495	504	
452	514	523	533	543	552	562	571	581	591	600	
453	610	619	629	639	648	658	667	677	686	696	
454	706	715	725	734	744	753	763	772	782	792	
455	801	81.1	820	830	839	849	858	868	877	887	
456	896	906	916	925	935	944	954	963	973	982	
457	992	*001	*011	*020	*030	*039	*049	*058	*068	*077	10
4.58	66 087	096	106	115	124	134	143	153	162	172	1 1,0
459	181	191	200	210	219	229	238	247	257	266	2 2,0
460	276	285	295	304	314	323	332	342	351	361	3 3,0
461	370	380	389	398	408	417	427	436	445	455	4 4,0
462	464	474	483	492	502	511	521	530	539	549	5 5,0
463	5.58	567	577	586	596	605	614	624	633	642	6 6,0
464	6.52	661	671	680	689	699	708	717	727	736	7 7,0
465	745	755	764	773	783	792	801	811	820	829	8 8,0
466	839	848	857	867	876	885	894	904	913	922	9 9,0
467	932	941	950	960	969	978	987	997	*006	015	
468	67 025	034	043	052	062	071	080	089	099	108	
469	117	127	136	145	154	164	173	182	191	201	
470	210	219	228	237	247	256	265	274	284	293	
471	302	311	321	330	339	348	3.57	367	376	385	9
472	394	403	413	422	431	440	449	459	468	477	1 0,9
473	486	495	504	514	523	532	541	550	560	569	2 1,8
474	578	587	596	605	614	624	633	642	651	660	3 2,7
475	669	679	688	697	706	715	724	733	742	752	4 3,6
476	761	770	779	788	797	806	815	825	834	843	5 4,5
477	852	861	870	879	888	897	906	916	925	934	6 5,4
478	943	952	961	970	979	988	997	*006	*015	*024	7 6,3
479	68 034	043	052	061	070	079	088	097	106	115	8 7,2
480	124	133	142	151	160	169	178	187	196	205	9 8,1
481	21.5	224	233	242	251	260	269	278	287	296	
482	305	314	323	332	341	350	359	368	377	386	
483	39.5	404	413	422	431	440	449	458	467	476	
484	485	494	502	511	520	529	538	547	556	565	
485	574	583	592	601	610	619	628	637	646	655	8
486	664	673	681	690	699	708	717	726	735	744	1 0,8
487	753	762	771	780	789	797	806	815	824	833	2 1,6
488	842	851	860	869	878	886	895	904	913	922	3 2,4
489	931	940	949	958	966	975	984	993	*002	*011	4 3,2
490	69 020	028	037	046	055	064	073	082	090	099	5 4,0
491	108	117	126	135	144	152	161	170	179	188	6 4,8
492	197	205	214	223	232	241	249	2.58	267	276	7 5,6
493	285	294	302	311	320	329	338	346	355	364	8 6,4
494	373	381	390	399	408	417	425	434	443	452	9 7,2
495	461	469	478	487	496	504	513	522	531	539	
496	548	557	566	574	583	592	601	609	618	627	
497	636	644	653	662	671	679	688	697	705	714	
498	723	732	740	749	758	767	775	784	793	801	
499	810	819	827	836	845	854	862	871	880	888	
500	897	906	914	923	932	940	949	958	966	975	
No	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS

(Continued)

TABLE 1 LOGARITHMS OF NUMBERS — *Contd*

No.	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS
500	69 897	906	914	923	932	940	949	958	966	975	
501	984	992	*001	*010	*018	*027	*036	*044	*053	*062	
502	70 070	079	088	096	105	114	122	131	140	148	
503	157	165	174	183	191	200	209	217	226	234	
504	243	252	260	269	278	286	295	303	312	321	
505	329	338	346	355	364	372	381	389	398	406	
506	415	424	432	441	449	458	467	475	484	492	
507	501	509	518	526	535	544	552	561	569	578	9
508	586	595	603	612	621	629	638	646	655	663	1 0,9
509	672	680	689	697	706	714	723	731	740	749	2 1,8
510	757	766	774	783	791	800	808	817	825	834	3 2,7
511	842	851	859	868	876	885	893	902	910	Y19	4 3,6
512	927	935	944	952	961	969	978	986	995	*003	5 4,5
513	71012	020	029	037	046	054	063	Oil	079	088	6 5,4
514	096	105	113	122	130	139	147	155	164	172	7 6,3
515	181	189	198	206	214	223	231	240	248	257	8 7,2
516	265	273	282	290	299	307	315	324	332	341	9 8,1
517	349	357	366	374	383	391	399	408	416	425	
518	433	441	450	458	466	475	483	492	500	508	
519	517	525	533	542	550	559	567	575	584	592	
520	600	609	617	625	634	642	650	659	667	675	8
521	684	692	700	709	717	725	734	742	750	759	1 0,8
522	767	775	784	792	800	809	817	825	834	842	2 1,6
523	850	858	867	875	883	892	900	908	917	925	3 2,4
524	933	941	950	958	966	975	983	991	999	*008	4 3,2
525	72 016	024	032	041	049	057	066	074	082	090	5 4,0
526	099	107	115	123	132	140	148	156	165	173	6 4,8
527	181	189	198	206	214	222	230	239	247	255	7 5,6
528	263	272	280	288	296	304	313	321	329	.337	8 6,4
529	346	354	362	370	378	387	395	403	411	419	9 7,2
530	428	436	444	452	460	469	477	485	493	501	
531	509	518	526	534	542	550	558	567	575	583	
532	591	599	607	616	624	632	640	648	656	665	
533	673	681	689	697	705	713	722	730	738	746	
534	754	762	770	779	787	795	803	811	819	827	
535	835	843	852	860	868	876	884	892	900	908	7
536	916	925	933	941	949	957	965	973	981	989	1 0,7
537	997	*006	*014	*022	*030	*038	*046	*054	*062	*070	2 1,4
538	73 078	086	094	102	111	119	127	135	143	151	3 2,1
539	159	167	175	183	191	199	207	215	223	231	4 2,8
540	239	247	255	263	272	280	288	296	304	312	5 3,5
541	320	328	336	344	352	360	368	376	384	392	6 4,2
542	400	408	416	424	432	440	448	456	464	472	7 4,9
543	480	488	496	504	512	520	528	536	544	552	8 5,6
544	560	568	576	584	592	600	608	616	624	632	9 6,3
545	640	648	656	664	672	679	687	695	703	711	
546	719	727	735	743	751	759	767	775	783	791	
547	799	807	815	823	830	838	846	854	862	870	
548	878	886	894	902	910	918	926	933	941	949	
549	957	965	973	981	989	997	*005	*013	*020	*028	
550	74 036	044	052	060	068	076	084	092	099	107	
No	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS

(Continued)

TABLE 1 LOGARITHMS OF NUMBERS - *Contd*

No.	0	1	2	3	4	5	6	7	a	9	PROPORTIONAL PARTS
550	74 036	044	052	060	068	076	084	092	099	107	
551	115	123	131	139	147	155	162	170	178	186	
552	194	202	210	218	225	233	241	249	257	265	
553	273	280	288	296	304	312	320	327	335	343	
554	351	359	367	374	382	390	398	406	414	421	
555	429	437	445	453	461	468	476	484	492	500	
556	507	515	523	531	539	547	554	562	570	578	
557	586	593	601	609	617	624	632	640	648	656	
558	663	671	679	687	695	702	710	718	726	733	
559	741	749	757	764	772	780	788	796	803	811	
560	819	827	834	842	850	858	865	873	881	a89	8
561	896	904	912	920	927	935	943	950	958	966	1 0,8
562	974	981	989	997	*005	012	*020	*028	*035	*043	2 1,6
563	75 051	059	066	074	082	089	097	105	113	120	3 2,4
564	125	136	143	151	159	166	174	182	189	197	4 3,2
565	205	213	220	228	236	243	251	259	266	274	5 4,0
566	282	289	297	305	312	320	328	335	343	351	6 4,8
567	358	366	374	381	389	397	404	412	420	427	7 5,6
568	435	442	450	458	465	473	481	488	496	504	a 6,4
569	511	519	526	534	542	549	557	565	572	580	9 7,2
570	587	595	603	610	618	626	633	641	648	656	
571	664	671	679	686	694	702	709	717	724	732	
572	740	747	755	762	770	778	785	793	800	808	
573	815	823	831	838	846	853	X61	S68	876	884	
574	891	a99	906	914	921	929	937	044	952	959	
575	967	974	982	989	997	005	*012	020	*027	*035	
576	76 042	050	057	065	072	080	087	095	103	110	
577	118	125	133	140	148	155	163	170	178	185	
578	193	200	208	215	223	230	238	245	253	260	
579	268	275	283	290	298	305	313	320	328	335	
580	343	350	35x	365	373	380	388	395	403	410	7
5x1	418	425	433	440	448	455	462	470	477	485	1 0,7
582	492	500	507	515	522	530	537	545	552	559	2 1,4
583	567	574	582	589	597	604	612	619	626	634	3 2,1
584	641	649	656	664	671	678	686	693	701	708	4 2,8
585	716	723	730	738	745	753	760	768	775	782	5 3,5
586	790	797	805	812	819	a27	834	842	x49	a56	6 4,2
587	864	871	879	886	893	901	908	916	923	930	7 4,9
588	938	945	953	960	967	975	982	989	997	*004	a 5,6
589	77 012	019	026	034	041	048	056	063	070	078	9 6,3
590	085	093	100	107	115	122	129	137	144	151	
591	159	166	173	181	188	195	203	210	217	225	
592	232	240	247	254	262	269	276	283	291	298	
593	305	313	320	327	335	342	349	357	364	371	
594	379	386	393	401	408	415	422	430	437	444	
595	452	459	466	474	481	488	495	503	510	517	
596	525	532	539	546	554	561	568	576	583	590	
597	597	605	612	619	627	634	641	648	656	663	
598	670	677	685	692	699	706	714	721	728	735	
599	743	750	757	764	772	779	786	793	801	808	
600	815	822	830	837	844	851	859	866	873	880	
NO	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS

(Continued)

TABLE 1 LOGARITHMS OF NUMBERS-- *Contd*

No	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS	
600	77 81 5	822	830	837	844	851	859	866	873	880		
601	887	895	002	909	916	924	931	938	945	952		
602	960	967	974	981	988	996	*003	010	*017	*025		
603	78 032	039	046	053	061	068	075	082	089	097		
604	104	111	118	125	132	140	147	154	161	16X		
605	176	183	190	197	204	211	219	226	233	240		
606	247	254	262	269	276	283	290	297	305	312		
607	319	326	333	340	347	355	362	369	376	383		
608	390	398	405	412	419	426	433	440	447	455	1	8
609	462	469	476	483	490	497	504	512	510	526	2	0,8
610	533	540	547	554	561	569	576	583	590	597	3	1,6
611	604	611	618	625	633	640	647	654	661	668	4	2,4
612	675	682	689	696	704	711	718	725	732	739	5	3,2
613	746	753	760	767	774	781	789	796	803	810	6	4,0
614	817	824	831	838	845	852	859	866	873	880	7	4,8
615	888	895	902	909	916	923	930	937	944	951	8	5,6
616	958	965	972	979	986	993	000	*007	*014	*021	9	6,4
617	79 029	036	043	050	057	064	071	078	085	092		
618	099	106	113	120	125	134	141	148	155	162		
619	169	176	183	190	197	204	211	218	225	232		
620	239	246	253	260	267	274	281	288	295	303		
621	309	316	323	330	337	344	351	358	365	372	1	7
622	379	386	393	400	407	414	421	428	435	442	2	0,7
623	449	456	463	470	477	484	491	498	505	511	3	1,4
624	518	525	532	539	546	553	560	567	574	581	4	2,1
625	588	595	602	609	616	623	630	637	644	650	5	2,8
626	657	664	671	678	685	692	699	706	713	720	6	3,8
627	727	734	741	748	754	761	768	775	782	789	7	4,2
628	796	803	810	817	824	831	837	844	851	858	8	4,9
629	865	872	879	886	893	900	906	913	920	927	9	5,6
630	934	941	948	955	962	969	975	982	989	996		
631	80 003	010	017	024	030	037	044	051	058	065		
632	072	079	085	092	099	106	113	120	127	134		
633	140	147	154	161	168	175	182	188	195	202		
634	209	216	223	229	236	243	250	257	264	271		
635	277	284	291	298	305	312	318	325	332	339		
636	346	353	359	366	373	380	387	393	400	407	1	6
637	414	421	428	434	441	448	455	462	468	475	2	0,6
638	482	483	496	502	509	516	523	530	536	543	3	1,2
639	550	557	564	570	577	584	591	598	604	611	4	1,8
640	618	625	632	638	645	652	659	665	672	679	5	2,4
641	686	693	699	706	713	720	726	733	740	747	6	3,0
642	754	760	767	774	781	787	794	801	808	814	7	3,6
643	821	828	835	841	848	855	862	868	875	882	8	4,2
644	889	895	902	909	916	922	929	936	943	949	9	4,8
645	956	963	969	976	983	990	996	*003	*010	*017		
646	81 023	030	037	043	050	057	064	070	077	084		
647	090	097	104	111	117	124	131	137	144	151		
648	158	164	171	178	184	191	198	204	211	218		
649	224	231	238	245	251	258	265	271	278	285		
650	291	298	305	311	318	325	331	338	345	351		
No.	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS	

(Continued)

TABLE 1 LOGARITHMS OF NUMBERS --- *Contd*

NO.	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS
650	81 291	298	305	311	318	325	331	338	345	351	
651	358	365	371	378	385	391	398	405	411	418	
652	425	431	438	445	451	458	465	471	478	48.5	
653	491	498	505	511	518	525	531	538	544	551	
654	558	564	571	578	584	591	598	604	611	617	
655	624	631	637	644	651	657	664	671	677	684	
656	690	697	704	710	717	723	730	737	743	750	
657	757	763	770	776	783	790	796	803	809	816	
658	823	829	836	842	849	856	862	869	875	882	
659	889	895	902	908	915	921	928	935	941	948	
660	954	961	968	974	981	987	994	000	*007	014	7
661	82 020	027	033	040	046	053	060	066	073	079	1 0,7
662	086	092	099	105	112	119	125	132	138	145	2 1,4
663	151	158	164	171	178	184	191	197	204	210	3 2,1
664	217	223	230	236	243	249	256	263	269	276	4 2,8
665	282	289	295	302	308	315	321	328	334	341	5 3,5
666	347	354	360	367	373	380	387	393	400	406	6 4,2
667	413	419	426	432	439	445	452	458	465	471	7 4,9
668	478	484	491	497	504	510	517	523	530	536	8 5,6
669	543	549	556	562	569	575	582	588	595	601	9 6,3
670	607	614	620	627	633	640	646	653	659	666	
671	672	679	685	692	698	705	711	718	724	730	
672	737	743	750	756	763	769	776	782	789	795	
673	802	808	814	821	827	834	840	847	853	860	
674	866	872	879	885	892	898	905	911	918	924	
675	930	937	943	950	956	963	969	975	982	988	
676	995	*001	008	*014	*020	027	*033	*040	*046	*052	
677	83 059	065	072	078	085	091	097	104	110	117	
678	123	129	136	142	149	155	161	168	174	181	
679	187	193	200	206	213	219	225	232	238	245	
680	251	257	264	270	276	283	289	296	302	308	6
681	315	321	327	334	340	347	353	359	366	372	1 0,6
682	378	385	391	398	404	410	417	423	429	436	2 1,2
683	442	448	455	461	467	474	480	487	493	499	3 1,8
684	506	512	518	525	531	537	544	550	556	563	4 2,4
685	569	575	582	588	594	601	607	613	620	626	5 3,0
686	632	639	645	651	658	664	670	677	683	689	6 3,6
687	696	702	708	715	721	727	734	740	746	753	7 4,2
688	759	765	771	778	784	790	797	803	809	816	8 4,8
689	822	828	835	841	847	853	860	866	872	879	9 5,4
690	885	891	897	904	910	916	923	929	935	942	
691	948	954	960	967	973	979	985	992	998	004	
692	84 011	017	023	029	036	042	048	055	061	067	
693	073	080	086	092	098	105	111	117	123	130	
694	136	142	148	155	161	167	173	180	186	192	
695	198	205	211	217	223	230	236	242	248	255	
696	261	267	273	280	286	292	298	305	311	317	
697	323	330	336	342	348	354	361	367	373	379	
698	386	392	398	404	410	417	423	429	435	442	
699	448	454	460	466	473	479	485	491	497	504	
700	510	516	522	528	535	541	547	553	559	566	
No.	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS

(Continued)

TABLE 1 LOGARITHMS OF NUMBERS — *Contd*

NO.	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS
700	84 510	516	522	528	535	541	547	553	559	566	
701	572	578	584	590	597	603	609	615	621	628	
702	634	640	646	652	658	665	671	677	683	689	
703	696	702	708	714	720	726	733	739	745	751	
704	757	763	770	776	782	788	794	800	807	813	
705	819	825	831	837	844	850	856	862	868	874	
706	880	887	893	899	905	911	917	924	930	936	
707	942	948	954	960	967	973	979	985	991	997	7
708	85 003	009	016	022	028	034	040	046	052	058	1 0,7
709	065	071	077	083	089	095	101	107	114	120	2 1,4
710	126	132	138	144	150	156	163	169	175	181	3 2,1
711	187	193	199	205	211	217	224	230	236	242	4 2,8
712	248	254	260	266	272	278	285	291	297	303	5 3,5
713	309	315	321	327	333	339	345	352	358	364	6 4,2
714	370	376	382	388	394	400	406	412	418	425	7 4,9
715	431	437	443	449	455	461	467	473	479	485	8 5,6
716	491	497	503	509	516	522	528	534	540	546	9 6,3
717	552	558	564	570	576	582	588	594	600	606	
7 1 8	612	618	625	631	637	643	649	655	661	667	
719	673	679	685	691	697	703	709	715	721	727	
720	733	739	745	751	757	763	769	775	781	788	
721	794	800	806	812	818	824	830	836	842	848	6
722	854	860	866	872	878	884	890	896	902	908	1 0,6
723	914	920	926	932	938	944	950	956	962	968	2 1,2
724	974	980	986	992	998	*004	*010	*016	*022	*028	3 1,8
725	86 034	040	046	052	058	064	070	076	082	088	4 2,4
726	094	100	106	112	118	124	130	136	141	147	5 3,0
727	153	159	165	171	177	183	189	195	201	207	6 3,6
728	213	219	225	231	237	243	249	255	261	267	7 4,2
729	273	279	285	291	297	303	308	314	320	326	8 4,8
730	332	338	344	350	356	362	368	374	380	386	9 5,4
731	392	398	404	410	415	421	427	433	439	445	
732	451	457	463	469	475	481	487	493	499	504	
733	510	516	522	528	534	540	546	552	558	564	
734	570	576	581	587	593	599	605	611	617	623	
735	629	635	641	646	652	658	664	670	676	682	5
736	688	694	700	705	711	717	723	729	735	741	1 0,5
737	747	753	759	764	770	776	782	788	794	800	2 1,0
738	806	812	817	823	829	835	841	847	853	859	3 1,5
739	864	870	876	882	888	894	900	906	911	917	4 2,0
740	923	929	935	941	947	953	958	964	970	976	5 2,5
741	982	988	994	999	*005	*011	*017	*023	*029	*035	6 3,0
742	87 040	046	052	058	064	070	075	081	087	093	7 3,5
743	099	105	111	116	122	128	134	140	146	151	8 4,0
744	157	163	169	175	181	186	192	198	204	210	9 4,5
745	216	221	227	233	239	245	251	256	262	268	
746	274	280	286	291	297	303	309	315	320	326	
747	332	338	344	349	355	361	367	373	379	384	
748	390	396	402	408	413	419	425	431	437	442	
749	448	454	460	466	471	477	483	489	495	500	
750	506	512	518	523	529	535	541	547	552	558	
NO	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS

(Continued)

TABLE 1 LOGARITHMS OF NUMBERS — *Contd*

N _e	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS
75	87 S06	512	518	523	529	535	541	547	552	558	
75	564	570	576	581	587	593	599	604	610	616	
75	622	628	633	639	645	651	656	662	668	674	
75	679	685	691	697	703	708	714	720	726	731	
75	737	743	749	754	760	766	772	777	783	789	
75	79s	800	S06	812	818	823	829	835	841	846	
75	852	858	864	869	875	881	887	892	898	904	
75	910	915	921	927	933	938	944	950	955	961	
75	967	973	978	984	990	996	*001	*007	013	*018	
75	88 024	030	036	041	047	053	058	064	070	076	
76	081	087	093	098	104	110	116	121	127	133	6
76	138	144	150	156	161	167	173	17s	184	190	1 0,6
76:	195	201	207	213	218	224	230	235	241	247	2 1,2
76:	252	258	264	270	275	281	287	292	298	304	3 1,8
76:	309	315	321	326	332	33s	343	349	355	360	4 2,4
76:	366	372	377	383	389	39s	400	406	412	417	5 3,0
76:	423	429	434	440	446	451	457	463	468	474	6 3,6
76	480	485	491	497	so2	508	513	519	52.5	530	7 4,2
761	536	542	547	553	559	564	570	576	581	587	8 4,8
76	593	598	604	610	615	621	627	632	638	643	9 5,4
771	649	655	660	666	672	677	683	689	694	700	
771	705	711	717	722	728	734	739	74s	750	756	
77:	762	767	773	779	784	790	79s	801	so7	812	
77:	818	824	829	835	840	846	852	857	863.	868	
774	874	880	885	891	897	902	908	913	919	925	
771	930	936	941	947	953	958	964	969	975	981	
771	986	992	997	003	*009	*014	*020	*025	*031	*037	
77:	89 042	048	053	059	064	070	076	081	087	092	
778	098	104	109	115	120	126	131	137	143	148	
77	154	159	165	170	176	182	187	193	198	204	
781	209	215	221	226	232	237	243	248	254	260	5
781	265	271	276	282	287	293	298	304	310	315	1 0,5
782	321	326	332	337	343	348	354	360	365	371	2 1,0
783	376	382	387	393	39s	404	409	415	421	426	3 1,5
784	432	437	443	448	454	459	465	470	476	481	4 2,0
785	487	492	49s	504	509	515	520	526	531	537	5 2,5
786	542	548	553	559	564	570	575	581	586	592	6 3,0
787	597	603	609	614	620	625	631	636	642	647	7 3,5
788	653	658	664	669	675	680	686	691	697	702	8 4,0
789	708	713	719	724	730	735	741	746	752	757	9 4,5
790	7 6 3	768	774	779	785	790	796	801	807	812	
791	818	823	829	834	840	845	851	856	862	867	
792	873	878	883	889	894	900	905	911	916	922	
793	927	933	93s	944	949	955	960	966	971	977	
794	982	988	993	998	*004	009	*015	*020	*026	*031	
79s	90 037	042	048	053	059	064	069	075	080	086	
796	091	097	102	108	113	119	124	129	135	140	
797	146	151	157	162	168	173	179	184	189	195	
798	200	206	211	217	222	227	233	238	244	249	
799	255	260	266	271	276	282	287	293	298	304	
800	309	314	520	325	331	336	342	347	352	358	
NO.	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS

(Continued)

TABLE 1 LOGARITHMS OF NUMBERS — *Contd*

No.	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS
800	90 309	314	320	325	331	336	342	347	352	358	
801	363	369	374	380	385	390	396	401	407	412	
802	417	423	428	434	439	445	450	455	461	466	
803	472	477	482	488	493	499	504	509	515	520	
804	526	531	536	542	547	553	558	563	569	574	
805	580	585	590	596	601	607	612	617	623	628	
806	634	639	644	650	655	660	666	671	677	682	
807	687	693	698	703	709	714	720	725	730	736	
808	741	747	752	757	763	768	773	779	784	789	
809	795	800	806	811	816	822	827	832	838	843	
810	849	854	859	865	870	875	881	886	891	897	6
811	902	907	913	918	924	929	934	940	945	950	1 0,6
812	Y56	961	966	972	Y77	982	988	993	998	*004	2 1,2
813	91 009	014	020	025	030	036	041	046	052	057	3 1,8
814	062	068	073	078	084	089	094	100	105	110	4 2,4
815	116	121	126	132	137	142	148	153	158	164	5 3,0
816	169	174	180	185	190	196	201	206	212	217	6 3,6
817	222	228	233	238	243	249	254	259	265	270	7 4,2
818	275	281	286	291	297	302	307	312	318	323	8 4,8
819	328	334	339	344	350	355	360	365	371	376	9 5,4
820	381	387	392	397	403	408	413	418	424	429	
821	434	440	445	450	455	461	466	471	477	482	
822	487	492	498	503	508	514	519	524	529	535	
823	540	545	551	556	561	566	572	577	582	587	
824	593	598	603	609	614	619	624	630	635	640	
825	645	651	656	661	666	672	677	682	687	693	
826	698	703	709	714	719	724	730	735	740	745	
827	751	756	761	766	772	777	782	787	793	798	
828	803	808	814	819	824	829	834	840	845	850	
829	855	861	866	871	876	882	887	892	897	903	
830	908	913	918	924	929	934	939	944	950	955	5
831	960	965	971	976	981	986	991	997	*002	*007	1 0,5
832	92 012	018	023	028	033	038	044	049	054	059	2 1,0
833	065	070	075	080	083	091	096	101	106	111	3 1,5
834	117	122	127	132	137	143	148	153	158	163	4 2,0
835	169	174	179	184	189	195	200	205	210	215	5 2,5
836	221	226	231	236	241	247	252	257	262	267	6 3,0
837	273	278	283	288	293	298	304	309	314	319	7 3,5
838	324	330	335	340	345	350	355	361	366	371	8 4,0
839	376	381	387	392	397	402	407	412	418	423	9 4,5
840	428	433	438	443	449	454	459	464	469	474	
841	480	485	490	495	500	505	511	516	521	526	
842	531	536	542	547	552	557	562	567	572	578	
843	583	588	593	598	603	609	614	619	624	629	
844	634	639	645	650	655	660	665	670	675	681	
845	686	691	696	701	706	711	716	722	727	732	
846	737	742	747	752	758	763	768	773	778	783	
847	788	793	799	804	809	814	819	824	829	834	
848	840	845	850	855	860	865	870	875	881	886	
849	891	896	901	906	911	916	921	927	932	937	
850	942	947	952	957	962	967	973	978	983	988	
No.	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS

(Continued)

TABLE 1 LOGARITHMS OF NUMBERS — *Contd*

No	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS
850	92 942	947	952	957	962	967	973	978	983	988	
851	993	998	003	*008	*013	*018	*024	*029	034	*039	
852	93 044	a49	054	059	064	069	075	080	085	090	
852	095	100	105	110	115	120	125	131	136	141	
854	146	151	156	161	166	171	176	181	186	192	
855	197	202	207	212	217	222	227	232	237	242	
856	247	252	258	263	268	273	278	283	288	293	6
857	298	303	308	313	318	323	328	334	339	344	1 0,6
858	349	354	359	364	369	374	379	384	389	394	2 1,2
855	399	404	409	414	420	425	430	435	440	445	3 1,8
860	450	455	460	465	470	475	480	485	490	495	4 2,4
861	500	505	510	515	520	526	531	536	541	546	5 3,0
862	551	556	561	566	571	576	581	586	591	596	6 3,6
863	601	608	611	616	621	626	631	636	641	646	7 4,2
864	651	656	661	666	671	676	682	687	692	697	8 4,8
865	702	707	712	717	722	727	732	737	742	747	9 5,4
866	752	757	762	767	772	777	782	787	792	797	
867	802	807	812	817	822	827	832	837	842	847	
868	852	857	862	867	872	877	882	887	892	897	
869	902	907	912	917	922	927	932	937	942	947	
870	952	957	962	967	972	977	982	987	992	997	5
871	94 002	007	012	017	022	027	032	037	042	047	1 0,5
872	052	057	062	067	072	077	082	086	091	096	2 1,0
873	101	106	111	116	121	126	131	136	141	146	3 1,5
874	151	156	161	166	171	176	181	186	191	196	4 2,0
875	201	206	211	216	221	226	231	236	240	245	5 2,5
876	250	255	260	265	270	275	280	285	290	295	6 3,0
877	300	305	310	315	320	325	330	335	340	345	7 3,5
878	349	354	359	364	369	374	379	384	389	394	8 4,0
879	399	404	409	414	419	424	429	433	438	443	9 4,5
880	448	453	458	463	468	473	478	483	488	493	
881	498	503	507	512	517	522	527	532	537	542	
882	547	552	557	562	567	571	576	581	586	591	
883	596	601	606	611	616	621	626	630	635	640	
884	645	650	655	660	665	670	675	680	685	689	4
885	694	699	704	709	714	719	724	729	734	738	1 0,4
886	743	748	753	758	763	768	773	778	783	787	2 0,8
887	792	797	802	807	812	817	822	827	832	836	3 1,2
888	841	846	851	856	861	866	871	876	880	885	4 1,6
889	890	895	900	905	910	915	919	924	929	934	5 2,0
890	939	944	949	954	959	963	968	973	978	983	6 2,4
891	988	993	998	*002	007	012	*017	*022	*027	*032	7 2,8
892	95 036	041	046	051	056	061	066	071	075	080	8 3,2
893	085	090	095	100	105	109	114	119	124	129	9 3,6
894	134	139	143	148	153	158	163	168	173	177	
895	182	187	192	197	202	207	211	216	221	226	
896	231	236	240	245	250	255	260	265	270	274	
897	279	284	289	294	299	303	308	313	318	323	
898	328	332	337	342	347	352	357	361	366	371	
899	376	381	386	390	395	400	405	410	415	419	
900	424	429	434	439	444	448	453	458	463	468	
NO.	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS

(Continued)

TABLE 1 LOGARITHMS OF NUMBERS — *Contd*

so.	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS	
900	95 424	429	434	439	444	44s	453	458	463	468		
901	472	477	482	487	492	497	501	506	511	516		
902	521	525	530	535	540	545	550	554	559	564		
903	569	574	578	583	588	593	59s	602	607	612		
904	617	622	626	631	636	641	646	650	655	660		
905	665	670	674	679	684	689	694	698	703	70s		
906	713	718	722	727	732	737	742	746	751	756		
907	761	766	770	775	780	785	789	794	799	804		
90s	so9	813	818	823	828	832	837	842	847	852		
909	856	861	866	871	875	880	88.5	890	895	899		
910	904	909	914	918	923	928	933	938	942	947	5	
911	952	957	961	966	971	976	980	985	990	995	1	0,5
912	999	*004	*009	014	*019	*023	*028	*033	*038	*042	2	1,0
913	96 047	0.52	057	061	066	071	076	080	085	090	3	1,5
914	095	099	104	109	114	118	123	128	133	137	4	2,0
915	142	147	152	156	161	166	171	175	180	185	5	2,5
916	190	194	199	204	209	213	218	223	227	232	6	3,0
917	237	242	246	251	256	261	265	270	275	280	7	3,5
918	284	289	294	298	303	308	313	317	322	327	8	4,0
919	332	336	341	346	350	355	360	365	369	374	9	4,5
920	379	384	388	393	39s	402	407	412	417	421		
921	426	431	435	440	445	450	454	459	464	468		
922	473	47s	483	487	492	497	501	506	511	515		
923	520	525	530	534	539	544	54s	553	558	562		
924	567	572	577	581	586	591	595	600	605	609		
925	614	619	624	628	633	638	642	647	652	656		
926	661	666	670	675	680	685	689	694	699	703		
927	70s	713	717	722	727	731	736	741	745	750		
928	755	759	764	769	774	77s	783	788	792	797		
929	so2	806	811	816	820	825	830	834	839	844		
930	848	853	858	862	867	872	876	881	886	890	4	
931	895	900	904	909	914	918	923	928	932	937	1	0,4
932	942	946	951	956	960	965	970	974	979	984	2	0,8
933	988	993	997	*002	*007	*011	*016	*021	*025	*030	3	1,2
934	97 035	039	044	049	053	058	063	067	072	077	4	1,6
935	081	086	090	095	100	104	109	114	118	123	5	2,0
936	128	132	137	142	146	151	155	160	165	169	6	2,4
937	174	179	183	188	192	197	202	206	211	216	7	2,8
938	220	225	230	234	239	243	248	253	257	262	8	3,2
939	267	271	276	280	285	290	294	299	304	308	9	3,6
940	313	317	322	327	331	336	340	345	350	354		
941	359	364	368	373	377	382	387	391	396	400		
942	405	410	414	419	424	428	433	437	442	447		
943	451	456	460	465	470	474	479	483	488	493		
944	497	502	506	511	516	520	525	529	534	539		
945	543	54s	5.52	557	562	566	571	575	580	58.5		
946	589	594	59s	603	607	612	617	621	626	630		
947	635	640	644	649	653	658	663	667	672	676		
94s	681	685	690	695	699	704	708	713	717	722		
945	727	731	736	740	745	749	754	759	763	768		
95(	772	777	782	786	791	795	800	804	809	813		
NO	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS	

(Continued

TABLE 1 LOGARITHMS OF NUMBERS — *Contd*

No.	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS
950	97 772	777	782	786	791	795	800	804	809	813	
951	818	823	827	832	836	841	845	850	855	859	
952	864	868	873	877	882	886	891	896	900	905	
953	909	914	918	923	928	932	937	941	946	950	
954	955	959	964	968	973	978	982	987	991	996	
955	98 000	005	009	014	019	023	028	032	037	041	
956	046	050	055	059	064	068	073	078	082	087	
957	091	096	100	105	109	114	118	123	127	132	
958	137	141	146	150	155	159	164	168	173	177	
959	182	186	191	195	200	204	209	214	218	223	
960	227	232	236	241	245	250	254	259	263	268	5
961	272	277	281	286	290	295	299	304	308	313	1 0,5
962	318	322	327	331	336	340	345	349	354	358	2 1,0
963	363	367	372	376	381	385	390	394	399	403	3 1,5
964	408	412	417	421	426	430	435	439	444	448	4 2,0
965	453	457	462	466	471	475	480	484	489	493	5 2,5
966	498	502	507	511	516	520	525	529	534	538	6 3,0
967	543	547	552	556	561	565	570	574	579	583	7 3,5
968	588	592	597	601	605	610	614	619	623	628	8 4,0
969	632	637	641	646	650	655	659	664	668	673	9 4,5
970	677	682	686	691	695	700	704	709	713	717	
971	722	726	731	735	740	744	749	753	758	762	
972	767	771	776	780	784	789	793	798	802	807	
973	811	816	820	825	829	834	838	843	847	851	
974	856	860	865	869	874	878	883	887	892	896	
975	900	905	909	914	918	923	927	932	936	941	
976	945	949	954	958	963	967	972	976	981	985	
977	989	994	998	*003	*007	*012	*016	*021	*025	*029	
978	99 034	038	043	047	052	056	061	065	069	074	
979	078	083	087	092	096	100	105	109	114	118	
980	123	127	131	136	140	145	149	154	158	162	4
981	167	171	176	180	185	189	193	198	202	207	1 0,4
982	211	216	220	224	229	233	238	242	247	251	2 0,8
983	255	260	264	269	273	277	282	286	291	295	3 1,2
984	300	304	308	313	317	322	326	330	335	339	4 1,6
985	344	348	352	357	361	366	370	374	379	383	5 2,0
986	388	392	396	401	405	410	414	419	423	427	6 2,4
987	432	436	441	445	449	454	458	463	467	471	7 2,8
988	476	480	484	489	493	498	502	506	511	515	8 3,2
989	520	524	528	533	537	542	546	550	555	559	9 3,6
990	564	568	572	577	581	585	590	594	599	603	
991	607	612	616	621	625	629	634	638	642	647	
992	651	656	660	664	669	673	677	682	686	691	
993	695	699	704	708	712	717	721	726	730	734	
994	739	743	747	752	756	760	765	769	774	778	
995	782	787	791	795	800	804	808	813	817	822	
996	826	830	835	839	843	848	852	856	861	865	
997	870	874	878	883	887	891	896	900	904	909	
998	913	917	922	926	930	935	939	944	948	952	
999	957	961	965	970	974	978	983	987	991	996	
1 000	00 000	004	009	013	017	022	026	030	035	039	
No.	0	1	2	3	4	5	6	7	8	9	PROPORTIONAL PARTS

TABLE 2 ANTI-LOGARITHMS

	0	1	2	3	4	5	6	7	8	9	MEAN DIFFERENCES								
											1	2	3	4	5	6	7	8	9
00	10 000	10 023	10 046	10 069	10 093	10 116	10 139	10 162	10 185	10 209	2	5	7	9	12	14	16	19	21
01	10 233	10 257	10 280	10 304	10 328	10 351	10 375	10 399	10 423	10 447	2	5	7	10	12	14	17	19	21
02	10 471	10 495	10 520	10 544	10 568	10 593	10 617	10 641	10 666	10 691	2	5	7	10	12	15	17	20	22
03	10 715	10 740	10 765	10 789	10 814	10 839	10 864	10 889	10 914	10 940	3	5	8	10	13	15	18	20	23
04	10 965	10 990	11 015	11 041	11 066	11 092	11 117	11 143	11 169	11 194	3	5	8	10	13	15	18	20	23
05	11 220	11 246	11 272	11 298	11 324	11 350	11 376	11 402	11 429	11 455	3	5	8	11	13	16	18	21	24
06	11 482	11 508	11 535	11 561	11 588	11 614	11 641	11 668	11 695	11 722	3	5	8	11	13	16	19	21	24
07	11 749	11 776	11 803	11 830	11 858	11 885	11 912	11 940	11 967	11 995	3	5	8	11	14	16	19	22	25
08	12 023	12 050	12 078	12 106	12 134	12 162	12 190	12 218	12 246	12 274	3	6	8	11	14	17	20	22	2.5
09	12 303	12 331	12 359	12 388	12 417	12 445	12 474	12 503	12 531	12 560	3	6	9	11	14	17	20	23	26
10	12 589	12 618	12 647	12 677	12 706	12 735	12 764	12 794	12 823	12 853	3	6	9	12	15	18	21	24	26
11	12 882	12 912	12 942	12 972	13 002	13 032	13 062	13 092	13 122	13 152	3	6	9	12	15	18	21	24	27
12	13 183	13 213	13 243	13 274	13 305	13 335	13 366	13 397	13 428	13 459	3	6	9	12	15	18	21	25	28
13	13 490	13 521	13 552	13 583	13 614	13 646	13 677	13 709	13 740	13 772	3	6	9	13	16	19	22	25	28
14	13 804	13 836	13 868	13 900	13 932	13 964	13 996	14 028	14 060	14 093	3	6	10	13	16	19	22	26	29
15	14 125	14 158	14 191	14 223	14 256	14 289	14 322	14 355	14 388	14 421	3	7	10	13	16	20	23	26	30
16	14 454	14 488	14 521	14 555	14 588	14 622	14 655	14 689	14 723	14 757	3	7	10	13	17	20	24	27	30
17	14 791	14 825	14 859	14 894	14 928	14 962	14 997	15 031	15 066	15 101	3	7	10	14	17	21	24	28	31
18	15 136	15 171	15 205	15 241	15 276	15 311	15 346	15 382	15 417	15 453	4	7	11	14	18	21	25	28	32
19	15 488	15 524	15 560	15 596	5 631	15 668	15 704	15 740	15 776	15 812	4	7	11	14	18	22	25	29	32
20	15 849	15 885	15 922	15 959	15 996	16 032	16 069	16 106	16 144	16 181	4	7	11	15	18	22	26	30	33
21	16 218	16 255	16 293	16 331	16 368	16 406	16 444	16 482	16 520	16 558	4	8	11	15	19	23	26	30	34
22	16 596	16 634	16 672	16 711	16 749	16 788	16 827	16 866	16 904	16 943	4	8	12	18	19	23	27	31	35
23	16 982	17 022	17 061	17 100	17 140	17 179	17 219	17 258	17 298	17 338	4	8	12	16	20	24	28	32	36
24	17 378	17 418	17 458	17 498	17 539	17 579	17 620	17 660	17 701	17 742	4	8	12	16	20	24	28	32	36
25	17 783	17 824	17 865	17 906	17 947	17 989	18 030	18 072	18 113	18 155	4	8	12	17	21	25	29	33	37
26	18 197	18 239	18 281	18 323	18 365	18 408	18 450	18 493	18 535	18 578	4	8	13	17	21	25	30	34	38
27	18 621	18 664	18 707	18 750	18 793	18 836	18 880	18 923	18 967	19 011	4	9	13	17	22	26	30	35	39
28	19 055	19 099	19 143	19 187	19 231	19 275	19 320	19 364	19 409	19 454	4	9	13	18	22	26	31	35	40
29	19 498	19 543	19 588	19 634	19 679	19 724	19 770	19 815	19 861	19 907	5	9	14	18	23	27	32	36	41
30	19 953	19 999	20 045	20 091	20 137	20 184	20 230	20 277	20 324	20 370	5	9	14	19	23	28	32	37	42
31	20 417	20 464	20 512	20 559	20 606	20 654	20 701	20 749	20 797	20 845	5	10	14	19	24	29	33	38	43
32	20 893	20 941	20 989	21 038	21 086	21 135	21 184	21 232	21 281	21 330	5	10	15	19	24	29	34	39	44
33	21 380	21 429	21 478	21 528	21 577	21 627	21 677	21 727	21 777	21 827	5	10	15	20	25	30	35	40	45
34	21 878	21 928	21 979	22 029	22 080	22 131	22 182	22 233	22 284	22 336	5	10	15	20	25	31	36	41	46
35	22 387	22 439	22 491	22 542	22 594	22 646	22 699	22 751	22 803	22 856	5	10	16	21	26	31	37	42	47
36	22 909	22 961	23 014	23 067	23 121	23 174	23 227	23 281	23 336	23 388	5	11	16	21	27	32	37	43	48
37	23 442	23 496	23 550	23 605	23 659	23 714	23 768	23 823	23 878	23 933	5	11	16	22	27	33	38	44	49
38	23 988	24 044	24 099	24 155	24 210	24 266	24 322	24 378	24 434	24 491	6	11	17	22	28	34	39	45	so
39	24 547	24 604	24 660	24 717	24 774	24 831	24 889	24 946	25 003	25 061	6	11	17	23	29	34	40	46	51
40	25 119	25 177	25 236	25 293	25 351	25 410	25 468	25 527	25 586	25 645	6	12	18	23	29	35	41	47	53
41	25 704	25 763	25 823	25 882	25 942	26 002	26 062	26 122	26 182	26 242	6	12	18	24	30	36	42	48	54
42	26 303	26 363	26 424	26 485	26 546	26 607	26 669	26 730	26 792	26 853	6	12	18	24	31	37	43	49	55
43	26 915	26 977	27 040	17 102	27 164	27 227	27 290	27 353	27 416	27 479	6	13	19	25	31	38	44	50	56
44	27 542	27 606	27 669	17 733	27 797	27 861	27 925	27 990	28 054	28 119	6	13	19	26	32	39	45	51	58
45	28 184	28 249	28 314	18 379	28 445	28 510	28 576	28 642	28 708	28 774	7	13	20	26	33	39	46	52	59
46	28 840	28 907	28 973	19 040	29 107	29 174	29 242	29 309	29 376	29 444	7	13	20	27	34	40	47	54	60
47	29 512	29 580	29 648	19 717	29 785	29 854	29 923	29 992	30 061	30 130	7	14	21	28	34	41	48	5.5	62
48	30 200	30 269	30 339	30 409	0 479	30 549	30 620	30 690	30 761	30 832	7	14	21	28	35	42	49	56	63
49	30 903	30 974	31 046	11 117	1 189	31 261	31 333	31 405	31 477	31 550	7	14	22	29	36	43	50	58	65

(Continued)

TABLE 2 ANTI-LOGARITHMS — *Contd*

	0	1	2	3	4	5	6	7	8	9	MEAN DIFFERENCES								
											1	2	3	4	5	6	7	8	9
-50	31623	31 696	31 769	31 842	31 916	31989	32 063	32 137	32 211	32 285	7	1.5	22	29	37	44	52	59	66
-51	32 359	32 434	32 509	32 584	32 659	32 735	32 809	32 885	32 961	33 037	8	15	23	30	38	45	53	60	68
-52	33 113	33 189	33 266	33 343	33 420	33.497	33 574	33 651	33.729	33 806	8	15	23	31	39	46	54	62	69
-53	33 884	33 963	34 041	34 119	34 198	34 277	34 356	34 435	34 514	34 594	8	16	24	32	40	47	55	63	71
-54	34 674	34 754	34 834	34 914	34 995	35 075	35 156	35 237	35 318	35400	8	16	24	32	40	48	56	65	73
-55	35.481	35 563	35 645	35 727	3.5 810	35 892	35 975	36 058	36 141	36 224	8	16	25	33	41	50	58	66	74
-56	36 308	36 392	36 475	36 559	36 644	36 728	36 813	36 898	36 983	37 068	8	17	25	34	42	51	59	68	76
-57	37 154	37 239	37 325	37 411	37 497	37 584	37 670	37 757	37 844	37 931	9	17	26	3.5	43	52	61	69	78
-58	38 019	38 107	38 194	38 282	38 371	38 459	38 548	38 637	38 726	38 815	9	18	2.7	35	44	53	62	71	80
-59	38 905	38 994	39 084	39 174	39 264	39 355	39 446	39 537	39 628	39 719	9	1%	27	36	45	54	63	72	82
-60	39 811	39 902	39 994	40 087	40 179	40 272	40 365	40 458	40 551	40 644	9	19	28	37	46	56	65	74	83
-61	40 738	40 832	40 926	41 020	41 115	41 210	41 305	41400	41495	41 591	9	19	28	38	47	57	66	76	85
-62	41 687	41 783	41 879	41976	42 073	42 170	42 267	42 364	42 462	42 560	10	19	29	39	49	58	68	78	87
-63	42 658	42 756	42 855	42 954	43 053	43 152	43 251	43 351	43 451	43 551	10	20	33	40	50	60	70	80	89
-64	43 652	43 752	43 853	43 954	44 055	44 157	44 259	44 361	44 463	44 566	10	20	30	41	51	61	71	81	91
-65	44 668	44 771	44 875	44 978	45 082	45 186	45 290	45 394	45 499	45 604	10	21	31	42	52	62	73	83	94
-66	45 709	45 814	4.5 920	46 026	46 132	46 238	46 345	46 452	46 559	46 666	11	21	52	43	53	64	75	85	96
-67	46 774	46 881	46 989	47 098	47 206	47 315	47 424	47 534	47 643	47 753	11	22	33	44	54	65	76	87	98
-68	47 863	47 973	48 084	48 195	48 306	48 417	48 529	48 641	48 753	48 865	11	22	33	45	56	66	7%	89	100
-69	48 97%	49 091	49 204	49 317	49 431	49 545	49 659	49 774	49 888	50 003	11	23	34	46	57	68	80	91	103
-70	50 119	50 234	50 350	50 466	50 582	50 699	50 816	50 933	51050	51 168	12	23	35	47	58	70	82	93	105
-71	51 286	51404	51 523	51 642	51 761	51 880	52 000	52 119	52 240	52 360	12	24	36	48	60	72	84	96	108
-72	52 481	52 602	52 723	52 845	52 966	53 088	53 211	53 333	53 456	53 580	12	24	37	49	61	73	85	98	110
-73	53 703	53 827	53 951	54 075	54 200	54 325	54 450	54 576	54 702	54 828	13	25	38	50	63	75	88	100	113
-74	54 954	55 081	55 208	55 336	55 463	55 590	55 719	55 847	55 976	56 105	13	26	38	51	64	77	90	102	115
-75	56 234	56 364	56 494	56 624	56 754	56 885	57 016	57 148	57 280	57 412	13	26	39	52	66	79	92	105	11%
-76	57 544	57 677	57 810	57 943	5% 076	58 210	58 345	58 479	58 614	58 749	13	27	40	54	67	80	94	107	121
-77	58 884	59 020	59 156	59 293	59 429	59 566	59 704	59 841	59 979	60 117	14	27	41	55	69	82	96	110	123
-78	60 256	60 395	60 534	60 674	60 814	60 954	61 094	61235	61 376	61 518	14	28	42	56	70	84	98	112	126
-79	61 659	61 802	61 944	62 087	62 230	62 373	62 517	62 661	62 806	62 951	14	29	43	58	72	86	101	115	130
-80	63 096	63 241	63 387	63 533	63 680	63 826	63 973	64 121	64 269	64 417	15	29	44	59	74	88	103	11%	132
-81	64 565	64 714	64 863	65 013	65 163	65 313	6.5 464	65 615	65 766	65 917	15	30	45	60	75	90	105	120	135
-82	66 069	66 222	66 374	66 527	66 681	66 834	66 988	67 143	67 298	67 453	15	31	46	62	77	92	108	123	139
-83	67 608	67 764	67 920	68 077	68 234	68 391	68 549	6% 707	68 865	69 024	16	32	47	63	79	95	110	126	142
-84	69 183	69 343	69 503	69 663	69 823	69 984	70 146	70 307	70 469	70 632	16	32	48	64	81	97	113	129	145
-85	70 79.5	70 958	71 121	71 285	71450	71 614	71 779	71 945	72 111	72 277	17	33	50	66	83	99	116	132	149
-86	72 444	72 611	72 77%	72 946	73 114	73 282	73 451	73 621	73 790	73 961	17	34	51	6%	85	101	11%	135	152
-87	74 131	74 302	74 473	74 645	74 817	74 989	75 162	75 336	75 509	75 683	17	35	52	69	87	104	121	138	156
-88	75 858	76 033	76 208	76 384	76 560	76 736	76 913	77 090	77 268	77 446	18	35	53	71	89	107	125	142	159
-89	77 625	77 804	77 983	78 163	78 343	78 524	78 705	78 886	79 068	79 250	1%	36	54	72	91	109	127	145	163
-90	79 433	79 616	79 799	79 983	80 168	80 353	80 538	80 724	80 910	81 096	19	37	56	74	93	111	130	148	167
-91	81 283	81470	81 658	81 846	82 035	82 224	82 414	82 604	82 794	82 985	19	38	57	76	95	113	132	151	170
-92	83 176	83 368	83 560	83 753	83 946	84 140	84 333	84 528	84 723	84 918	19	39	58	78	97	116	136	155	175
-93	85 114	85 310	85 507	85 704	85 901	86 099	86 298	86 497	86 696	86 896	20	40	60	79	99	119	139	158	178
-94	87 096	87 297	87 498	87 700	87 902	88 105	88 308	88 512	88 716	88 920	20	41	61	81	102	122	142	162	183
-95	89 125	89 331	89 536	89 743	89 950	90 157	90 365	90 573	90 782	90 991	21	42	62	83	104	125	146	166	187
-96	91 201	91411	91 622	91 833	92 045	92 257	92 470	92 683	92 897	93 111	21	42	64	85	106	127	149	170	191
-97	93 325	93 541	93 756	93 972	14 189	94 406	94 624	94 842	95 060	95 280	22	43	65	87	109	130	152	174	195
-98	95 499	95 719	9.5 940	96 161	96 383	96 605	96 828	97 051	97 275	97 499	22	44	67	89	111	133	155	17%	200
-99	97 724	97 949	98 175	98 401	98 628	98 855	99 083	99 312	99 541	99 770	23	46	6%	91	114	137	160	182	205

TABLE 3A COMMON LOGARITHMS

COMMON LOG	NATURAL LOG	COMMON LOG	NATURAL LOG	COMMON LOG	NATURAL LOG
·01	·023 025 85	·34	·782 878 93	·67	1.542 732 01
·02	·046 051 70	·35	·805 904 78	·68	1.565 757 86
·03	·069 077 5.5	·36	·828 930 63	·69	1.588 783 71
·04	·092 103 40	·37	·851 956 48	·70	1.611 809 57
·05	·115 129 25	·38	·874 982 34	·71	1.634 835 42
·06	·138 155 11	·39	·898 008 19	·72	1.657 861 27
·07	·161 180 96	·40	·921 034 04	·73	1.680 887 12
·08	·184 206 81	·41	·944 059 89	·74	1.703 912 97
·09	·207 532 66	·42	·967 085 74	·75	1.726 938 82
·10	·230 258 51	·43	·990 111 59	·76	1.749 964 67
·11	·253 284 36	·44	1.013 137 44	·77	1.772 930 52
·12	·276 310 21	·45	1.036 163 29	·78	1.796 016 37
·13	·299 336 06	·46	1.059 189 14	·79	1.819 042 22
·14	·322 361 91	·47	1.082 214 99	·80	1.842 068 07
·15	·345 387 76	·48	1.105 240 84	·81	1.865 093 93
·16	·368 413 61	·49	1.128 266 70	·82	1.888 119 78
·17	·391439 47	·50	1.151 292 55	·83	1.911 145 63
·18	·414 465 32	·51	1.174 318 40	·84	1.934 171 48
·19	·437 491 17	·52	1.197 344 25	·85	1.957 197 33
·20	·460 517 02	·53	1.220 370 10	·86	1.980 223 18
·21	·483 542 87	·54	1.243 395 95	·87	2.003 249 03
·22	·506 568 72	·55	1.266 421 80	·88	2.026 274 88
·23	·529 594 57	·56	1.289 447 65	·89	2.049 300 73
·24	·552 620 42	·57	1.312 473 50	·90	2.072 326 58
·25	·575 646 27	·58	1.335 599 35	·91	2.095 352 43
·26	·598 672 12	·59	1.358 525 20	·92	2.118 378 29
·27	·621 697 98	·60	1.381 551 06	·93	2.141 404 14
·28	·644 723 83	·61	1.404 576 91	·94	2.164 429 99
·29	·567 749 68	·62	1.427 602 76	·95	2.187 455 84
·30	·690 77.5 53	·63	1.450 628 61	·96	2.210 481 69
·31	·713 801 38	·64	1.473 654 46	·97	2.233 507 55
·32	·736 827 23	·65	1.496 680 32	·98	2.256 533 40
·33	·759 853 08	·66	1.519 706 17	·99	2.279 559 25
				1.00	2.302 585 09

TABLE 3B NATURAL LOGARITHMS

(to the base e that is $\log_e x$, where x is the number)

x	0	1	2	3	4	5	6	7	8	9	MEAN DIFFERENCES								
											1	2	3	4	5	6	7	8	9
1.0	0.000 0	009 9	019 8	029 6	039 2	048 8	058 3	067 7	077 0	086 2	1	19	29	38	48	57	67	76	86
1.1	0.095 3	110 44	113 3	122 2	131 0	139 8	148 4	157 0	165 5	174 0	2	17	26	35	44	52	61	70	78
1.2	0.182 3	119 06	198 9	207 0	215 1	223 1	231 1	239 0	246 9	254 6	3	16	24	32	40	48	56	64	72
1.3	0.262 4	1700	277 6	285 2	292 7	300 1	307 5	314 8	322 1	329 3	7	15	22	30	37	44	52	59	67
1.4	0.336 5	343 6	350 7	357 7	364 6	371 6	378 4	385 3	392 0	398 8	7	14	21	28	35	41	48	55	62
1.5	0.405 5	412 1	418 7	425 3	431 8	438 3	444 7	451 1	457 4	463 7	6	13	19	26	32	39	45	52	58
1.6	0.470 0	476 2	482 4	488 6	494 7	500 8	506 8	512 8	518 8	524 7	6	12	18	24	30	36	42	48	55
1.7	0.530 6	536 5	542 3	548 1	553 9	559 6	565 3	571 0	576 6	582 2	6	11	17	24	29	34	40	46	51
1.8	0.587 8	593 3	598 8	604 3	609 8	615 2	620 6	625 9	631 3	636 6	5	11	16	22	27	32	38	43	49
1.9	0.641 9	647 1	652 3	657 5	662 7	667 8	672 9	678 0	683 1	688 1	5	10	15	21	26	31	36	41	46
2.0	0.693 1	698 1	703 1	708 0	712 9	717 8	722 7	727 5	732 4	737 2	5	10	15	20	24	29	34	39	44
2.1	0.741 9	746 7	751 4	756 1	760 8	765 5	770 1	774 7	779 3	783 9	5	9	14	19	23	28	33	37	42
2.2	0.788 5	793 0	797 5	802 0	806 5	810 9	815 4	819 8	824 2	828 6	4	9	13	18	22	27	31	36	40
2.3	0.832 9	837 2	841 6	845 9	850 2	854 4	858 7	862 9	867 1	871 3	4	9	13	17	21	26	30	34	38
2.4	0.875 5	879 6	883 8	887 9	892 0	896 1	900 2	904 2	908 3	912 3	4	8	12	16	20	24	29	33	37
2.5	0.916 3	920 3	924 3	928 2	932 2	936 1	940 0	943 9	947 8	951 7	4	8	12	16	20	24	27	31	35
2.6	0.955 5	959 4	963 2	967 0	970 8	974 6	978 3	982 1	985 8	989 5	4	8	11	15	19	23	26	30	34
2.7	0.993 3	996 9	1.000 6	0.004 3	0.008 0	0.011 6	0.015 2	0.018 8	0.022 5	0.026 0	4	7	11	15	18	22	25	29	33
2.8	1.029 6	033 2	036 7	040 3	043 8	047 2	050 8	054 3	057 8	061 3	4	7	11	14	18	21	25	28	32
2.9	1.064 7	068 2	071 6	075 0	078 4	081 8	085 2	088 6	091 9	095 3	3	7	10	14	17	20	24	27	31
3.0	1.098 6	101 9	105 3	108 6	111 9	115 1	118 4	121 7	124 9	128 2	3	7	10	13	16	20	23	26	30
3.1	1.131 4	134 6	137 8	141 0	144 2	147 4	150 6	153 7	156 9	1600	3	6	10	13	16	19	22	25	29
3.2	1.163 2	166 3	169 4	172 5	175 6	178 7	181 7	184 8	187 8	1909	3	6	9	12	15	18	22	25	28
3.3	1.193 9	196 9	200 0	203 0	206 0	209 0	211 9	214 9	217 9	220 8	3	6	9	12	15	18	21	24	27
3.4	1.223 8	226 7	229 6	232 6	235 5	238 4	241 3	244 2	247 0	249 9	3	6	9	12	15	17	20	23	26
3.5	1.252 8	255 5	258 5	261 3	264 1	266 9	269 8	272 6	275 4	278 2	3	6	8	11	14	17	20	23	25
3.6	1.280 9	283 7	286 5	289 2	292 0	294 7	297 5	300 2	302 9	305 6	3	5	8	11	14	16	19	22	25
3.7	1.308 3	311 0	313 7	316 4	319 1	321 8	324 4	327 1	329 7	332 4	3	5	8	11	13	16	19	21	24
3.8	1.335 0	337 6	340 3	342 9	345 5	348 1	350 7	353 3	355 8	358 4	3	5	8	10	13	16	18	21	23
3.9	1.361 0	363 5	366 1	368 6	371 2	373 7	376 2	378 8	381 3	383 8	3	5	8	10	13	15	18	20	23
4.0	1.386 3	388 8	391 3	393 8	396 2	398 7	401 2	403 6	406 1	408 5	2	5	7	10	12	15	17	20	22
4.1	1.411 0	413 4	415 5	418 3	420 7	423 1	425 5	427 9	430 3	432 7	2	5	7	10	12	14	17	19	22
4.2	1.435 1	437 5	439 8	442 2	444 6	446 9	449 3	451 6	454 0	456 3	2	5	7	9	12	14	16	19	21
4.3	1.458 6	460 9	463 3	465 6	467 9	470 2	472 5	474 8	477 0	479 3	2	5	7	9	12	14	16	18	21
4.4	1.481 6	483 9	486 1	488 4	490 7	492 9	495 1	497 4	499 6	501 9	2	5	7	9	11	14	16	18	20
4.5	1.504 1	506 3	508 5	510 7	512 9	515 1	517 3	519 5	521 7	523 9	2	4	7	9	11	13	15	18	20
4.6	1.526 1	528 2	530 4	532 6	534 7	536 9	539 0	541 2	543 3	545 4	2	4	6	9	11	13	15	17	19
4.7	1.547 6	549 7	551 8	553 9	556 0	558 1	560 2	562 3	564 4	566 5	2	4	6	8	11	13	15	17	19
4.8	1.568 6	570 7	572 8	574 8	576 9	579 0	581 0	583 1	585 1	587 2	2	4	6	8	10	12	14	16	19
4.9	1.589 2	591 3	593 3	595 3	597 4	599 4	601 4	603 4	605 4	607 4	2	4	6	8	10	12	14	16	18
5.0	1.609 4	611 4	613 4	615 4	617 4	619 4	621 4	623 3	625 3	627 3	2	4	6	8	10	12	14	16	18
5.1	1.629 2	631 2	633 2	635 1	637 1	639 0	640 9	642 9	644 8	646 7	2	4	6	8	10	12	14	16	18
5.2	1.648 5	650 6	652 5	654 4	656 3	658 2	660 1	662 0	663 9	665 8	2	4	6	8	10	11	13	15	17
5.3	1.667 7	669 6	671 5	673 4	675 3	677 1	679 0	680 8	682 7	684 5	2	4	6	7	9	11	13	15	17
5.4	1.686 4	688 2	690 1	691 9	693 8	695 6	697 4	699 3	701 1	702 9	2	4	5	7	9	11	13	15	17

Natural Logarithms of 10^{+p}

p	1	2	3	4	5	6	7	8	9
$\log_e 10$	2.302 6	4.605 2	6.997 8	9.210 3	11.512 9	13.815 5	16.118 1	18.420 7	20.723 3

(Continued)

TABLE 3B NATURAL LOGARITHMS —Contd

x	0	1	2	3	4	5	6	7	8	9	MEAN DIFFERENCES							
											12	3	4	5	6	7	8	9
5.5	1.704 7	706 6	708 4	710 2	712 0	713 8	715 6	717 4	719 2	721 0	1 4 5	7 9 11	13 14 16					
5.6	1.722 8	724 6	736 3	728 1	729 9	731 7	733 4	735 2	737 0	738 7	2 4 5	7 9 11	12 14 16					
5.7	1.740 5	742 2	744 0	745 7	747 5	749 2	750 9	752 7	754 4	756 1	2 3 5	7 9 10	12 14 16					
5.8	1.757 9	759 6	761 3	763 0	764 7	766 4	768 1	769 9	771 6	773 3	2 3 5	7 9 10	12 14 15					
5.9	1.775 0	776 6	778 3	780 0	781 7	783 4	785 1	786 7	788 4	790 1	2 3 5	7 8 10	12 13 15					
6.0	1.791 8	793 4	795 1	796 7	798 4	800 1	801 7	803 4	805 0	806 6	2 3 5	7 8 10	12 13 15					
6.1	1.808 3	809 9	811 6	813 2	814 8	816 5	818 1	819 7	821 3	822 9	2 3 5	6 8 10	11 13 15					
6.2	1.824 5	826 2	827 8	829 4	831 0	832 6	834 2	835 8	837 4	839 0	2 3 5	6 8 10	11 13 14					
6.3	1.840 5	842 1	843 7	845 3	846 9	848 5	850 0	851 6	853 2	854 7	2 3 5	6 8 9	11 13 14					
6.4	1.856 3	857 9	859 4	861 0	862 5	864 1	865 6	867 2	868 7	870 3	2 3 5	6 8 9	11 12 14					
6.5	1.871 8	873 3	874 9	876 4	877 9	879 5	881 c	882 5	884 0	885 6	2 3 5	6 8 9	11 12 14					
6.6	1.887 1	888 6	890 1	891 6	893 1	894 6	896 1	897 6	899 1	900 6	2 3 5	6 8 9	11 12 14					
6.7	1.902 1	903 6	905 1	906 6	908 1	909 5	911 0	912 5	914 0	9155	1 3 4	6 7 9	10 12 13					
6.8	1.916 9	918 4	919 9	921 3	922 8	924 2	925 7	927 2	928 6	930 1	1 3 4	6 7 9	10 12 13					
6.9	1.931 5	933 0	934 4	935 9	937 3	938 7	940 2	941 6	943 0	944 5	1 3 4	6 7 9	10 12 13					
7.0	1.945 9	947 3	948 8	950 2	951 6	953 0	954 4	955 9	957 3	958 7	1 3 4	6 7 9	10 11 13					
7.1	1.960 1	961 5	962 9	964 3	965 7	967 1	968 5	969 9	971 3	972 7	1 3 4	4 7 8	10 11 13					
7.2	1.974 1	975 5	976 9	978 2	979 6	981 0	982 4	983 8	985 1	986 5	1 3 4	6 7 8	10 11 12					
7.3	1.987 9	989 2	990 6	992 0	993 3	994 7	996 1	997 4	998 8	2.000 1	1 3 4	5 7 8	10 11 12					
7.4	2.001 5	002 8	004 2	005 5	006 9	008 2	009 6	010 9	0122	013 6	1 3 4	5 7 8	9 11 12					
7.5	2.014 9	016 2	017 6	0183	020 2	021 5	022 9	024 2	025 5	026 8	1 3 4	5 7 8	9 11 12					
7.6	2.028 1	029 5	030 8	032 1	033 4	034 7	036 0	037 3	038 6	039 9	1 3 4	5 7 8	9 10 12					
7.7	1.041 2	0425	043 8	045 1	0464	047 7	049 0	050 3	051 6	052 8	1 3 4	5 6 8	9 10 12					
7.8	2.054 1	055 4	056 7	058 0	059 2	060 5	061 8	063 1	064 3	065 6	1 3 4	5 6 8	9 10 11					
7.9	2.066 9	068 1	069 4	070 7	071 9	073 2	074 4	075 7	076 9	078 2	1 3 4	5 6 8	9 10 11					
8.0	2.079 4	080 7	081 9	083 2	084 4	085 7	086 9	088 2	089 4	090 6	1 3 4	5 6 7	9 10 11					
8.1	2.091 9	093 1	094 3	095 6	096 8	098 0	099 2	100 5	101 7	102 9	1 2 4	5 6 7	9 10 11					
8.2	2.104 1	105 4	106 6	107 8	109 0	110 2	1114	112 6	113 8	115 0	1 2 4	5 6 7	9 10 11					
8.3	2.116 3	117 5	118 7	119 9	121 1	122 3	123 5	1247	125 8	127 0	1 2 4	5 4 7	8 10 11					
8.4	2.128 2	129 4	130 6	131 8	133 0	1342	135 3	136 5	1377	138 9	1 2 4	5 4 7	8 9 11					
8.5	2.140 1	141 2	1424	143 6	1448	145 9	147 1	1483	1494	1506	1 2 4	5 4 7	8 9 11					
8.6	2.151 8	1529	1541	155 2	156 4	1576	158 7	1599	161 0	1622	1 2 3	5 6 7	8 9 10					
8.7	2.163 3	1645	165 6	1668	1679	169 1	1702	171 3	1725	173 6	1 2 3	5 6 7	8 9 10					
8.8	2.174 8	1759	1770	178 2	179 3	1804	181 5	1827	183 8	1849	1 2 3	5 6 7	8 9 10					
8.9	2.186 1	187 2	1883	1894	190 5	1917	192 8	193 9	195 0	196 1	1 2 3	4 6 7	8 9 10					
9.0	2.197 2	198 3	199 4	200 6	201 7	202 8	203 9	205 0	206 1	207 2	1 2 3	4 6 7	8 9 10					
9.1	2.208 3	209 4	210 5	211 6	212 7	213 8	214 8	215 9	217 0	218 1	1 2 3	4 5 7	8 9 10					
9.2	2.219 2	220 3	2214	222 5	223 5	224 6	225 7	226 8	227 9	228 9	1 2 3	4 5 6	8 9 10					
9.3	2.230 0	231 1	232 2	233 2	234 3	235 4	236 4	237 5	238 6	239 6	1 2 3	4 5 6	7 9 10					
9.4	2.240 7	241 8	242 8	243 9	245 0	246 0	247 1	248 1	249 2	250 2	1 2 3	4 5 6	7 8 10					
9.5	2.251 3	252 3	253 4	254 4	255 5	256 5	257 6	258 6	259 7	260 7	1 2 3	4 5 6	7 8 9					
9.6	2.261 8	262 8	263 8	264 9	265 9	267 0	268 0	269 0	270 1	271 1	1 2 3	4 5 6	7 8 9					
9.7	2.272 1	273 2	274 2	275 2	276 2	277 3	278 3	279 3	280 3	2814	1 2 3	4 5 6	7 8 9					
9.8	2.2814	283 4	284 4	285 4	286 5	287 5	288 5	289 5	290 5	291 5	1 2 3	4 5 6	7 8 9					
9.9	2.292 5	293 5	294 6	295 6	296 6	297 6	298 6	299 6	300 6	301 6	1 2 3	4 5 6	7 8 9					
10.0	2.302 6																	

Natural Logarithms of 10^{-n}

n	1	2	3	4	5	6	7	8	9
$\log_e 10^{-n}$	$\overline{3.697}$ 4	$\overline{5.394}$ 8	$\overline{7.092}$ 2	$\overline{10.789}$ 7	$\overline{12.487}$ 1	$\overline{14.184}$ 5	$\overline{17.881}$ 9	$\overline{19.579}$ 3	$\overline{21.276}$ 7

TABLE 4 EXPONENTIAL AND HYPERBOLIC FUNCTIONS

x	e^x	e^{-x}	Sinh x	Cosh x	Tanh x	Coth x
0.010	1.010 05	0.990 05	0.010 00	1.000 05	0.010 00	100.003
0.020	1.020 20	0.980 20	0.020 00	1.000 20	0.020 00	50.006 7
0.030	1.030 46	0.970 45	0.030 00	1.000 45	0.029 99	33.393 3
0.040	1.040 81	0.960 79	0.040 01	1.000 80	0.039 98	25.013 3
0.050	1.051 27	0.951 23	0.050 02	1.001 25	0.049 96	20.016 7
0.060	1.061 84	0.941 76	0.060 04	1.001 80	0.059 93	16.686 7
0.070	1.072 51	0.932 39	0.070 06	1.002 45	0.069 89	14.309 0
0.080	1.083 29	0.923 12	0.080 08	1.003 20	0.079 83	12.526 7
0.090	1.094 17	0.913 93	0.090 12	1.004 05	0.089 76	11.141 1
0.100	1.105 17	0.904 84	0.100 17	1.005 00	0.099 67	10.033 3
0.110	1.116 28	0.895 83	0.110 22	1.006 06	0.109 56	9.127 55
0.120	1.127 50	0.886 92	0.120 29	1.007 21	0.119 43	8.373 29
0.130	1.138 83	0.878 10	0.130 37	1.008 46	0.129 27	7.735 59
0.140	1.150 27	0.869 36	0.140 46	1.009 82	0.139 09	7.189 46
0.150	1.161 83	0.860 71	0.150 56	1.011 27	0.148 88	6.716 59
0.160	1.173 51	0.852 14	0.160 68	1.012 83	0.158 65	6.303 24
0.170	1.185 30	0.843 67	0.170 82	1.014 48	0.168 38	5.938 91
0.180	1.197 22	0.835 27	0.180 97	1.016 24	0.178 08	5.615 43
0.190	1.209 25	0.826 96	0.191 14	1.018 10	0.187 75	5.326 34
0.200	1.221 40	0.818 73	0.201 34	1.020 07	0.197 38	5.066 49
0.210	1.233 68	0.810 58	0.211 55	1.022 13	0.206 97	4.831 70
0.220	1.246 08	0.802 52	0.221 78	1.024 30	0.216 52	4.618 55
0.230	1.258 60	0.794 53	0.232 03	1.026 57	0.226 03	4.424 22
0.240	1.271 25	0.786 63	0.242 31	1.028 94	0.235 50	4.246 36
0.250	1.284 02	0.778 80	0.252 61	1.03141	0.244 92	4.082 99
0.260	1.296 93	0.771 05	0.262 94	1.033 99	0.254 30	3.932 43
0.270	1.309 96	0.763 38	0.273 29	1.036 67	0.263 62	3.793 27
0.280	1.323 13	0.755 78	0.283 67	1.039 46	0.272 90	3.664 28
0.290	1.336 43	0.748 26	0.294 08	1.042 35	0.282 14	3.544 40
0.300	1.349 86	0.740 82	0.304 52	1.045 34	0.291 31	3.432 74
0.310	1.363 42	0.733 45	0.314 99	1.048 44	0.300 44	3.328 48
0.320	1.377 13	0.726 15	0.325 49	1.051 64	0.309 51	3.230 95
0.330	1.390 97	0.718 92	0.336 02	1.054 95	0.318 52	3.139 51
0.340	1.404 95	0.711 77	0.346 59	1.058 36	0.327 48	3.053 65
0.350	1.419 07	0.704 69	0.357 19	1.06188	0.336 38	2.972 87
0.360	1.433 33	0.697 68	0.367 83.	1.065 50	0.345 21	2.896 75
0.370	1.447 74	0.690 73	0.378 50	1.069 23	0.353 99	2.824 92
0.380	1.462 20	0.683 86	0.389 21	1.073 07	0.362 71	2.757 04
0.390	1.476 98	0.677 06	0.399 96	1.077 02	0.371 36	2.692 80
0.400	1.491 82	0.670 32	0.410 75	1.081 07	0.379 98	2.631 93
0.410	1.506 82	0.663 65	0.421 58	1.085 23	0.388 47	2.574 18
0.420	1.521 96	0.657 05	0.432 46	1.089 50	0.396 93	2.519 33
0.430	1.537 26	0.650 51	0.443 37	1.093 88	0.405 32	2.467 18
0.440	1.552 71	0.644 04	0.454 34	1.098 37	0.413 64	2.417 54
0.450	1.568 31	0.637 63	0.465 34	1.102 97	0.421 90	2.370 24
0.460	1.584 07	0.631 28	0.476 40	1.107 68	0.430 08	2.325 13
0.470	1.599 99	0.625 00	0.487 50	1.112 50	0.438 20	2.282 07
0.480	1.616 07	0.618 78	0.498 65	1.11743	0.446 24	2.240 93
0.490	1.632 32	0.612 63	0.509 84	1.122 47	0.454 22	2.201 59
0.500	1.648 72	0.606 53	0.521 10	1.127 63	0.462 12	2.163 95
0.510	1.665 29	0.600 50	0.532 40	1.132 89	0.469 94	2.127 91
0.520	1.682 03	0.594 52	0.543 75	1.138 27	0.477 70	2.093 34
0.530	1.698 93	0.588 60	0.555 16	1.143 77	0.485 38	2.060 26
0.540	1.716 01	0.582 75	0.566 63	1.149 38	0.492 99	2.028 45
0.550	1.733 25	0.576 95	0.578 15	1.155 10	0.500 52	1.997 92
0.560	1.750 67	0.571 21	0.589 73	1.160 94	0.507 98	1.968 59
0.570	1.768 27	0.565 52	0.601 37	1.166 90	0.515 36	1.940 39
0.580	1.786 04	0.559 90	0.613 07	1.172 97	0.522 66	1.913 27
0.590	1.803 99	0.554 33	0.624 83	1.179 16	0.529 90	1.887 16
0.600	1.822 12	0.548 81	0.636 65	1.185 46	0.537 05	1.862 03
0.610	1.840 43	0.543 35	0.648 54	1.191 89	0.544 13	1.837 81
0.620	1.858 93	0.537 94	0.660 49	1.198 44	0.551 13	1.814 46
0.630	1.877 61	0.532 59	0.672 51	1.205 10	0.558 05	1.791 95
0.640	1.896 48	0.527 29	0.684 59	1.211 89	0.564 90	1.770 2 3
0.650	1.915 54	0.522 05	0.696 75	1.218 79	0.571 67	1.749 26

(Continued)

TABLE 1 EXPONENTIAL AND HYPERBOLIC FUNCTIONS — *Contd*

x	e^x	e^{-x}	$\sinh x$	$\cosh x$	$\tanh x$	$\coth x$
0.660	1.934 79	0.516 85	0.708 97	1.225 82	0.578 36	1.729 02
0.670	1.954 24	0.511 71	0.721 26	1.232 97	0.584 98	1.709 46
0.680	1.973 88	0.506 62	0.733 63	1.240 25	0.591 52	1.690 56
0.690	1.993 72	0.501 58	0.746 07	1.247 65	0.597 98	1.672 29
0.700	2.013 75	0.496 58	0.758 58	1.255 17	0.604 37	1.654 62
0.710	2.033 99	0.491 64	0.771 17	1.262 82	0.610 68	1.637 53
0.720	2.054 43	0.486 75	0.783 84	1.270 59	0.616 91	1.620 98
0.730	2.075 08	0.481 91	0.796 59	1.278 50	0.623 06	1.604 97
0.740	2.095 94	0.477 11	0.809 41	1.286 52	0.629 14	1.589 46
0.750	2.117 00	0.472 37	0.822 32	1.294 68	0.635 15	1.574 43
0.760	2.138 28	0.467 67	0.835 30	1.302 97	0.641 08	1.559 88
0.770	2.159 77	0.463 01	0.848 38	1.311 39	0.646 93	1.545 76
0.780	2.181 47	0.458 41	0.861 53	1.319 94	0.652 71	1.532 08
0.790	2.203 40	0.453 84	0.874 78	1.328 62	0.658 41	1.518 81
0.800	2.225 04	0.449 33	0.888 11	1.337 44	0.664 04	1.505 94
0.810	2.247 91	0.444 86	0.901 52	1.346 38	0.669 59	1.493 45
0.820	2.270 50	0.440 43	0.915 03	1.355 47	0.675 07	1.481 33
0.830	2.293 32	0.436 05	0.928 64	1.364 68	0.680 48	1.469 56
0.840	2.316 37	0.431 71	0.942 33	1.374 04	0.685 81	1.458 13
0.850	2.339 65	0.427 42	0.956 12	1.383 53	0.691 07	1.447 03
0.860	2.363 16	0.423 16	0.970 00	1.393 16	0.696 26	1.436 25
0.870	2.386 91	0.418 95	0.983 98	1.402 93	0.701 37	1.425 77
0.880	2.410 90	0.414 78	0.998 06	1.412 84	0.706 42	1.415 59
0.890	2.435 13	0.410 66	1.012 24	1.422 89	0.711 39	1.405 69
0.900	2.459 60	0.406 57	1.026 52	1.433 09	0.716 30	1.396 07
0.910	2.484 32	0.402 52	1.040 90	1.443 42	0.721 13	1.386 71
0.920	2.509 29	0.398 52	1.055 39	1.453 90	0.725 90	1.377 61
0.930	2.534 51	0.394 55	1.069 98	1.464 53	0.730 59	1.368 75
0.940	2.559 98	0.390 63	1.084 68	1.475 30	0.735 22	1.360 13
0.950	2.585 71	0.386 74	1.099 48	1.486 22	0.739 78	1.351 75
0.960	2.611 70	0.382 89	1.114 40	1.497 30	0.744 28	1.343 59
0.970	2.637 94	0.379 08	1.129 43	1.508 51	0.748 70	1.335 64
0.980	2.664 46	0.375 31	1.144 57	1.519 88	0.753 07	1.327 91
0.990	2.691 23	0.371 58	1.159 83	1.53141	0.757 36	1.320 37
1.000	2.718 28	0.367 88	1.175 20	1.543 08	0.761 59	1.313 04
1.010	2.745 60	0.364 22	1.190 69	1.554 91	0.765 76	1.305 89
1.020	2.773 20	0.360 60	1.206 30	1.566 90	0.769 87	1.298 93
1.030	2.801 07	0.357 01	1.222 03	1.579 04	0.773 91	1.292 14
1.040	2.829 22	0.353 46	1.237 88	1.591 34	0.777 89	1.285 53
1.050	2.857 65	0.349 94	1.253 86	1.603 79	0.781 81	1.279 09
1.060	2.886 37	0.346 46	1.269 96	1.616 41	0.785 66	1.272 81
1.070	2.915 38	0.343 01	1.286 18	1.629 19	0.789 46	1.266 69
1.080	2.944 68	0.339 60	1.302 54	1.642 14	0.793 20	1.260 72
1.090	2.974 27	0.336 22	1.319 03	1.655 24	0.796 88	1.254 90
1.100	3.004 17	0.332 87	1.335 65	1.668 52	0.800 50	1.249 22
1.110	3.034 36	0.329 56	1.352 40	1.681 96	0.804 06	1.243 68
1.120	3.064 85	0.326 28	1.369 29	1.695 57	0.807 57	1.238 28
1.130	3.095 66	0.323 03	1.386 31	1.709 34	0.811 02	1.233 02
1.140	3.126 77	0.319 82	1.403 48	1.723 29	0.814 41	1.227 88
1.150	3.158 19	0.316 64	1.420 78	1.737 42	0.817 75	1.222 86
1.160	3.189 93	0.313 49	1.438 22	1.751 71	0.821 04	1.217 97
1.170	3.221 99	0.310 37	1.455 81	1.766 18	0.824 27	1.213 19
1.180	3.254 37	0.307 28	1.473 55	1.780 83	0.827 45	1.208 53
1.190	3.287 08	0.304 22	1.491 43	1.795 65	0.830 58	1.203 98
1.200	3.320 12	0.301 19	1.509 46	1.810 66	0.833 66	1.199 54
1.210	3.353 48	0.298 20	1.527 64	1.825 84	0.836 68	1.195 20
1.220	3.387 19	0.295 23	1.545 98	1.841 21	0.839 65	1.190 97
1.230	3.421 23	0.292 29	1.564 47	1.856 76	0.842 58	1.186 83
1.240	3.455 61	0.289 38	1.583 12	1.872 50	0.845 46	1.182 79
1.250	3.490 34	0.286 51	1.601 92	1.888 42	0.848 28	1.178 85
1.260	3.525 42	0.283 65	1.620 88	1.904 54	0.851 06	1.175 00
1.270	3.560 85	0.280 83	1.640 01	1.920 84	0.853 80	1.171 24
1.280	3.596 64	0.278 04	1.659 30	1.937 34	0.856 48	1.167 56
1.290	3.632 79	0.275 27	1.678 76	1.954 03	0.859 13	1.163 97
1.300	3.669 30	0.272 54	1.698 38	1.970 91	0.86172	1.160 47

(Continued)

TABLE 4 EXPONENTIAL AND HYPERBOLIC FUNCTIONS — *Contd*

x	e^x	e^{-x}	$\sinh x$	$\cosh x$	$\tanh x$	$\cot 11 x$
1.310	3.706 17	0.269 82	1.718 18	1.988 00	0.864 28	1.157 04
1.320	3.743 42	0.267 14	1.738 14	2.005 28	0.866 78	1.153 69
1.330	3.781 04	0.264 48	1.758 28	2.022 76	0.869 25	1.150 42
1.340	3.819 04	0.261 85	1.778 60	2.040 44	0.871 67	1.147 22
1.350	3.857 43	0.259 24	1.799 09	2.058 33	0.874 05	1.144 10
1.360	3.896 19	0.256 66	1.819 77	2.076 43	0.876 39	1.141 04
1.370	3.935 35	0.254 11	1.840 62	2.094 73	0.878 69	1.138 06
1.380	3.974 90	0.251 58	1.861 66	2.113 24	0.880 95	1.135 14
1.390	4.014 85	0.249 08	1.882 89	2.131 96	0.883 17	1.132 28
1.400	4.055 20	0.246 60	1.904 30	2.150 80	0.885 35	1.129 50
1.410	4.095 96	0.244 14	1.925 91	2.170 08	0.887 49	1.126 77
1.420	4.137 12	0.241 71	1.947 70	2.189 42	0.889 60	1.124 10
1.430	4.178 70	0.239 31	1.969 70	2.209 00	0.891 67	1.121 50
1.440	4.220 70	0.236 93	1.991 88	2.228 81	0.893 70	1.118 95
1.450	4.263 12	0.234 57	2.014 27	2.248 84	0.895 69	1.116 45
1.460	4.305 96	0.232 24	2.036 86	2.269 10	0.897 65	1.114 02
1.470	4.349 24	0.229 92	2.059 66	2.289 58	0.899 58	1.111 63
1.480	4.392 95	0.227 64	2.082 65	2.310 29	0.901 47	1.109 30
1.490	4.437 10	0.225 37	2.105 86	2.331 23	0.903 32	1.107 02
1.500	4.481 69	0.223 13	2.129 28	2.352 41	0.905 15	1.104 79
1.510	4.526 73	0.220 91	2.152 91	2.373 82	0.906 94	1.102 61
1.520	4.472 22	0.218 71	2.176 76	2.395 47	0.908 70	1.10048
1.530	4.618 18	0.216 54	2.200 82	2.417 36	0.910 42	1.098 40
1.540	4.664 59	0.214 38	2.225 10	2.439 49	0.912 12	1.096 35
1.550	4.711 47	0.212 25	2.249 61	2.461 86	0.913 78	1.094 35
1.560	4.758 82	0.210 14	2.274 34	2.484 48	0.915 42	1.092 39
1.570	4.806 65	0.208 04	2.299 30	2.507 35	0.917 03	1.090 48
1.580	4.854 96	0.205 98	2.324 49	2.530 46	0.918 60	1.088 61
1.590	4.903 75	0.203 93	2.349 91	2.553 84	0.920 15	1.086 78
1.600	4.953 03	0.201 90	2.375 57	2.577 46	0.921 67	1.084 99
1.610	5.002 81	0.199 89	2.401 46	2.601 35	0.923 16	1.083 24
1.620	5.053 09	0.197 90	2.427 60	2.625 50	0.924 62	1.081 52
1.630	5.103 88	0.195 93	2.453 47	2.649 90	0.926 06	1.079 84
1.640	5.155 17	0.193 98	2.480 60	2.674 58	0.927 47	1.078 20
1.650	5.206 98	0.192 05	2.507 46	2.699 52	0.928 86	1.076 59
1.660	5.259 31	0.190 14	2.534 59	2.724 72	0.930 22	1.075 02
1.670	5.312 17	0.188 25	2.561 96	2.750 21	0.931 55	1.073 48
1.680	5.365 56	0.186 37	2.589 59	2.775 96	0.932 86	1.071 97
1.690	5.419 48	0.184 52	2.617 48	2.802 00	0.934 15	1.070 50
1.700	5.473 95	0.182 68	2.645 63	2.828 32	0.935 41	1.069 05
1.710	5.528 96	0.180 87	2.674 05	2.854 91	0.936 65	1.067 64
1.720	5.584 53	0.179 07	2.702 73	2.881 80	0.937 86	1.066 25
1.730	5.640 65	0.177 28	2.731 68	2.908 97	0.939 06	1.064 90
1.740	5.697 34	0.175 52	2.760 91	2.936 43	0.940 23	1.063 57
1.750	5.754 60	0.173 77	2.790 41	2.964 19	0.941 38	1.062 28
1.760	5.812 44	0.172 04	2.820 20	2.992 24	0.942 50	1.061 01
1.770	5.870 85	0.170 33	2.850 26	3.020 59	0.943 61	1.059 76
1.780	5.929 86	0.168 64	2.880 61	3.049 25	0.944 70	1.058 54
1.790	5.989 45	0.166 96	2.911 25	3.078 21	0.945 76	1.057 35
1.800	6.049 65	0.165 30	2.942 17	3.107 47	0.946 81	1.056 18
1.810	6.110 45	0.163 65	2.973 40	3.137 05	0.947 83	1.055 04
1.820	6.171 86	0.162 03	3.004 92	3.166 94	0.948 84	1.053 92
1.830	6.233 89	0.160 41	3.036 74	3.197 15	0.949 83	1.052 82
1.840	6.296 54	0.158 82	3.068 86	3.227 68	0.950 80	1.051 75
1.850	6.359 82	0.157 24	3.101 29	3.258 53	0.951 75	1.050 70
1.860	6.423 74	0.155 67	3.134 03	3.289 70	0.952 68	1.049 67
1.870	6.488 30	0.154 12	3.167 09	3.321 21	0.953 59	1.048 66
1.880	6.553 50	0.152 59	3.200 46	3.353 05	0.954 49	1.047 68
1.890	6.619 37	0.151 07	3.234 15	3.385 22	0.955 37	1.046 71
1.900	6.685 89	0.149 57	3.268 16	3.417 73	0.956 24	1.045 76
1.910	6.753 09	0.148 08	3.302 50	3.450 58	0.957 08	1.044 84
1.920	6.820 96	0.146 61	3.337 18	3.483 78	0.957 92	1.043 93
1.930	6.889 51	0.145 15	3.372 18	3.517 33	0.958 73	1.043 04
1.940	6.958 75	0.143 70	3.407 52	3.551 23	0.959 53	1.042 17
1.950	7.028 69	0.142 27	3.443 21	3.585 48	0.960 32	1.041 32

(Continued)

TABLE 4 EXPONENTIAL AND HYPERBOLIC FUNCTIONS — *Contd*

x	e^x	e^{-x}	$\sinh x$	$\cosh x$	$\tanh x$	$\coth x$
1.960	7.099 33	0.140 86	3.479 23	3.620 09	0.961 09	1.040 48
1.970	7.170 68	0.139 46	3.515 61	3.655 07	0.961 85	1.039 67
1.980	7.242 74	0.138 07	3.552 34	3.690 41	0.962 59	1.038 87
1.990	7.315 53	0.136 70	3.589 42	3.726 12	0.963 31	1.038 08
2.000	7.389 06	0.135 34	3.626 86	3.762 20	0.964 03	1.037 32
2.010	7.463 32	0.133 99	3.664 66	3.798 65	0.964 73	1.036 56
2.020	7.538 32	0.132 66	3.702 84	3.835 49	0.965 41	1.035 82
2.030	7.614 09	0.131 34	3.741 38	3.872 71	0.966 09	1.035 10
2.040	7.690 61	0.130 03	3.780 29	3.910 32	0.966 75	1.034 40
2.050	7.767 90	0.128 74	3.819 58	3.948 32	0.967 40	1.033 70
2.060	7.845 97	0.127 45	3.859 26	3.986 71	0.968 03	1.033 03
2.070	7.924 82	0.126 19	3.899 32	4.025 50	0.968 65	1.032 36
2.080	8.004 47	0.124 93	3.939 77	4.064 70	0.969 26	1.031 71
2.090	8.084 92	0.123 69	3.980 61	4.104 30	0.969 86	1.031 07
2.100	8.166 71	0.122 46	4.021 86	4.144 31	0.970 45	1.030 45
2.110	8.248 24	0.121 24	4.063 50	4.184 74	0.971 03	1.029 84
2.120	8.331 14	0.120 03	4.105 55	4.225 58	0.971 59	1.029 24
2.130	8.414 87	0.118 84	4.148 02	4.266 85	0.972 15	1.028 65
2.140	8.499 44	0.117 66	4.190 89	4.308 54	0.972 69	1.028 07
2.150	8.584 86	0.116 48	4.234 19	4.350 67	0.973 23	1.027 51
2.160	8.671 14	0.115 32	4.277 91	4.393 23	0.973 75	1.026 96
2.170	8.758 28	0.114 18	4.322 08	4.436 23	0.974 26	1.026 42
2.180	8.846 31	0.113 04	4.366 63	4.479 67	0.974 77	1.025 89
2.190	8.935 21	0.111 92	4.411 65	4.523 56	0.975 26	1.025 37
2.200	9.025 01	0.110 80	4.457 11	4.567 91	0.975 74	1.024 84
2.210	9.115 72	0.109 70	4.503 01	4.612 71	0.976 22	1.024 36
2.220	9.207 33	0.108 61	4.549 36	4.657 97	0.976 68	1.023 87
2.230	9.299 87	0.107 53	4.596 17	4.703 70	0.977 14	1.023 40
2.240	9.393 33	0.106 46	4.643 44	4.749 90	0.977 59	1.022 93
2.250	9.487 74	0.105 40	4.691 17	4.796 57	0.978 03	1.022 47
2.260	9.583 09	0.104 35	4.739 37	4.843 72	0.978 46	1.022 02
2.270	9.679 40	0.103 31	4.788 04	4.891 36	0.978 88	1.021 58
2.280	9.776 68	0.102 28	4.837 20	4.939 48	0.979 29	1.021 14
2.290	9.874 94	0.101 27	4.886 84	4.988 10	0.979 70	1.020 72
2.300	9.974 18	0.100 26	4.936 96	5.037 22	0.980 10	1.020 31
2.310	10.074 4	0.099 261	4.987 58	5.086 84	0.980 43	1.019 90
2.320	10.175 7	0.098 274	5.038 70	5.136 97	0.980 87	1.019 50
2.330	10.277 9	0.097 296	5.090 32	5.187 62	0.981 24	1.019 11
2.340	10.381 2	0.096 328	5.142 45	5.238 78	0.981 61	1.018 73
2.350	10.485 6	0.095 369	5.195 10	5.290 47	0.981 97	1.018 36
2.360	10.591 0	0.094 420	5.248 27	5.342 69	0.982 33	1.017 99
2.370	10.697 4	0.093 481	5.301 96	5.395 44	0.982 67	1.017 63
2.380	10.804 9	0.092 551	5.356 18	5.448 73	0.983 01	1.017 28
2.390	10.913 5	0.091 630	5.410 93	5.502 56	0.983 35	1.016 93
2.400	11.023 2	0.090 718	5.466 23	5.556 99	0.983 66	1.016 40
2.410	11.134 0	0.089 815	5.522 07	5.611 89	0.984 00	1.016 24
2.420	11.245 9	0.088 922	5.578 47	5.667 39	0.984 31	1.015 94
2.430	11.358 9	0.088 037	5.635 42	5.723 46	0.984 62	1.015 62
2.440	11.473 0	0.087 161	5.692 94	5.780 10	0.984 92	1.015 31
2.450	11.588 3	0.086 294	5.751 03	5.837 32	0.985 22	1.015 00
2.460	11.704 8	0.085 435	5.809 69	5.895 12	0.985 51	1.014 71
2.470	11.822 4	0.084 585	5.868 93	5.953 52	0.985 79	1.014 41
2.480	11.941 3	0.083 743	5.928 76	6.012 50	0.986 07	1.014 12
2.490	12.061 3	0.082 910	5.989 18	6.072 09	0.986 35	1.013 84
2.500	12.182 5	0.082 085	6.050 20	6.132 29	0.986 61	1.013 57
2.510	12.304 9	0.081 268	6.111 83	6.193 10	0.986 88	1.013 30
2.520	12.428 6	0.080 460	6.174 07	6.254 53	0.987 14	1.013 03
2.530	12.553 5	0.079 659	6.236 92	6.316 58	0.987 39	1.012 77
2.540	12.679 7	0.078 866	6.300 40	6.379 27	0.987 64	1.012 52
2.550	12.807 1	0.078 082	6.364 51	6.442 59	0.987 88	1.012 27
2.560	12.935 8	0.077 305	6.429 26	6.506 56	0.988 12	1.012 02
2.570	13.065 8	0.076 536	6.494 64	6.571 18	0.988 35	1.011 78
2.580	13.197 1	0.075 774	6.560 68	6.636 46	0.988 58	1.011 55
2.590	13.329 8	0.075 020	6.627 38	6.702 40	0.988 81	1.011 32
2.600	13.463 7	0.074 274	6.694 73	6.769 01	0.989 03	1.011 09

(Continued)

TABLE 4 EXPONENTIAL AND HYPERBOLIC FUNCTIONS — *Contd*

x	e^x	e^{-x}	$\text{Sinh } x$	$\text{Cosh } x$	$\text{Tanh } x$	$\text{Coth } x$
2.610	13.599 1	0-073 535	6-762 76	6.836 29	0-989 24	1.010 87
2.620	13.735 7	0-072 803	6-831 46	6.904 26	0.989 46	1-010 66
2.630	13.873 8	0-072 078	6.900 85	6.972 92	0.989 66	1-010 44
2-640	14.013 2	0-071 361	6-970 92	7.042 28	0.989 87	1.010 24
2.650	14.154 0	0.070 651	7.04169	7.112 34	0.990 07	1.010 33
2-660	14.296 3	0-069 948	7.113 17	7.183 12	0.990 26	1-009 83
2-670	14440 6	0.069 252	7.185 36	7.254 61	0-990 45	1-009 64
2-680	14.585 1	0-068 563	7.258 27	7-326 83	0.990 64	1-009 45
2-690	14.731 7	0.067 881	7.331 90	7-399 78	a-990 83	1-009 26
2-700	14.879 7	0.067 206	7.406 26	7.473 47	0-991 01	1-009 07
2.710	15.029 3	0.066 537	7.481 37	7.547 91	0.991 18	1-008 89
2.720	15-180 3	0.065 875	7-557 22	7.623 10	0.991 36	1.008 72
2-730	15-332 9	0.065 219	7-633 83	7-699 05	0.991 53	1-008 54
2-740	15-487 0	0-064 570	7-711 21	7-775 78	0-991 70	1-008 37
2.750	15-642 6	0.063 928	7.789 35	7-853 28	0.991 86	1-008 21
2.760	15-799 8	0-063 292	7-868 28	7.931 57	0-992 02	1-008 04
2.770	15-958 6	0-062 662	7.947 99	8.010 65	0.992 18	1-007 88
2-780	16-119 0	0.062 039	8-028 49	8.090 53	0-992 33	1-007 73
2.790	16-281 0	0.061421	8-109 80	8-171 22	0-992 48	1-007 57
2.800	16-444 6	0.060 810	8-191 92	8-252 73	0-992 63	1-007 42
2.810	16.609 9	0.060 205	8.274 86	8-335 06	0.992 78	1-007 28
2.820	16-776 8	0.059 606	8.358 62	8.418 23	0-992 92	1-007 13
2.830	16-945 5	0.059 013	8443 22	8-502 24	0-993 06	1-007 00
2.840	17.115 8	0.058 426	8.528 67	8.587 10	0-993 20	1-006 85
2.850	17.287 8	0-057 844	8.614 97	8-672 81	0.993 33	1-006 71
2-860	17.461 5	0.057 269	8-702 13	8.759 40	0.993 46	1-006 58
2-870	17.637 0	0.056 699	8-790 16	8.846 86	0.993 59	1-006 45
2-880	17-814 3	0.056 135	8-879 07	8.935 20	0.993 72	1-006 32
2-890	17-993 3	0-055 576	8.968 87	9-024 44	0-993 84	1-006 20
2-900	18.174 2	0-055 023	9.059 56	9-114 58	0.993 96	1-006 07
2.910	18.356 8	0.054 476	9.151 16	9-205 64	0.994 08	1-005 95
2.920	18.541 3	0.053 934	9.243 68	9-297 61	0-994 20	1-005 83
2.930	18.727 6	0.053 397	9.337 12	9-390 51	0-994 31	1-005 72
2-940	18-915 8	0.052 866	9.431 49	9-484 36	0.994 43	1-005 60
2.950	19.106 0	0.052 340	9.526 81	9-579 15	0.994 54	1-005 49
2.960	19.298 0	0-051 819	9.623 08	9-674 90	0-994 64	1-005 38
2.970	19.491 9	0.051 303	9.720 31	9-771 61	0-994 75	1-005 28
2.980	19.687 8	0.050 793	9.818 51	9.869 30	0-994 85	1-005 17
2.990	19.885 7	0-050 287	9.917 70	9.967 98	0-994 96	1.005 07
3.000	20.085 5	0-049 787	10.017 9	10.067 7	0-995 06	1-004 97
3-010	20.287 4	0.049 292	10.119 0	10.168 4	0-995 15	1-004 87
3-020	20-491 3	0.048 801	10-221 2	10.270 0	0.995 25	1-004 77
3.030	20697 2	0.048 316	10.324 5	10.372 8	0.995 34	1-004 68
3-040	20.905 2	0-047 835	10.428 7	10.476 5	0.995 43	1-004 59
3-050	21-115 3	0.047 359	10.534 0	10.5814	0-995 52	1-004 50
3.060	21.327 6	0.046 888	10.640 3	10-687 2	0.995 61	1-004 41
3.070	21.541 9	0-046 42 1	10.747 7	10-794 2	0.995 70	1-004 32
3.080	21.758 4	0.045 959	10.856 2	10-902 2	0-995 78	1-004 23
3-090	21-977 1	0.045 502	10.965 8	11-011 3	0-995 87	1-004 15
3.100	22.198 0	0-045 049	11-076 4	11-121 5	0.995 95	1-004 07
3.110	22-421 0	0.044 601	11-188 2	11.232 8	0-996 03	1-004 00
3-120	22.646 4	0-044 157	11-301 1	11-345 3	0.996 11	1-003 91
3-130	22-874 0	0.043 718	11.415 1	11-458 9	0.996 18	1-003 83
3.140	23.103 9	0-043 283	11-530 3	11-573 6	0.996 26	1-003 75
3.150	23.336 1	0-042 852	11.646 6	11.689 5	0-996 33	1-003 68
3.160	23-570 6	0-042 426	11.764 1	11.806 5	0.996 41	1-003 61
3.170	23-807 5	0.042 004	11.882 7	11-924 7	0.996 48	1-003 54
3.180	24.046 8	0-041 586	12.002 6	12-044	0.996 55	1-003 46
3.190	24-288 4	0-041 172	12-123 6	12-164 3	0.996 62	1-003 40
3-200	24.532 5	0-040 762	12.245 9	12.286 6	0.996 68	1-003 33
3.210	24.779 1	0-040 357	12.369 4	12-409 7	0-996 75	1-003 26
3.220	25-028 1	0.039 955	12-494 1	12.534 0	0.996 81	1-003 20
3.230	25-279 7	0-039 557	12-620 0	12-659 6	0-996 88	1-003 13
3-240	25-533 7	0-039 164	12-742 8	12.786 4	0-996 94	1-003 07
3-250	25-790 3	0-038 774	12.875 8	12-914 6	0.997 00	1-003 01

(Continued)

TABLE 4 EXPONENTIAL AND HYPERBOLIC FUNCTIONS — *Contd*

x	e^x	e^{-x}	$\sinh x$	$\cosh x$	$\tanh x$	$\coth x$
3-260	26-049 5	0-038 388	13-005 6	13.044 0	0-997 06	1-002 95
3-270	26.311 3	0.038 006	13-136 7	13.174 7	0.997 12	1-002 89
3-280	26-575 8	0-037 628	13-269 1	13-306 7	0-997 17	1.002 84
3-290	26-842 9	0-037 254	13-402 8	13.440 1	0-997 23	1-002 78
3.300	27.112 6	0-036 883	13-537 9	13-574 8	0-997 28	1-002 72
3-310	27.385 1	0.036 516	13-674 3	13.710 8	0.997 34	1-002 67
3-320	27-660 4	0-036 153	13-812 1	13-848 2	0.997 39	1-002 62
3-330	27-938 3	0-035 793	13.951 3	13.987 1	0-997 44	1-002 57
3-340	28.219 1	0-035 437	14-091 8	14.127 3	0-997 49	1-002 52
3-350	28.502 7	0-035 084	14-233 8	14.268 9	0.997 54	1-002 46
3.360	28.789 2	0.034 73s	14-377 2	14.412 0	0.997 59	1-002 42
3-370	29-078 5	0.034 390	14.522 1	14-556 5	0-997 61	1-002 37
3-380	29-370 8	0.034 047	14-668 4	14-702 4	0-997 68	1-002 32
3.390	29-666 0	0.033 709	14.816 1	14.849 8	0.997 73	1-002 28
3.400	29-964 1	0.033 373	14.965 4	14.998 7	0.997 78	1-002 23
3-410	30-265 2	0.033 041	15-116 1	15-149 1	0.997 82	1-002 19
3.420	30-569 4	0-032 712	15-268 4	15.301 1	0.997 86	1-002 14
3-430	30876 6	0-032 387	15.422 1	15-454 5	0.997 90	1-002 10
3-440	31.187 0	0-032 065	15-577 4	15-609 5	0-997 95	1-002 06
3-450	31.5004	0-031 746	15-734 3	15.766 1	0-997 99	1-002 02
3-460	31.817 0	0-031 430	15-892 8	15.924 2	0.998 03	1-001 98
3-470	32.136 7	0-031 117	16-052 8	16-083 9	0-998 06	1-001 94
3-480	32.459 7	0.030 807	16-214 5	16.245 3	0-998 10	1-001 90
3.490	32.786 0	0.030 501	16.377 7	16.408 2	0.998 14	1-001 86
3-500	33-115 4	0.030 197	16-542 6	16-572 8	0.998 18	1-001 82
3-510	33448 3	0-029 897	16.709 2	16.739 1	0.998 21	1-001 78
3-520	33.784 4	0-029 599	16.877 4	16.907 0	0.998 25	1.00175
3.530	34.124 0	0.029 30.5	17.047 3	17.076 6	0.998 28	1.001 72
3.540	34.467 0	0.029 013	17-219 0	17-248 0	0.998 32	1-001 68
3-550	34.813 3	0-028 728	17-392 3	17.421 0	0.998 3.5	1-001 65
3.560	35-163 2	0-028 439	17-567 4	17-595 8	0.998 38	1-001 62
3.570	35-516 6	0-028 1.56	17-744 2	17-772 4	0.998 42	1-001 59
3.580	35-873 5	0.027 876	17-922 8	17-950 7	0.998 45	1-001 55
3.590	36-234 1	0.027 598	18.103 2	18.130 8	0-998 48	1-001 52
3-600	36.598 2	0.027 324	18.285 5	18.312 8	0.998 51	1.00149
3-610	36-966 0	0.027 052	18.469 5	18-496 6	0-998 54	1-001 46
3-620	37.337 6	0-026 783	18-655 4	18-682 2	0-998 57	1-001 44
3-630	37.712 8	0-026 516	18-843 2	18.869 7	0.998 60	1-001 41
3.640	38.0918	0-026 252	19-032 8	19.059 0	0.998 62	1-001 38
3-650	38.474 7	0-025 991	19.224 3	19-250 3	0.998 65	1-001 35
3.660	38-861 3	0-025 733	19.417 8	19443 5	0-998 68	1-001 32
3.670	39.251 9	0.025 476	19.613 2	19.638 7	0.998 70	1-001 30
3-680	39.646 4	0.025 223	19.810 6	19-835 8	0.998 73	1-001 27
3.690	40.044 8	0.024 972	20-009 9	20-034 9	0.998 75	1-001 25
3-700	40447 3	0-024 724	20.211 3	20-236 0	0.998 78	1-001 22
3-710	40.853 8	0-024 478	20.414 7	20.439 1	0.998 80	1-001 20
3-720	41.264 4	0-024 234	20-620 1	20-644 3	0.998 83	1-001 18
3.730	41.679 1	0-023 993	20-827 6	20-851 6	0-998 85	1-001 15
3.740	42.098 0	0-023 754	21-037 1	21-060 9	0.998 87	1-001 13
3-750	42-521 1	0.023 518	21.248 8	21.272 3	0.998 89	1-001 11
3-760	42.948 4	0-023 284	21-462 6	21.485 8	0.998 92	1-001 08
3.770	43.380 1	0-023 052	21-678 5	21.701 6	0-998 94	1-001 06
3.780	43.816 0	0.022 823	21.896 6	21.919 4	0.998 96	1-001 04
3.790	44-256 4	0.022 596	22.116 9	22.139 5	0-998 98	1-001 02
3-800	44.701 2	0-022 371	22.339 4	22.361 8	0.999 00	1-001 00
3.810	45-150 4	0-022 148	22.564 2	22.586 3	0.999 02	1-000 98
3.820	45-604 2	0-021 928	22.791 1	22.813 1	0-999 04	1-000 96
3.830	46-062 5	0.021 710	23-020 4	23-042 1	0-999 06	1-000 94
3-840	46-525 5	0-021 494	23-252 0	23-273 5	0-999 08	1-000 92
3.850	46.993 1	0-021 280	23.485 9	23-507 2	0.999 10	1-000 91
3-860	47-465 4	0.021068	23.722 1	23.743 2	0-999 11	1-000 89
3-870	47-942 4	0.020 858	23-960 8	23.981 6	0.999 13	1-000 87
3.880	48.424 2	0.020 651	24.201 8	24-222 4	0.999 15	1-000 85
3-890	48.910 9	0-020 445	24445 2	24.465 7	0.999 16	1-000 84
3.900	49402 4	0.020 242	24.691 1	24-711 3	0.999 18	1-000 82

(Continued)

TABLE 4 EXPONENTIAL AND HYPERBOLIC FUNCTIONS —Contd

x	e^x	e^{-x}	$\text{Sinh } x$	$\text{Cosh } x$	$\text{Tanh } x$	$\text{Coth } x$
3.910	49.899 0	0.020 041	24.939 5	24.959 5	0.999 20	1.000 80
3.920	80.404 4	0.019 841	25.190 3	25.210 1	0.999 21	1.000 79
3.930	50.907 0	0.019 644	25.443 7	25.463 3	0.999 23	1.000 77
3.940	51.418 6	0.019 448	25.699 6	25.719 0	0.999 24	1.000 76
3.950	51.935 4	0.019 255	25.958 1	25.977 3	0.999 26	1.000 74
3.960	52.457 3	0.019 063	26.219 1	26.238 2	0.999 27	1.000 73
3.970	52.984 5	0.018 873	26.482 8	26.501 7	0.999 29	1.000 71
3.980	53.517 0	0.018 686	26.749 2	26.767 9	0.999 30	1.000 70
3.990	54.054 9	0.018 500	27.018 2	27.036 7	0.999 32	1.000 68
4.000	54.598 2	0.018 316	27.289 9	27.308 2	0.999 33	1.000 67
4.010	55.146 9	0.018 133	27.564 4	27.582 5	0.999 34	1.000 66
4.020	55.701 1	0.017 953	27.841 6	27.859 5	0.999 36	1.000 64
4.030	56.260 9	0.017 774	28.121 6	28.139 3	0.999 37	1.000 63
4.040	56.826 3	0.017 597	28.404 4	28.422 0	0.999 38	1.000 62
4.050	57.397 5	0.017 422	28.690 0	28.707 4	0.999 39	1.000 61
4.060	57.974 3	0.017 249	28.978 5	28.995 8	0.999 40	1.000 60
4.070	58.557 0	0.017 077	29.269 9	29.287 0	0.999 42	1.000 58
4.080	59.145 5	0.016 507	29.564 3	29.581 2	0.999 43	1.000 57
4.090	59.739 3	0.016 739	29.861 6	29.878 3	0.999 44	1.000 56
4.100	60.340 3	0.016 573	30.161 9	30.178 4	0.999 45	1.000 55
4.110	60.946 7	0.016 408	30.465 2	30.481 6	0.999 46	1.000 54
4.120	61.559 2	0.016 245	30.771 5	30.787 7	0.999 47	1.000 53
4.130	62.177 9	0.016 083	31.080 9	31.097 0	0.999 48	1.000 52
4.140	62.802 s	0.015 923	31.353 4	31.409 4	0.999 49	1.000 51
4.150	63.434 0	0.015 764	31.709 1	31.724 9	0.999 50	1.000 so
4.160	64.071 5	0.015 60s	32.028 0	32.043 6	0.999 51	1.000 49
4.170	64.715 5	0.015 452	32.350 0	32.365 5	0.999 52	1.000 48
4.180	65.365 9	0.015 259	32.675 3	32.690 6	0.999 53	1.000 47
4.190	66.022 8	0.015 146	33.003 8	33.019 0	0.999 54	1.000 46
4.200	66.686 3	0.014 556	33.335 7	33.350 7	0.999 55	1.000 45
4.210	67.356 5	0.014 846	33.670 8	33.685 7	0.999 56	1.000 44
4.220	68.033 5	0.014 655	34.009 4	34.024 1	0.999 57	1.000 43
4.230	68.717 2	0.014 552	34.351 3	34.365 5	0.999 58	1.000 42
4.240	69.43. 9	0.014 408	34.696 7	34.711 1	0.999 58	1.000 42
4.250	70.105 4	0.014 264	35.045 6	35.059 8	0.999 59	1.000 41
4.260	70.816 0	0.014 122	35.397 9	35.412 1	0.999 60	1.000 40
4.270	71.521 6	0.013 982	35.753 8	35.767 8	0.999 61	1.000 39
4.280	72.240 4	0.013 843	36.113 3	36.127 1	0.999 62	1.000 38
4.290	72.966 5	0.013 705	36.476 4	36.490 1	0.999 62	1.000 38
4.300	73.69 8	0.013 569	36.843 1	36.856 7	0.999 63	1.000 37
4.310	74.440 5	0.013 434	37.213 5	37.227 0	0.999 64	1.000 36
4.320	75.188 6	0.013 300	37.587 7	37.601 0	0.999 65	1.000 35
4.330	75.944 3	0.013 168	37.965 6	37.978 7	0.999 65	1.000 35
4.340	76.707 5	0.013 037	38.347 3	38.360 3	0.999 66	1.000 34
4.350	77.478 5	0.012 507	38.732 8	38.745 7	0.999 67	1.000 33
4.360	78.237 1	0.012 778	39.122 2	39.135 0	0.999 67	1.000 33
4.370	79.043 6	0.012 651	39.515 5	39.528 1	0.999 68	1.000 32
4.380	79.838 0	0.012 525	39.912 8	39.925 3	0.999 65	1.000 31
4.390	80.640 4	0.012 401	40.314 0	40.326 4	0.999 65	1.000 31
4.400	81.450 9	0.012 277	40.719 3	40.731 6	0.999 70	1.000 30
4.410	82.269 5	0.012 155	41.128 7	41.140 8	0.999 70	1.000 30
4.420	83.090 6	0.012 034	41.542 1	41.554 2	0.999 71	1.000 29
4.430	83.931 4	0.011 514	41.959 8	41.971 7	0.999 72	1.000 28
4.440	84.774 9	0.011 796	42.381 6	42.393 4	0.999 72	1.000 28
4.450	85.626 5	0.011 479	42.807 6	42.819 3	0.999 73	1.000 27
4.460	86.487 5	0.011 562	43.238 0	43.249 5	0.999 73	1.000 27
4.470	87.356 7	0.011 447	43.672 6	43.684 1	0.999 74	1.000 26
4.480	88.234 7	0.011 333	44.111 7	44.123 0	0.999 74	1.000 26
4.490	89.121 4	0.011 221	44.555 1	44.566 3	0.999 75	1.000 25
4.500	90.017 1	0.011 109	45.003 0	45.014 1	0.999 75	1.000 25
4.510	90.921 8	0.010 558	45.455 4	45.466 4	0.999 758	1.000 242
4.520	91.833 6	0.010 889	45.912 4	45.923 2	0.999 763	1.000 237
4.530	92.758 6	0.010 781	46.373 9	46.384 7	0.999 76s	1.000 232
4.540	93.690 8	0.010 673	46.840 1	46.850 7	0.999 772	1.000 228
4.550	54.632 4	0.010 567	47.310 9	47.321 5	0.999 777	1.000 223

(Continued)

TABLE 4 EXPONENTIAL AND HYPERBOLIC FUNCTIONS — *Contd*

x	e^x	e^{-x}	$\sinh x$	$\cosh x$	$\tanh x$	$\coth x$
4.560	95.583 5	0.010 462	47.786 5	47.797 0	0.999 781	1.000 219
4.570	96.544 1	0.010 358	48.266 9	48.277 2	0.999 785	1.000 215
4.580	97.514 4	0.010 255	48.752 1	48.762 3	0.999 790	1.000 210
4.590	98.494 4	0.010 153	49.242 1	49.252 3	0.999 794	1.000 206
4.600	99.484 3	0.010 052	49.737 1	49.747 2	0.999 798	1.000 202
4.610	100.484	0.009 952	50.237 1	50.247 1	0.999 802	1.000 198
4.620	101.494	0.009 853	50.742 1	50.751 9	0.999 806	1.000 194
4.630	102.514	0.009 755	51.252 2	51.261 9	0.999 810	1.000 190
4.640	103.544	0.009 658	51.767 3	51.777 0	0.999 813	1.000 187
4.650	104.585	0.009 562	52.287 7	52.297 3	0.999 817	1.000 183
4.660	105.636	0.009 466	52.813 3	52.822 8	0.999 821	1.000 179
4.670	106.698	0.009 372	53.344 2	53.353 6	0.999 824	1.000 176
4.680	107.770	0.009 279	53.880 4	53.889 7	0.999 828	1.000 172
4.690	108.853	0.009 187	54.422 0	54.431 2	0.999 831	1.000 169
4.700	109.947	0.009 095	54.969 0	54.978 1	0.999 835	1.000 165
4.710	111.052	0.009 005	55.521 6	55.530 6	0.999 838	1.000 162
4.720	112.168	0.008 915	56.079 7	56.088 6	0.999 841	1.000 159
4.730	113.296	0.008 826	56.643 4	56.652 2	0.999 844	1.000 156
4.740	114.434	0.008 739	57.212 7	57.221 5	0.999 847	1.000 153
4.750	115.584	0.008 652	57.787 8	57.796 5	0.999 850	1.000 150
4.760	116.746	0.008 566	58.368 7	58.377 2	0.999 853	1.000 147
4.770	117.919	0.008 480	58.955 4	58.963 9	0.999 856	1.000 144
4.780	119.104	0.008 396	59.548 0	59.556 4	0.999 859	1.000 141
4.790	120.301	0.008 312	60.146 5	60.154 8	0.999 862	1.000 138
4.800	121.510	0.008 230	60.751 1	60.759 3	0.999 865	1.000 135
4.810	122.732	0.008 148	61.361 7	61.369 9	0.999 867	1.000 133
4.820	123.965	0.008 067	61.978 5	61.986 6	0.999 870	1.000 130
4.830	125.211	0.007 987	62.601 5	62.609 5	0.999 872	1.000 128
4.840	126.469	0.007 907	63.230 7	63.238 6	0.999 875	1.000 123
4.850	127.740	0.007 828	63.866 3	63.874 1	0.999 877	1.000 123
4.860	129.024	0.007 750	64.508 2	64.516 0	0.999 880	1.000 120
4.870	130.321	0.007 673	65.156 6	65.164 3	0.999 882	1.000 118
4.880	131.631	0.007 597	65.811 5	65.819 1	0.999 885	1.000 115
4.890	132.954	0.007 521	66.473 0	66.480 5	0.999 887	1.000 113
4.900	134.290	0.007 447	67.141 2	67.148 6	0.999 889	1.000 111
4.910	135.639	0.007 372	67.816 0	67.823 4	0.999 891	1.000 109
4.920	137.003	0.007 299	68.497 7	68.505 0	0.999 893	1.000 107
4.930	138.380	0.007 227	69.186 1	69.193 4	0.999 896	1.000 104
4.940	139.770	0.007 155	69.881 5	69.888 7	0.999 898	1.000 102
4.950	141.175	0.007 083	70.583 9	70.591 0	0.999 900	1.000 100
4.960	142.594	0.007 013	71.293 4	71.300 4	0.999 902	1.000 098
4.970	144.027	0.006 943	72.010 0	72.016 9	0.999 904	1.000 096
4.980	145.474	0.006 874	72.733 8	72.740 6	0.999 905	1.000 095
4.990	146.936	0.006 806	73.464 8	73.471 6	0.999 907	1.000 093
5.000	148.413	0.006 738	74.203 2	74.209 9	0.999 909	1.000 091
5.010	149.905	0.006 671	74.949 0	74.955 7	0.999 911	1.000 089
5.020	151.411	0.006 605	75.702 3	75.709 0	0.999 913	1.000 087
5.030	152.933	0.006 539	76.463 2	76.469 8	0.999 914	1.000 086
5.040	154.470	0.006 474	77.231 8	77.238 2	0.999 916	1.000 084
5.050	156.022	0.006 409	78.008 0	78.014 4	0.999 918	1.000 082
5.060	157.590	0.006 346	78.792 1	78.798 4	0.999 919	1.000 081
5.070	159.174	0.006 282	79.584 0	79.590 3	0.999 921	1.000 079
5.080	160.774	0.006 220	80.383	80.390 1	0.999 923	1.000 077
5.090	162.390	0.006 158	81.191 8	81.198 0	0.999 924	1.000 076
5.100	164.022	0.006 097	82.007 9	82.014 0	0.999 926	1.000 074
5.110	165.670	0.006 036	82.832 2	82.838 2	0.999 927	1.000 07 3
5.120	167.335	0.005 976	83.664 7	83.670 7	0.999 929	1.000 071
5.130	169.017	0.005 917	84.505 6	84.511 5	0.999 930	1.000 070
5.140	170.716	0.005 858	85.355 0	85.360 8	0.999 931	1.000 069
5.150	172.432	0.005 799	86.212 8	86.218 6	0.999 933	1.000 067
5.160	174.164	0.005 742	87.079 4	87.085 7	0.999 934	1.000 066
5.170	175.915	0.005 685	87.954 6	87.960 3	0.999 935	1.000 065
5.180	177.683	0.005 628	88.838 6	88.844 2	0.999 937	1.000 063
5.190	179.469	0.005 572	89.731 5	89.737 1	0.999 938	1.000 062
5.200	181.272	0.005 517	90.633 4	90.638 9	0.999 939	1.000 06 1

(Continued)

TABLE 4 EXPONENTIAL AND HYPERBOLIC FUNCTIONS — *Contd*

x	e^x	e^{-x}	$\text{Sinh } x$	$\text{Cosh } x$	$\text{Tanh } x$	$\text{Coth } x$
5·210	183.094	0·005 462	91.544 3	91.549 8	0·999 940	1·000 060
5·220	184·934	0·005 407	92.464 4	92·469 8	0·999 942	1·000 058
5·230	186·793	0·005 354	93.393 7	93·399 1	0·999 943	1·000 057
5·240	188.670	0.005 300	94·332 4	94.337 7	0.999 944	1·000 056
5·250	190.566	0·005 248	95·280 5	95·285 8	0.999 945	1·000 055
5.260	192.482	0.005 19s	96.238 1	96.243 3	0.999 946	1·000 054
5·270	194.416	0.005 144	97·205 4	97.210 6	0·999 947	1·000 053
5·280	196.370	0.005 092	98·182 4	98.187 5	0·999 948	1·000 052
5·290	198.343	WOOS 042	99.163 2	99.174 2	0·999 949	1.000 051
5·300	200.337	0·004 992	100.166	100·171	0.999 950	1·000 050
5·310	202·350	0.004 942	101·173	101.178	0.999 951	1·000 049
5·320	204·384	0·004 893	102.190	102.194	0.999 952	1·000 048
5·330	206.438	0.004 844	103.217	103.221	0.999 953	1·000 047
5·340	208·513	0·004 796	104.254	104.259	0.999 954	1·000 046
5·350	210.608	0.004 748	105·302	105.307	0.999 955	1·000 045
5.360	212.725	0·004 701	106.360	106.365	0.999 956	1~000044
5·370	214.863	0·004 654	107.429	107.434	0.999 957	1·000 043
5·380	217.022	0·004 608	108.509	108.513	0·999 958	1·000 042
5·390	219.203	0·004 562	109.599	109.604	0.999 958	1·000 042
5·400	221.406	0.004 517	110.701	110.706	0.999 959	1·000 041
5·410	223.632	0.004 472	111.814	111.818	0.999 960	1·000 040
5·420	225·879	0·004 427	112.937	112.942	0.999 961	1·000 039
5·430	228.149	0 004 383	114.072	114.077	0·999 962	1·000 038
5.440	230.442	0·004 339	115·219	115·223	0.999 962	1·000 038
5·450	232.758	0.004 296	116.377	116.381	0·999 963	1·000 037
5·460	235·097	0.004 254	117.547	117·551	0.999 964	1·000 036
5·470	237.460	0·004 211	118.728	118.732	0.999 965	1·000 035
5. 4 8 0	239.847	0·004 169	119.921	119.925	0.999 965	1·000 035
5·490	242.257	0·004 128	121.127	121.131	0.999 966	1·000 034
5.500	244.692	0.004 087	122.344	122.348	0·999 967	1·000 033
5·510	247.151	0·004 046	123·574	123.578	0·999 967	1·000 033
5.520	249.635	0·004 006	124.812	124.820	0·999 968	1·000 032
5·530	252·144	0.003 966	126.070	126.074	0.999 969	1·000 031
5.540	254·678	0·003 927	127.337	127.341	0·999 969	1·000 031
5·550	257.238	0·003 887	i28.617	128.621	0.999 970	1·000 030
5·560	259·823	0.003 849	129.910	129.913	0.999 970	1·000 030
5·570	262.434	0.003 810	131.215	131.219	0.999 971	1·000 029
5.580	265·072	0.003 773	132.534	132.538	0·999 972	1·000 028
5.590	267.736	0·003 73s	133.866	133.870	0·999 972	1·000 028
5.600	270.426	0.003 698	135·211	135·215	0.999 973	1·000 027
5.610	273·144	0·003 661	136.570	136.574	0.999 973	1·000 027
5·620	275.889	0·003 625	137.943	137.946	0.999 974	1·000 026
5.630	278.662	0.003 589	139.329	139.333	0·999 974	1·000 026
5.640	281.463	0·003 553	140.730	140.733	0.999 97s	1·000 025
5·650	284.202	0·003 518	142.144	142·148	0.999 97s	1·000 025
5.660	287.149	0.003 483	143.573	143·576	0.999 976	1·000 024
5·670	290.034	0.003 448	145·016	145.019	0.999 976	1·000 024
5·680	292.949	0·003 414	146·473	146.476	0·999 977	1·000 023
5.690	295·894	0·003 380	147.945	147.948	0.999 977	1·000 023
5·700	298.867	0·003 346	149.432	149.435	0.999 978	1·000 022
5·710	301.871	0.003 313	150·934	150.937	0.999 978	1·000 022
5·720	304·905	0·003 280	152·451	152.454	0.999 978	1·000 022
5.730	307.969	0.003 247	153·983	153.986	0.999 979	1·000 021
5.740	311.064	0.003 215	155·531	155·534	0.999 979	1·000 021
5·750	314·191	0·003 183	157·094	157·097	0·999 980	1·000 020
5·760	317.348	0.003 151	158·673	158.676	0.999 980	1·000 020
5·770	320·538	0·003 120	160.267	160.270	0.999 981	1·000 019
5·780	323.759	0·003 089	161.878	161.881	0.999 981	1·000 019
5·790	327·013	0·003 058	163·505	163·508	0·999 981	1·000 019
5·800	330·300	0.003 028	165·148	165.151	0.999 982	1·000 018
5·810	333·619	0·002 997	166.808	166.811	0·999 982	1·000 018
5·820	336·972	0.002 968	168·484	168.488	0·999 982	1·000 018
5·830	340·359	0·002 938	170.178	170.181	0·999 983	1·000 017
5·840	343.779	0·002 909	171.888	171.891	0.999 983	1·000 017
5·850	347.234	0·002 880	173.616	173·619	0.999 983	1·000 017

(Continued)

TABLE 4 EXPONENTIAL AND HYPERBOLIC FUNCTIONS — *Contd*

x	e^x	e^{-x}	Sinh x	Cosh x	Tanh x	Coth x
5.860	350.724	0.002 851	175.361	175.364	0.999 984	1.000 016
5.870	354.249	0.002 823	177.123	177.126	0.999 984	1.000 016
5.880	357.809	0.002 795	178.903	178.906	0.999 984	1.000 016
5.890	361.405	0.002 767	180.701	180.701	0.999 985	1.000 015
5.900	365.038	0.002 739	182.517	182.520	0.999 985	1.000 015
5.910	368.706	0.002 712	184.352	184.354	0.999 985	1.000 015
5.920	372.412	0.002 685	186.204	186.207	0.999 986	1.000 014
5.930	376.154	0.002 658	188.076	188.079	0.999 986	1.000 014
5.940	379.935	0.002 632	189.966	189.969	0.999 986	1.000 014
5.950	383.753	0.002 606	191.875	191.878	0.999 986	1.000 014
5.960	387.610	0.002 580	193.804	193.806	0.999 987	1.000 013
5.970	391.506	0.002 554	195.752	195.754	0.999 987	1.000 013
5.980	395.440	0.002 529	197.719	197.721	0.999 987	1.000 013
5.990	399.415	0.002 504	199.706	199.709	0.999 987	1.000 013
6.000	403.429	0.002 479	201.713	201.716	0.999 988	1.000 012

TABLE 5A EXPONENTIAL FUNCTIONS* (e^{-x})

x	e^{-x}	x	e^{-x}	x	e^{-x}	x	e^{-x}	x	e^{-x}	x	e^{-x}
6.01	0.002 454	6.41	0.001 645	6.81	0.001 103	7.21	0.000 739	7.6	0.000 500	10.1	0.000 041
6.02	0.002 430	6.42	0.001 629	6.82	0.001 092	7.22	0.000 732	7.7	0.000 453	10.2	0.000 037
6.03	0.002 405	6.43	0.001 612	6.83	0.001 081	7.23	0.000 725	7.8	0.000 410	10.3	0.000 034
6.04	0.002 382	6.44	0.001 596	6.84	0.001 070	7.24	0.000 717	7.9	0.000 371	10.4	0.000 030
6.05	0.002 358	6.45	0.001 581	6.85	0.001 059	7.25	0.000 710	8.0	0.000 335	10.5	0.000 028
6.06	0.002 334	6.46	0.001 565	6.86	0.001 049	7.26	0.000 703	8.1	0.000 304	10.6	0.000 025
6.07	0.002 311	6.47	0.001 549	6.87	0.001 038	7.27	0.000 696	8.2	0.000 275	10.7	0.000 023
6.08	0.002 288	6.48	0.001 534	6.88	0.001 028	7.28	0.000 689	8.3	0.000 249	10.8	0.000 020
6.09	0.002 265	6.49	0.001 519	6.89	0.001 018	7.29	0.000 682	8.4	0.000 225	10.9	0.000 018
6.10	0.002 243	6.50	0.001 503	6.90	0.001 008	7.30	0.000 676	8.5	0.000 203	11.0	0.000 017
6.11	0.002 221	6.51	0.001 488	6.91	0.000 998	7.31	0.000 669	8.6	0.000 184	11.1	0.000 015
6.12	0.002 198	6.52	0.001 474	6.92	0.000 988	7.32	0.000 662	8.7	0.000 167	11.2	0.000 014
6.13	0.002 177	6.53	0.001 459	6.93	0.000 978	7.33	0.000 656	8.8	0.000 151	11.3	0.000 012
6.14	0.002 155	6.54	0.001 444	6.94	0.000 968	7.34	0.000 649	8.9	0.000 136	11.4	0.000 011
6.15	0.002 133	6.55	0.001 430	6.95	0.000 959	7.35	0.000 643	9.0	0.000 123	11.5	0.000 010
6.16	0.002 112	6.56	0.001 416	6.96	0.000 949	7.36	0.000 636	9.1	0.000 112	11.6	0.000 009
6.17	0.002 091	6.57	0.001 402	6.97	0.000 940	7.37	0.000 630	9.2	0.000 101	11.7	0.000 008
6.18	0.002 070	6.58	0.001 388	6.98	0.000 930	7.38	0.000 624	9.3	0.000 091	11.8	0.000 008
6.19	0.002 050	6.59	0.001 374	6.99	0.000 921	7.39	0.000 617	9.4	0.000 083	11.9	0.000 007
6.20	0.002 029	6.60	0.001 360	7.00	0.000 912	7.40	0.000 611	9.5	0.000 075	12.0	0.000 006
6.21	0.002 009	6.61	0.001 347	7.01	0.000 903	7.41	0.000 605	9.6	0.000 068	12.1	0.000 006
6.22	0.001 989	6.62	0.001 333	7.02	0.000 894	7.42	0.000 599	9.7	0.000 061	12.2	0.000 005
6.23	0.001 969	6.63	0.001 320	7.03	0.000 885	7.43	0.000 593	9.8	0.000 055	12.3	0.000 005
6.24	0.001 950	6.64	0.001 307	7.04	0.000 876	7.44	0.000 587	9.9	0.000 050	12.4	0.000 004
6.25	0.001 930	6.65	0.001 294	7.05	0.000 867	7.45	0.000 581	10.0	0.000 045	12.5	0.000 004
6.26	0.001 911	6.66	0.001 281	7.06	0.000 859	7.46	0.000 576				
6.27	0.001 892	6.67	0.001 268	7.07	0.000 850	7.47	0.000 570				
6.28	0.001 873	6.68	0.001 256	7.08	0.000 842	7.48	0.000 564				
6.29	0.001 855	6.69	0.001 243	7.09	0.000 833	7.49	0.000 559				
6.30	0.001 836	6.70	0.001 231	7.10	0.000 825	7.50	0.000 553				
6.31	0.001 818	6.71	0.001 219	7.11	0.000 817						
6.32	0.001 800	6.72	0.001 207	7.12	0.000 809						
6.33	0.001 782	6.73	0.001 195	7.13	0.000 801						
6.34	0.001 764	6.74	0.001 183	7.14	0.000 793						
6.35	0.001 747	6.75	0.001 171	7.15	0.000 785						
6.36	0.001 729	6.76	0.001 159	7.16	0.000 777						
6.37	0.001 712	6.77	0.001 148	7.17	0.000 769						
6.38	0.001 695	6.78	0.001 136	7.18	0.000 762						
6.39	0.001 678	6.79	0.001 125	7.19	0.000 754						
6.40	0.001 662	6.80	0.001 114	7.20	0.000 747						

*For values corresponding to x 6.00 or less Table 4 may be referred.

TABLE 5B EXPONENTIAL FUNCTIONS* (e^x)

x	e^x	x	e^x	x	e^x	x	e^x
6.00	403.429	6.50	665.142	7.00	1 096.63	7.50	1 808.04
6.01	407.483	6.51	671.826	7.01	1 107.66	7.51	1 826.21
6.02	411.579	6.52	678.578	7.02	1 118.79	7.52	1 844.57
6.03	415.715	6.53	685.398	7.03	1 130.03	7.53	1 863.11
6.04	419.893	6.54	692.287	7.04	1 141.39	7.54	1 881.83
6.05	424.113	6.55	699.244	7.05	1 152.86	7.55	1 900.74
6.06	428.375	6.56	706.272	7.06	1 164.44	7.56	1 919.85
6.07	432.681	6.57	713.370	7.07	1 176.15	7.57	1 939.14
6.08	437.029	6.58	720.539	7.08	1 187.97	7.58	1 958.63
6.09	441.421	6.59	727.781	7.09	1 199.91	7.59	1 978.31
6.10	445.858	6.60	735.095	7.10	1 211.97	7.60	1 998.20
6.11	450.339	6.61	742.483	7.11	1 224.15	7.61	2 018.28
6.12	454.865	6.62	749.945	7.12	1 236.45	7.62	2 038.56
6.13	459.436	6.63	757.482	7.13	1 248.88	7.63	2 059.05
6.14	464.054	6.64	765.095	7.14	1 261.43	7.64	2 079.74
6.15	468.717	6.65	772.784	7.15	1 274.11	7.65	2 100.65
6.16	473.428	6.66	780.551	7.16	1 286.91	7.66	2 121.76
6.17	478.186	6.67	788.396	7.17	1 299.85	7.67	2 143.08
6.18	482.992	6.68	796.319	7.18	1 312.91	7.68	2 164.62
6.19	487.846	6.69	804.322	7.19	1 326.10	7.69	2 186.38
6.20	492.749	6.70	812.406	7.20	1 339.43	7.70	2 208.35
6.21	497.701	6.71	820.571	7.21	1 352.89	7.71	2 230.54
6.22	502.703	6.72	828.818	7.22	1 366.49	7.72	2 252.96
6.23	507.755	6.73	837.147	7.23	1 380.22	7.73	2 275.60
6.24	512.859	6.74	845.561	7.24	1 394.09	7.74	2 298.47
6.25	518.013	6.75	854.059	7.25	1 408.10	7.75	2 321.57
6.26	523.219	6.76	862.642	7.26	1 422.26	7.76	2 344.90
6.27	528.477	6.77	871.312	7.27	1 436.55	7.77	2 368.47
6.28	533.789	6.78	880.069	7.28	1 450.99	7.78	2 392.28
6.29	539.153	6.79	888.914	7.29	1 465.57	7.79	2 416.32
6.30	544.572	6.80	897.847	7.30	1 480.30	7.80	2 440.60
6.31	550.045	6.81	906.871	7.31	1 495.18	7.81	2 465.13
6.32	555.573	6.82	915.985	7.32	1 510.20	7.82	2 489.90
6.33	561.157	6.83	925.191	7.33	1 525.38	7.83	2 514.93
6.34	566.796	6.84	934.489	7.34	1 540.71	7.84	2 540.20
6.35	572.493	6.85	943.881	7.35	1 556.20	7.85	2 565.73
6.36	578.246	6.86	953.367	7.36	1 571.84	7.86	2 591.52
6.37	584.058	6.87	962.949	7.37	1 587.63	7.87	2 617.57
6.38	589.928	6.88	972.626	7.38	1 603.59	7.88	2 643.87
6.39	595.857	6.89	982.401	7.39	1 619.71	7.89	2 670.44
6.40	601.845	6.90	992.275	7.40	1 635.98	7.90	2 697.28
6.41	607.894	6.91	1 002.25	7.41	1 652.43	7.91	2 724.39
6.42	614.003	6.92	1 012.32	7.42	1 669.03	7.92	2 751.77
6.43	620.174	6.93	1 022.49	7.43	1 685.81	7.93	2 779.43
6.44	626.407	6.94	1 032.77	7.44	1 702.75	7.94	2 807.36
6.45	632.702	6.95	1 043.15	7.45	1 719.86	7.95	2 835.58
6.46	639.061	6.96	1053.63	7.46	1 737.15	7.96	2 864.07
6.47	645.484	6.97	1 064.22	7.47	1 754.61	7.97	2 892.86
6.48	651.971	6.98	1 074.91	7.48	1 772.24	7.98	2 921.93
6.49	658.523	6.99	1 085.72	7.49	1 790.05	7.99	2 951.30
6.50	665.142	7.00	1 096.63	7.50	1 808.04	8.00	2 980.96

*For values corresponding to $x \leq 0.0$ or less Table 4 may be referred

(Continued)

TABLE 5B EXPONENTIAL FUNCTIONS (e^x) — *Contd*

x	e^x	x	e^x	x	e^x	x	e^x
8.00	2 980-96	8-50	4 914.77	9.00	8 103.08	9-50	13 359.7
8-01	3 010.92	8.51	4 964.16	9-01	8 184.52	9-51	13 494.0
8-02	3 041.18	8.52	5 014-05	9.02	8 266.78	9.52	13 629.6
8-03	3 071.74	8.53	5 064.45	9.03	8 349.86	9.53	13 766.6
8.04	3 102.61	8-54	5 115.34	9-04	8 433.78	9.54	13 905-0
8-05	3 133.80	8.55	5 166.75	9.05	8 518-54	9.55	14 044.7
8.06	3 165.29	8-56	5 218.68	9-06	8 604.15	9.56	14 185-8
8-07	3 197-10	8-57	5 271.13	9-07	8 690.62	9.57	14 328.4
8.08	3 229-23	8.58	5 324-11	9-08	8 777.97	9.58	14 472.4
8-09	3 261.69	8.59	5 377.61	9-09	8 866.19	9.59	14 617-9
8-10	3 294.47	8.60	5 431.66	9.10	8 955-29	9-60	14 764-8
8-11	3 327.58	8.61	5 486-25	9.11	9 045-29	9-61	14 913.2
8.12	3 361.02	8-62	5 541.39	9.12	9 136.20	9.62	15 063-0
8-13	3 394.80	8.63	5 597-08	9.13	9 228.02	9.63	15 214.4
8.14	3 428.92	8.64	5 653.33	9.14	9 320.77	9.64	15 367.3
8.15	3 463.38	8.65	5 710-15	9.15	9 414.44	9.65	15 521.8
8-16	3 498-19	8.66	5 767-53	9.16	9 509.06	9.66	15 677.8
8-17	3 533.34	8.67	5 825.50	9.17	9 604-62	9.67	15 835-4
8-18	3 568.86	8-68	5 884-05	9.18	9 701-15	9.68	15 994.5
8.19	3 604.72	8.69	5 943.18	9.19	9 798.65	9.69	16 155-2
8-20	3 640.95	8-70	6 002.91	9.20	9 897.13	9-70	16 317.6
8.21	3 677-54	8.71	6 063.24	9-21	9 996.60	9.71	16 481.6
8.22	3 714.50	8.72	6 124.18	9.22	10 097-1	9.72	16 647.2
8.23	3 751-83	8.73	6 185.73	9.23	10 198.5	9.73	16 814.6
8.24	3 789.54	8.74	6 247.90	9.24	10 301.0	9.74	16 983.5
8.25	3 827.63	8.75	6 310.69	9.25	10 404.6	9.75	17 154.2
8.26	3 866-09	8.76	6 374.11	9.26	10 509-1	9.76	17 326.6
8.27	3 904-95	8-77	6 438.17	9.27	10 614.8	9.77	17 500.8
8.28	3 944.19	8.78	6 502.88	9.28	10 721.4	9.78	17 676.6
8.29	3 983-83	8.79	6 568.23	9.29	10 829.2	9.79	17 854.3
8-30	4 023-87	8-80	6 634.24	9.30	10 938.0	9.80	18 033-7
8.31	4 064.31	8.81	6 700.92	9.31	11 048.0	9-81	18 215.0
8.32	4 105.16	8.82	6 768.26	9.32	11 159.0	9.82	18 398.0
8.33	4 146.42	8.83	6 836.29	9.33	11 271.1	9.83	18 583-0
8.34	4 188.09	8.84	6 904.99	9.34	11 384.4	9.84	18 769.7
8.35	4 230.18	8.85	6 974.39	9.35	11 498.8 *	9.85	18 958.4
8-36	4 272-70	8.86	7 044.48	9.36	11 614.4	9.86	19 148.9
8.37	4 315.64	8-87	7 115-28	9.37	11 731.1	9-87	19 341-3
8.38	4 359.01	8-88	7 186.79	9.38	11 849.0	9.88	19 535-7
8-39	4 402.82	8.89	7 259.02	9.39	11 968.1	9.89	19 732.1
8-40	4 447.07	8-90	7 331.97	9.40	12 088.4	9.90	19 930.4
8.41	4 491.76	8.91	7 405.66	9.41	12 209.9	9.91	20 130-7
8.42	4 536.90	8.92	7 480.09	9.42	12 332.6	9.92	20 333.0
8.43	4 582.50	8.93	7 555-27	9.43	12 456-5	9.93	20 537.3
8-44	4 628.56	8.94	7 631.20	9.44	12 581-7	9.94	20 743.7
8-45	4 675-07	8.95	7 707.89	9.45	12 708.2	9.95	20 952.2
8.46	4 722-06	8.96	7 785-36	9.46	12 835.9	9.96	21 162.8
8-47	4 769.52	8.97	7 863.60	9.47	12 964.9	9.97	21 375-5
8.48	4 817.45	8.98	7 942.63	9.48	13 095.2	9.98	21 590.3
8.49	4 865.87	8-99	8 022-46	9.49	13 226.8	9.99	21 807.3
8-50	4 914.77	9-00	8 103.08	9-50	13 359.7	10.00	22 026-5

(Continued)

TABLE 5B EXPONENTIAL FUNCTIONS (e^x) — *Cont'd*

x	e^x	x	$10^{p \cdot e^x}$	p	x	$10^{p \cdot e^x}$	p	x	$10^{p \cdot e^x}$	p
10.0	22 026.8	15.0	3.269 02 6		20.0	4.851 65 8		25.0	7.20049 10	
10.1	24 343.0	15.1	3.612 82 6		20.1	5.361 90 8		25.1	7.957 77 10	
10.2	26 903.2	15.2	3.992 79 6		20.2	5.925 82 8		25.2	8.794 70 10	
10.3	29 732.6	15.3	4.512 71 6		20.3	6.549 04 8		25.3	9.719 64 10	
10.4	32 859.6	15.4	4.876 80 6		20.4	7.237 81 8		25.4	1.074 19 11	
10.5	36 315.5	15.5	5.389 70 6		20.5	7.999 02 8		25.5	1.18716 11	
10.6	40 134.8	15.6	5.956 54 6		20.6	8.840 29 8		25.6	1.31202 11	
10.7	44 355.9	15.7	6.583 00 6		20.7	9.770 03 8		25.7	1.450 00 1 1	
10.8	49 020.8	15.8	7.275 33 6		20.8	1.079 76 9		25.8	1.602 50 11	
10.9	54 176.4	15.9	8.04048 6		20.9	1.193 31 9		25.9	1.771 04 11	
11.0	59 874.1	16.0	8.886 11 6		21.0	1.318 82 9		26.0	1.957 30 11	
11.1	66 171.2	16.1	9.820 67 6		21.1	1.457 52 9		26.1	2.163 15 11	
11.2	73 130.4	16.2	1.085 35 7		21.3	1.610 80 9		26.2	2.39065 11	
11.3	80 821.6	16.3	1.199 50 7		21.3	1.780 22 9		26.3	2.64207 11	
11.4	89 322.7	16.4	1.325 65 7		21.4	1.967 44 9		26.4	2.91994 11	
11.5	98 715.8	16.5	1.465 07 7		21.5	2.174 36 9		26.5	3.227 04 11	
11.6	109 098	16.6	1.619 16 7		21.6	2.403 04 9		26.6	3.56643 11	
11.7	120 572	16.7	1.789 44 7		21.7	2.655 77 9		26.7	3.941 51 11	
11.8	133 252	16.8	1.977 64 7		21.8	2.935 08 9		26.8	4.35604 11	
11.9	147 267	16.9	2.185 63 7		21.9	3.243 76 9		26.9	4.814 17 11	
12.0	162 75.5	17.0	2.415 50 7		22.0	3.584 91 9		27.0	5.320 48 1 1	
12.1	179 872	17.1	2.669 54 7		22.1	3.961 94 9		27.1	5.88004 11	
12.2	198 789	17.2	2.95029 7		22.2	4.378 62 9		27.2	6.498 45 11	
12.3	219 696	17.3	3.260 58 7		22.3	4.839 13 9		27.3	7.18190 11	
12.4	242 802	17.4	3.603 50 7		22.4	5.348 06 9		27.4	7.937 23 11	
12.5	268 337	17.5	3.982 48 7		22.5	5.910 52 9		27.5	8.77199 11	
12.6	296 559	17.6	4.401 32 7		22.6	6.523 14 9		27.6	9.694 55 11	
12.7	327 748	17.7	4.864 21 7		22.7	7.219 13 9		27.7	1.07141 12	
12.8	362 217	17.8	5.375 78 7		22.8	7.978 37 9		27.8	1.184 10 12	
12.9	400 312	17.9	5.941 16 7		22.9	8.817 46 9		27.9	1.30863 12	
13.0	442413	18.0	6.566 00 7		23.0	9.744 80 9		28.0	1.446 26 12	
13.1	488 942	18.1	7.256 55 7		23.1	1.076 97 10		28.1	1.598 36 12	
13.2	540 36.5	18.2	8.019 73 7		23.2	1.190 23 10		28.2	1.766 46 12	
13.3	597 196	18.3	8.863 17 7		23.3	1.315 41 10		28.3	1.95224 12	
13.4	660 003	18.4	9.795 32 7		23.4	1.453 75 10		28.4	2.157 56 1 2	
13.5	729 416	18.5	1.082 55 8		23.5	1.606 63 10		28.5	2.384 48 12	
13.6	806 130	18.6	1.19640 8		23.6	1.775 62 10		28.6	2.635 25 12	
13.7	890 911	18.7	1.322 23 8		23.7	1.962 36 10		28.7	2.91240 12	
13.8	984 609	18.8	1.461 29 8		23.8	2.168 75 10		28.8	3.218 70 12	
13.9	1 088 161	18.9	1.614 98 8		23.9	2.396 84 10		28.9	3.557 21 12	
14.0	1202 604	19.0	1.784 82 8		24.0	2.648 91 10		29.0	3.931 33 11	
14.1	1 33.9 083	19.1	1.972 53 8		24.1	2.927 50 10		29.1	4.344 80 1 2	
14.2	1468 864	19.2	2.179 99 8		24.2	3.235 39 10		29.2	4.801 74 12	
14.3	1623 346	19.3	2.409 26 8		24.3	3.575 66 10		29.3	5.306 75 12	
14.4	1 794 075	19.4	2.662 64 8		24.4	3.951 71 10		29.4	5.864 86 12	
14.5	1982 759	19.5	2.942 68 8		24.5	4.367 32 10		29.5	6.481 6 7 12	
14.6	2 191 288	19.6	3.252 16 8		24.6	4.826 63 10		29.6	7.163 36 12	
14.7	2 421 748	19.7	3.594 19 8		24.7	5.334 2.5 10		29.7	7.916 74 12	
14.8	2 676 445	19.8	3.972 20 8		24.8	5.895 26 10		29.8	8.749 34 12	
14.9	2 957 929	19.9	4.389 96 8		24.9	6.515 27 10		29.9	9.669 52 12	
15.0	3 269 017	20.0	4.851 6.5 8		25.0	7.200 49 10		30.0	1.068 05 15	

(Continued)

TABLE 5B EXPONENTIAL FUNCTIONS (e") — *Contd*

x	$10^{-p} \cdot e^x$	p	x	$10^{-p} \cdot e^x$	p	x	$10^{-p} \cdot e^x$	p	x	$10^{-p} \cdot e^x$	p
30.0	1.068 65 13		35.0	1.58601 15		40.0	2.353 85 17		45.0	3.49343 19	
30.1	1.181 04 13		35.1	1.75282 15		40.1	2.601 41 17		45.1	3.86083 19	
30.2	1.305 25 13		35.2	1.937 16 15		40.2	2.875 00 17		45.2	4.266 88 19	
30.3	1.442 52 13		35.3	2.14089 15		40.3	3.177 37 17		45.3	4.715 63 19	
30.4	1.59424 13		35.4	2.366 05 15		40.4	3.511 54 17		45.4	5.211 58 19	
30.5	1.761 90 13		35.5	2.61489 15		40.5	3.880 85 17		45.5	5.75969 19	
30.6	1.94720 13		35.6	2.889 90 15		40.6	4.289 00 17		45.6	6.365 44 19	
30.7	2.151 99 13		35.7	3.193 84 15		40.7	4.740 08 17		45.7	7.03490 19	
30.8	2.378 32 13		35.8	3.529 74 15		40.8	5.238 60 17		45.8	7.774 76 19	
30.9	2.628 45 13		35.9	3.900 96 15		40.9	5.789 54 17		45.9	8.592 44 19	
31.0	2.904 88 13		36.0	4.311 23 15		41.0	6.398 44 17		46.0	9.496 12 19	
31.1	3.21039 13		36.1	4.764 65 15		41.1	7.071 36 17		46.1	1.049 48 20	
31.2	3.548 04 13		36.2	5.265 75 15		41.2	7.81507 17		46.2	1.15986 20	
31.3	3.921 18 13		36.3	5.819 55 15		41.3	8.636 98 17		46.3	1.218 84 20	
31.4	4.333 58 13		36.4	6.431 60 15		41.4	9.545 34 17		46.4	1.416 66 20	
31.5	4.789 35 13		36.5	7.018 02 15		41.5	1.05492 18		46.5	1.565 64 20	
31.6	5.293 05 13		36.6	7.855 58 15		41.6	1.16587 18		46.6	1.730 31 20	
31.7	5.849 72 13		36.7	8.681 75 15		41.7	1.288 49 18		46.7	1.91228 20	
31.8	6.464 94 13		36.8	9.594 82 15		41.8	1.42400 18		46.8	2.113 40 20	
31.9	7.144 86 13		36.9	1.06039 16		41.9	1.573 76 18		46.9	2.335 67 20	
32.0	7.869 30 13		37.0	1.171 91 16		42.0	1.739 28 18		47.0	2.58131 20	
32.1	8.72676 13		37.1	1.295 17 16		42.1	1.92220 18		47.1	2.852 79 20	
32.2	9.644 56 13		37.2	1.431 38 16		42.2	2.12435 18		47.2	3.152 82 20	
32.3	1.065 89 14		37.3	1.581 92 16		42.3	2.347 78 18		47.3	3.484 41 20	
32.4	1.177 99 14		37.4	1.748 29 16		42.4	2.594 69 18		47.4	3.850 87 20	
32.5	1.301 88 14		37.5	1.932 16 16		42.5	2.867 58 18		47.5	4.255 86 20	
32.6	1.438 80 14		37.6	2.135 37 16		42.6	3.169 17 18		47.6	4.703 46 20	
32.7	1.590 12 14		37.7	2.35994 16		42.7	3.50247 18		47.7	5.198 13 20	
32.8	1.757 35 14		37.8	2.608 14 16		42.8	3.870 83 18		47.8	5.744 82 20	
32.9	1.942 18 14		37.9	2.882 44 16		42.9	4.277 93 18		47.9	6.349 00 20	
33.0	2.146 44 14		38.0	3.185 59 16		43.0	4.727 84 18		48.0	7.016 74 20	
33.1	2.372 18 14		38.1	3.520 62 16		43.1	5.225 07 18		48.1	7.754 69 20	
33.2	2.621 66 14		38.2	3.890 89 16		43.2	5.774 60 18		48.2	8.57026 20	
33.3	2.897 38 14		38.3	4.300 10 16		43.3	6.381 92 18		48.3	9.471 60 20	
33.4	3.202 11 14		38.4	4.752 3.5 16		43.4	7.053 11 18		48.4	1.046 77 21	
33.5	3.538 87 14		38.5	5.252 16 16		43.5	7.794 89 18		48.5	1.15686 21	
33.6	3.911 06 14		38.6	5.804 53 16		43.6	8.61463 18		48.6	1.278 53 21	
33.7	4.322 39 14		38.7	6.41500 16		43.7	9.52070 18		48.7	1.413 00 21	
33.8	4.77698 14		38.8	7.089 67 16		43.8	1.052 20 19		48.8	1.561 60 21	
33.9	5.279 38 14		38.9	7.835 30 16		43.9	1.16286 19		48.9	1.725 84 21	
34.0	5.884 62 14		39.0	8.659 34 16		44.0	1.285 16 19		49.0	1.907 35 21	
34.1	6.448 25 14		39.1	9.57005 16		44.1	1.420 32 19		49.1	2.107 94 21	
34.2	7.12642 14		39.2	1.057 65 17		44.2	1.569 70 19		49.2	2.329 64 21	
34.3	7.875 91 14		39.3	1.168 90 17		44.3	1.734 78 19		49.3	2.57465 21	
34.4	8.704 23 14		39.4	1.291 82 17		44.4	1.917 23 19		49.4	2.845 43 21	
34.5	9.619 66 14		39.5	1.42768 17		44.5	2.118 87 19		49.5	3.144 68 21	
34.6	1.063 14 15		39.6	1.57784 17		44.6	2.34171 19		49.6	3.475 41 21	
34.7	1.17495 15		39.7	1.74378 17		44.7	2.587 99 19		49.7	3.840 92 21	
34.8	1.298 52 15		39.8	1.927 17 17		44.8	2.860 18 19		49.8	4.24488 21	
34.9	1.435 08 15		39.9	2.129 85 17		44.9	3.16098 19		49.9	4.691 32 21	
35.0	1.58601 15		40.0	2.353 85 17		45.0	3.493 43 19		50.0	5.184 71 21	

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS

1° (181

(358°) 178°

#		L. Sin.	d.	C. S.	C. T.	L. Tan.	c. d.	L. Cot.	L. Cos.	'
3 600	0	8.241 86	717	5.314 45	5.314 38	8.241 92	718	1.758 08	9.999 93	60
3 660	1	8.249 03	706	5.314 45	5.314 38	8.249 10	706	1.750 90	9.999 93	59
3 720	2	8.256 09	695	5.314 45	5.314 38	8.256 16	696	1.743 84	9.999 93	58
3 780	3	8.263 04	684	5.314 45	5.314 38	8.263 12	684	1.736 88	9.999 93	57
3 840	4	8.269 88	673	5.314 45	5.314 37	8.269 96	673	1.730 04	9.999 92	56
3 900	5	8.276 61	663	5.314 45	5.314 37	8.276 69	663	1.723 31	9.999 92	55
3 960	6	8.283 24	653	5.314 45	5.314 37	8.283 32	654	1.716 08	9.999 92	54
4 020	7	8.289 77	644	5.314 45	5.314 37	8.289 86	643	1.710 14	9.999 92	53
4 080	8	8.296 21	634	5.314 45	5.314 37	8.296 29	634	1.703 71	9.999 92	52
4 140	9	8.302 55	624	5.314 45	5.314 37	8.302 63	625	1.697 37	9.999 91	51
4 200	10	8.308 79	616	5.314 46	5.314 37	8.308 88	617	1.691 12	9.999 91	50
4 260	11	8.314 95	608	5.314 46	5.314 36	8.315 05	617	1.684 95	9.999 91	49
4 320	12	8.321 03	599	5.314 46	5.314 36	8.321 12	607	1.678 88	9.999 90	48
4 380	13	8.327 02	590	5.314 46	5.314 36	8.327 11	599	1.672 89	9.999 90	47
4 440	14	8.332 92	583	5.314 46	5.314 36	8.333 02	591	1.666 98	9.999 90	46
4 500	15	8.338 75	575	5.314 46	5.314 36	8.338 86	584	1.661 14	9.999 90	45
4 560	16	8.344 50	568	5.314 46	5.314 35	8.344 61	575	1.655 39	9.999 89	44
4 620	17	8.350 18	560	5.314 46	5.314 35	8.350 29	568	1.649 71	9.999 89	43
4 680	18	8.355 78	553	5.314 46	5.314 35	8.355 90	561	1.644 10	9.999 89	42
4 740	19	8.361 31	547	5.314 46	5.314 35	8.361 43	553	1.638 57	9.999 89	41
4 800	20	8.366 78	539	5.314 46	5.314 35	8.366 89	546	1.633 11	9.999 88	40
4 860	21	8.372 17	533	5.314 47	5.314 34	8.372 29	540	1.627 71	9.999 88	39
4 920	22	8.377 50	526	5.314 47	5.314 34	8.377 62	533	1.622 38	9.999 88	38
4 980	23	8.382 76	520	5.314 47	5.314 34	8.382 89	527	1.617 11	9.999 87	37
5 040	24	8.387 96	514	5.314 47	5.314 34	8.388 09	520	1.611 91	9.999 87	36
5 100	25	8.393 10	508	5.314 47	5.314 34	8.393 23	514	1.606 77	9.999 87	35
5 160	26	8.398 18	502	5.314 47	5.314 33	8.398 32	509	1.601 68	9.999 86	34
5 220	27	8.403 20	496	5.314 47	5.314 33	8.403 34	502	1.596 66	9.999 86	33
5 280	28	8.408 16	491	5.314 47	5.314 33	8.408 30	496	1.591 70	9.999 86	32
5 340	29	8.413 07	485	5.314 47	5.314 33	8.413 21	491	1.586 79	9.999 85	31
5 400	30	8.417 92	480	5.314 47	5.314 33	8.418 07	486	1.581 93	9.999 85	30
5 460	31	8.422 72	474	5.314 48	5.314 32	8.422 87	480	1.577 13	9.999 85	29
5 520	32	8.427 46	470	5.314 48	5.314 32	8.427 62	475	1.572 38	9.999 84	28
5 580	33	8.432 16	464	5.314 48	5.314 32	8.432 32	470	1.567 68	9.999 84	27
5 640	34	8.436 80	459	5.314 48	5.314 32	8.436 96	464	1.563 04	9.999 84	26
5 700	35	8.441 39	455	5.314 48	5.314 31	8.441 56	460	1.558 44	9.999 83	25
5 760	36	8.445 94	450	5.314 48	5.314 31	8.446 11	455	1.553 89	9.999 83	24
5 820	37	8.450 44	445	5.314 48	5.314 31	8.450 61	450	1.549 39	9.999 83	23
5 880	38	8.454 89	441	5.314 48	5.314 31	8.455 07	446	1.544 93	9.999 82	22
5 940	39	8.459 30	436	5.314 49	5.314 31	8.459 48	441	1.540 52	9.999 82	21
6 000	40	8.463 66	433	5.314 49	5.314 30	8.463 85	437	1.536 15	9.999 82	20
6 060	41	8.467 99	427	5.314 49	5.314 30	8.468 17	432	1.531 83	9.999 81	19
6 120	42	8.472 26	424	5.314 49	5.314 30	8.472 45	428	1.527 55	9.999 81	18
6 180	43	8.476 50	419	5.314 49	5.314 30	8.476 69	424	1.523 31	9.999 81	17
6 240	44	8.480 69	416	5.314 49	5.314 29	8.480 89	420	1.519 11	9.999 80	16
6 300	45	8.484 85	411	5.314 49	5.314 29	8.485 05	416	1.514 95	9.999 80	15
6 360	46	8.488 96	408	5.314 49	5.314 29	8.489 17	412	1.510 83	9.999 79	14
6 420	47	8.493 04	404	5.314 50	5.314 28	8.493 25	408	1.506 75	9.999 79	13
6 480	48	8.497 08	400	5.314 50	5.314 28	8.497 29	404	1.502 71	9.999 79	12
6 540	49	8.501 08	396	5.314 50	5.314 28	8.501 30	401	1.498 70	9.999 78	11
6 600	50	8.505 04	393	5.314 50	5.314 28	8.505 27	397	1.494 73	9.999 78	10
6 660	51	8.508 97	390	5.314 50	5.314 27	8.509 20	393	1.490 80	9.999 77	9
6 720	52	8.512 87	386	5.314 50	5.314 27	8.513 10	390	1.486 90	9.999 77	8
6 780	53	8.516 73	382	5.314 50	5.314 27	8.516 96	386	1.483 04	9.999 77	7
6 840	54	8.520 55	379	5.314 50	5.314 27	8.520 79	383	1.479 21	9.999 76	6
6 900	55	8.524 34	376	5.314 51	5.314 26	8.524 59	380	1.475 41	9.939 76	5
6 960	56	8.528 10	373	5.314 51	5.314 26	8.528 35	376	1.471 65	9.999 75	4
7 020	57	8.531 83	369	5.314 51	5.314 26	8.532 08	373	1.467 92	9.999 75	3
7 080	58	8.535 52	367	5.314 51	5.314 25	8.535 78	370	1.464 22	9.999 74	2
7 140	59	8.539 19	363	5.314 51	5.314 25	8.539 45	367	1.460 55	9.999 74	1
7 200	60	8.542 82		5.314 51	5.314 25	8.543 08	363	1.456 92	9.999 74	0
	'	L. cos.	d.			L. cot.	c.d.	L. Tan.	L. Sin.	'

91° (271°)

(26

88°

NOTE — For obtaining the actual logarithmic values, 10 should be deducted from the values in the table.

(Continued)

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Cont'd*

2° (182°)

(357°) 177°

"	'	L. Sin.	d.	C.S.	C.T.	L. Tan.	c.d.	L. cot.	L. Cos.	'
7200	0	8.542 82		5.314 51	5.314 2s	8.543 08		1.456 92	9.999 74	60
7260	1	8.546 42	360	5.314 51	5.314 25	8.546 69	361	1.453 31	9.999 73	59
7320	2	8.549 99	357	5.314 52	5.314 24	8.550 27	358	1.449 73	9.999 73	58
7380	3	8.553 54	355	5.314 52	5.314 24	8.553 82	355	1.446 18	9.999 72	57
7440	4	8.557 0.5	351	5.314 52	5.314 24	8.557 34	352	1.442 66	9.999 72	56
			349				349			
7500	5	8.560 54		5.314 52	5.314 23	8.560 83		1.439 17	9.999 71	55
7560	6	8.564 00	346	5.314 52	5.314 23	8.564 29	346	1.435 71	9.999 71	54
7620	7	8.567 43	343	5.314 52	5.314 23	8.567 73	344	1.432 27	9.999 70	53
7680	8	8.570 84	341	5.314 53	5.314 22	8.571 14	341	1.428 86	9.999 70	52
7740	9	8.574 21	337	5.314 53	5.314 22	8.574 52	338	1.425 48	9.999 69	51
			336				336			
7800	10	8.577 57		5.314 53	5.314 22	8.577 88		1.422 12	9.999 69	50
7860	11	8.580 89	332	5.314 53	5.314 21	8.581 21	333	1.418 79	9.999 68	49
7920	12	8.584 19	330	5.314 53	5.314 21	8.584 51	330	1.415 49	9.999 68	48
7980	13	8.587 47	328	5.314 53	5.314 21	8.587 79	328	1.412 21	9.999 67	47
8040	14	8.590 72	325	5.314 54	5.314 21	8.591 05	326	1.408 95	9.999 67	46
			323				323			
8100	15	8.593 95		5.314 54	5.314 20	8.594 28		1.405 72	9.999 67	45
8160	16	8.597 15	320	5.314 54	5.314 20	8.597 49	321	1.402 51	9.999 66	44
8220	17	8.600 33	318	5.314 54	5.314 20	8.600 68	319	1.399 32	9.999 66	43
8280	18	8.603 49	316	5.314 54	5.314 19	8.603 84	316	1.396 16	9.999 65	42
8340	19	8.606 62	313	5.314 54	5.314 19	8.606 98	314	1.393 02	9.999 64	41
			311				311			
8400	20	8.609 73		5.314 55	5.314 18	8.610 09		1.389 91	9.999 64	40
8460	21	8.612 82	309	5.314 55	5.314 18	8.613 19	310	1.386 81	9.999 63	39
8520	22	8.615 89	307	5.314 55	5.314 18	8.616 26	307	1.383 74	9.999 63	38
8580	23	8.618 94	305	5.314 55	5.314 17	8.619 31	305	1.380 69	9.999 62	37
8640	24	8.621 96	302	5.314 55	5.314 17	8.622 34	303	1.377 66	9.999 62	36
			301				301			
8700	25	8.624 97		5.314 55	5.314 17	8.625 35		1.374 65	9.999 61	35
8760	26	8.627 95	298	5.314 56	5.314 16	8.628 34	299	1.371 66	9.999 61	34
8820	27	8.630 91	296	5.314 56	5.314 16	8.631 31	297	1.368 69	9.999 60	33
8880	28	8.633 85	294	5.314 56	5.314 16	8.634 26	295	1.365 74	9.999 60	32
8940	29	8.636 78	293	5.314 56	5.314 15	8.637 18	292	1.362 82	9.999 59	31
			290				291			
9000	30	8.639 68		5.314 56	5.314 15	8.640 09		1.359 91	9.999 59	30
9060	31	8.642 56	288	5.314 56	5.314 15	8.642 98	289	1.357 02	9.999 58	29
9120	32	8.645 43	287	5.314 57	5.314 14	8.645 85	287	1.354 15	9.999 58	28
9180	33	8.648 27	284	5.314 57	5.314 14	8.648 70	285	1.351 30	9.999 57	27
9240	34	8.651 10	283	5.314 57	5.314 13	8.651 54	284	1.348 46	9.999 56	26
			281				281			
9300	35	8.653 91		5.314 57	5.314 13	8.654 35		1.345 65	9.999 56	25
9360	36	8.656 70	279	5.314 57	5.314 13	8.657 15	280	1.342 85	9.999 55	24
9420	37	8.659 47	277	5.314 58	5.314 12	8.659 93	278	1.340 07	9.999 55	23
9480	38	8.662 23	276	5.314 58	5.314 12	8.662 69	276	1.337 31	9.999 54	22
9540	39	8.664 97	274	5.314 58	5.314 12	8.665 43	274	1.334 57	9.999 54	21
			272				273			
9600	40	8.667 69		5.314 58	5.314 11	8.668 16		1.331 84	9.999 53	20
9660	41	8.670 39	270	5.314 58	5.314 11	8.670 87	271	1.329 13	9.999 52	19
9720	42	8.673 08	269	5.314 59	5.314 10	8.673 56	269	1.326 44	9.999 52	18
9780	43	8.675 75	267	5.314 59	5.314 10	8.676 24	268	1.323 76	9.999 51	17
9840	44	8.678 41	266	5.314 59	5.314 10	8.678 90	266	1.321 10	9.999 51	16
			263				264			
9900	45	8.681 04		5.314 59	5.314 09	8.681 54		1.318 46	9.999 50	15
9960	46	8.683 67	263	5.314 59	5.314 09	8.684 17	263	1.315 83	9.999 49	14
10020	47	8.686 27	260	5.314 60	5.314 08	8.686 78	261	1.313 22	9.999 49	13
10080	48	8.688 86	259	5.314 60	5.314 08	8.689 38	260	1.310 62	9.999 48	12
10140	49	8.691 44	258	5.314 60	5.314 08	8.691 96	258	1.308 04	9.999 48	11
			256				257			
10200	50	8.694 00		5.314 60	5.314 07	8.694 53		1.305 47	9.999 47	10
10260	51	8.696 54	254	5.314 60	5.314 07	8.697 08	255	1.302 92	9.999 46	9
10320	52	8.699 07	253	5.314 61	5.314 06	8.699 62	254	1.300 38	9.999 46	8
10380	53	8.701 59	252	5.314 61	5.314 06	8.702 14	252	1.297 86	9.999 45	7
10440	54	8.704 09	230	5.314 61	5.314 05	8.704 65	251	1.295 35	9.999 44	6
			249				249			
10500	55	8.706 58		5.314 61	5.314 05	8.707 14		1.292 86	9.999 44	5
10560	56	8.709 05	247	5.314 61	5.314 05	8.709 62	248	1.290 38	9.999 43	4
10620	57	8.711 51	246	5.314 62	5.314 04	8.712 08	246	1.287 92	9.999 42	3
10680	58	8.713 95	244	5.314 62	5.314 04	8.714 53	245	1.285 47	9.999 42	2
10740	59	8.716 38	243	5.314 62	5.314 03	8.716 97	244	1.283 03	9.999 41	1
			242				243			
10800	60	8.718 80		5.314 62	5.314 03	8.719 40		1.280 60	9.999 40	0
"	'	L. Cos.	a.			L. cot.	c.d.	L. Tan.	L. Sin.	'

92° (272°)

(267°) 87°

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*

3° (183°)

(356") 176°

'	L. Sin.	d.	L. Tan.	c.d.	L. Cot.	L. cos.	'	P.P.					
0	8.718 80	240	8.719 40	241	1.280 60	9.999 40	50	1	241.40	239.40	237.40	235	234
1	8.721 20	239	8.721 81	239	1.278 19	9.999 40	59	2	8.0	8.0	7.9	3.9	3.9
2	8.723 59	238	8.724 20	239	1.275 80	9.999 39	58	3	12.0	12.0	11.8	11.8	11.7
3	8.725 97	237	8.726 59	237	1.273 41	9.999 38	57						
4	8.728 34	235	8.728 96	236	1.271 04	9.999 38	56	4	16.1	15.9	15.8	15.7	15.6
5	8.730 69	234	8.731 32	234	1.268 68	9.999 37	55	5	20.1				
6	8.733 03	232	8.733 66	234	1.266 34	9.999 36	54	6	24.1	23.9	23.7	23.5	23.4
7	8.735 35	232	8.736 00	232	1.264 00	9.999 36	53	7	28.1	27.9	27.6	27.4	27.3
8	8.737 67	230	8.738 32	231	1.261 68	9.999 35	52	8	32.1	31.9	31.6	31.3	31.2
9	8.739 97	229	8.740 63	229	1.259 37	9.999 34	51	9	36.2	35.8	35.6	35.2	35.1
10	8.742 26	228	8.742 92	229	1.257 08	9.999 34	50	"	232	229	227	225	223
11	8.744 54	226	8.745 21	227	1.254 79	9.999 33	49	1	3.9	3.8	3.8	3.8	3.7
12	8.746 80	226	8.747 48	226	1.252 52	9.999 32	48	2	7.7	7.6	7.6	7.5	7.4
13	8.749 06	224	8.749 74	225	1.250 26	9.999 32	47	3	11.6	11.4	11.4	11.2	11.2
14	8.751 30	223	8.751 99	224	1.248 01	9.999 31	46	4	15.5	15.3	15.1	15.0	14.9
15	8.753 53	222	8.754 23	222	1.245 77	9.999 30	45	5	19.3	19.1	18.9	18.8	18.6
16	8.755 75	220	8.756 45	222	1.243 55	9.999 29	44	6	23.2	22.9	22.7	22.5	22.3
17	8.757 95	220	8.758 67	220	1.241 33	9.999 29	43	7	27.1	26.7	26.5	26.2	26.0
18	8.760 15	219	8.760 87	219	1.239 13	9.999 28	42	8	30.9	30.5	30.3	30.0	29.7
19	8.762 34	217	8.763 06	219	1.236 94	9.999 27	41	9	34.8	34.4	34.0	33.8	33.4
20	8.764 51	216	8.765 25	217	1.234 75	9.999 26	40	"	222	220	217	215	213
21	8.766 67	216	8.767 42	216	1.232 58	9.999 26	39	1	3.7	3.7	3.6	3.6	3.6
22	8.768 83	214	8.769 58	215	1.230 42	9.999 25	38	2	7.4	7.3	7.2	7.2	7.1
23	8.770 97	213	8.771 73	214	1.228 27	9.999 24	37	3	11.1	11.0	10.8	10.8	10.6
24	8.773 10	212	8.773 87	213	1.226 13	9.999 23	36	4	14.8	14.7	14.5	14.3	14.2
25	8.775 22	211	8.776 00	211	1.224 00	9.999 23	35	5	18.5	18.3	18.1	17.9	17.8
26	8.777 33	210	8.778 11	211	1.221 89	9.999 22	34	6	22.2	22.0	21.7	21.5	21.3
27	8.779 43	209	8.780 22	210	1.219 78	9.999 21	33	7	25.9	25.7	25.3	25.1	24.8
28	8.781 52	208	8.782 32	209	1.217 68	9.999 20	32	8	29.6	29.3	28.9	28.7	28.4
29	8.783 60	208	8.784 41	208	1.215 59	9.999 20	31	9	33.3	33.0	32.6	32.2	32.0
30	8.785 68	206	8.786 49	206	1.213 51	9.999 19	30	"	211	208	206	203	201
31	8.787 74	205	8.788 55	206	1.211 45	9.999 18	29	1	3.5	3.5	3.4	3.4	3.4
32	8.789 79	204	8.790 61	205	1.209 39	9.999 17	28	2	7.0	6.9	6.9	6.8	6.7
33	8.791 83	203	8.792 66	204	1.207 34	9.999 17	27	3	10.6	10.4	10.3	10.2	10.0
34	8.793 86	202	8.794 70	203	1.205 30	9.999 16	26	4	14.1	13.9	13.7	13.5	13.4
35	8.795 88	201	8.796 73	202	1.203 27	9.999 15	25	5	17.6	17.3	17.2	16.9	16.8
36	8.797 89	201	8.798 75	201	1.201 25	9.999 14	24	6	21.1	20.8	20.6	20.3	20.1
37	8.799 90	199	8.800 76	201	1.199 24	9.999 13	23	7	24.6	24.3	24.0	23.7	23.4
38	8.801 89	199	8.802 77	199	1.197 23	9.999 13	22	8	28.1	27.7	27.5	27.1	26.8
39	8.803 88	197	8.804 76	199	1.195 24	9.999 12	21	9	31.6	31.2	30.9	30.4	30.2
40	8.805 85	196	8.806 74	198	1.193 26	9.999 11	20	"	199	197	195	193	192
41	8.807 82	196	8.808 72	196	1.191 28	9.999 10	19	1	3.3	3.3	3.2	3.2	3.2
42	8.809 78	195	8.810 68	196	1.189 32	9.999 09	18	2	6.6	6.6	6.5	6.4	6.4
43	8.811 73	194	8.812 64	195	1.187 36	9.999 09	17	3	10.0	9.8	9.8	9.6	9.6
44	8.813 67	193	8.814 59	194	1.185 41	9.999 08	16	4	13.3	13.1	13.0	12.9	12.8
45	8.815 60	192	8.816 53	193	1.183 47	9.999 07	15	5	16.6	16.4	16.2	16.1	16.0
46	8.817 52	192	8.818 46	192	1.181 54	9.999 06	14	6	19.9	19.7	19.5	19.3	19.2
47	8.819 44	190	8.820 38	192	1.179 62	9.999 05	13	7	23.2	23.0	22.8	22.5	22.4
48	8.821 34	190	8.822 30	190	1.177 70	9.999 04	12	8	26.5	26.3	26.0	25.7	25.6
49	8.823 24	189	8.824 20	190	1.175 80	9.999 04	11	9	29.8	29.6	29.2	29.0	28.8
50	8.825 13	188	8.826 10	189	1.173 90	9.999 03	10	"	3.2	187	185	183	181
51	8.827 01	187	8.827 99	188	1.172 01	9.999 02	9	1	6.3	6.3	6.2	6.0	6.0
52	8.828 88	187	8.829 87	188	1.170 13	9.999 01	8	2	9.4	9.4	9.4	9.2	9.0
53	8.830 75	186	8.831 75	186	1.168 25	9.999 00	7	3	12.6	12.5	12.3	12.2	12.1
54	8.832 61	185	8.833 61	186	1.166 39	9.998 99	6	4					
55	8.834 46	184	8.835 47	185	1.164 53	9.998 98	5	5	15.8	15.6	15.4	15.2	15.1
56	8.836 30	183	8.837 32	184	1.162 68	9.998 98	4	6	18.9	18.7	18.5	18.3	18.1
57	8.838 13	183	8.839 16	184	1.160 84	9.998 97	3	7	22.0	21.8	21.6	21.4	21.1
58	8.839 96	181	8.841 00	182	1.159 00	9.998 96	2	8	25.2	24.9	24.7	24.4	24.1
59	8.841 77	181	8.842 82	182	1.157 18	9.998 95	1	9	28.4	28.0	27.8	27.4	27.2
60	8.843 58		8.844 64		1.155 36	9.998 94	0	10	31.5	31.2	30.8	30.5	30.2
	L. cos.	d.	L. cot.	c.d.	L. Tan.	L. Sin.	'	P.P.					

93° (273")

(266°) 86°

(Continued)

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*

4° (184°)

1355) 175

	L. Sin.	d.	L. Tan.	c.d.	L. Cot.	L. Cos.	'	P.P.					
0	8.843 58	181	8.844 64	182	1.155 36	9.998 94	60	1	182	181	179	178	177
1	8.845 39	179	8.846 46	180	1.153 54	9.998 93	59	2	181	180	179	178	177
2	8.847 18	179	8.848 26	180	1.151 74	9.998 92	58	3	9.1	9.0	9.0	8.9	8.8
3	8.848 97	178	8.850 06	179	1.149 94	9.998 91	57	4	12.1	12.1	11.9	11.9	11.8
4	8.850 75	177	8.851 85	178	1.148 15	9.998 91	56	5	15.2	15.1	14.9	14.8	14.8
5	8.852 52	177	8.853 63	177	1.146 37	9.998 90	55	6	18.2	18.1	17.9	17.8	17.7
6	8.854 29	176	8.855 40	177	1.144 60	9.998 89	54	7	21.2	21.1	20.9	20.8	20.6
7	8.856 05	175	8.857 17	176	1.142 83	9.998 88	53	8	24.3	24.1	23.9	23.7	23.6
8	8.857 80	175	8.858 93	176	1.141 07	9.998 87	52	9	27.3	27.2	26.8	26.7	26.6
9	8.859 55	173	8.860 69	174	1.139 31	9.998 86	51	"	176	175	174	173	172
10	8.861 28	173	8.862 43	174	1.137 57	9.998 85	50	1	2.9	2.9	2.9	2.9	2.9
11	8.863 01	173	8.864 17	174	1.135 83	9.998 84	49	2	5.9	5.9	5.9	5.9	5.9
12	8.864 74	171	8.865 91	172	1.134 09	9.998 83	48	3	8.8	8.8	8.7	8.6	8.6
13	8.866 45	171	8.867 63	172	1.132 37	9.998 82	47	4	11.7	11.7	11.6	11.5	11.5
14	8.868 16	171	8.869 35	171	1.130 65	9.998 81	46	5	14.7	14.6	14.5	14.4	14.3
15	8.869 87	169	8.871 06	171	1.128 94	9.998 80	45	6	17.6	17.5	17.4	17.3	17.2
16	8.871 56	169	8.872 77	170	1.127 23	9.998 79	44	7	20.5	20.4	20.3	20.2	20.1
17	8.873 25	169	8.874 47	169	1.125 53	9.998 79	43	8	23.5	23.3	23.2	23.1	22.9
18	8.874 94	167	8.876 16	169	1.123 84	9.998 78	42	9	26.4	26.2	26.1	26.0	25.8
19	8.876 61	168	8.877 85	168	1.122 15	9.998 77	41	"	171	170	169	168	167
20	8.878 29	166	8.879 53	167	1.120 47	9.998 76	40	1	3.9	3.8	3.8	3.8	3.8
21	8.879 95	166	8.881 20	167	1.118 79	9.998 75	39	2	8.6	8.6	8.5	8.5	8.5
22	8.881 61	165	8.882 87	166	1.117 13	9.998 74	38	3	11.4	11.3	11.3	11.2	11.1
23	8.883 26	164	8.884 53	165	1.115 47	9.998 73	37	4	14.2	14.1	14.1	14.0	13.9
24	8.884 90	164	8.886 18	165	1.113 82	9.998 72	36	5	17.1	17.0	16.9	16.8	16.7
25	8.886 54	163	8.887 83	165	1.112 17	9.998 71	35	6	20.0	19.8	19.7	19.6	19.5
26	8.888 17	163	8.889 48	163	1.110 52	9.998 70	34	7	22.8	22.7	22.5	22.4	22.3
27	8.889 80	162	8.891 11	163	1.108 89	9.998 69	33	8	25.6	25.5	25.4	25.2	25.0
28	8.891 42	162	8.892 74	163	1.107 26	9.998 68	32	9	"	166	165	164	163
29	8.893 04	160	8.894 37	161	1.105 63	9.998 67	31	1	2.8	2.8	2.7	2.7	2.7
30	8.894 64	161	8.895 98	162	1.104 02	9.998 66	30	2	5.5	5.5	5.5	5.4	5.4
31	8.896 25	159	8.897 60	160	1.102 40	9.998 65	29	3	8.3	8.2	8.2	8.2	8.1
32	8.897 84	159	8.899 20	160	1.100 80	9.998 64	28	4	11.1	11.0	10.9	10.9	10.8
33	8.899 43	159	8.900 80	160	1.099 20	9.998 63	27	5	13.8	13.8	13.7	13.6	13.5
34	8.901 02	158	8.902 40	159	1.097 60	9.998 62	26	6	16.6	16.5	16.4	16.3	16.2
35	8.902 60	157	8.903 99	158	1.096 01	9.998 61	25	7	19.4	19.2	19.1	19.0	18.9
36	8.904 17	157	8.905 57	158	1.094 43	9.998 60	24	8	22.1	22.0	21.9	21.7	21.6
37	8.905 74	156	8.907 15	157	1.092 85	9.998 59	23	9	24.9	24.8	24.6	24.4	24.3
38	8.907 30	155	8.908 72	157	1.091 28	9.998 58	22	"	161	160	159	158	157
39	8.908 85	155	8.910 29	156	1.089 71	9.998 57	21	1	3.4	3.4	3.4	3.4	3.4
40	8.910 40	155	8.911 85	155	1.088 15	9.998 56	20	2	8.0	8.0	8.0	8.0	8.0
41	8.911 95	154	8.913 40	155	1.086 60	9.998 55	19	3	10.7	10.7	10.6	10.5	10.5
42	8.913 49	153	8.914 95	155	1.085 05	9.998 54	18	4	13.4	13.3	13.2	13.2	13.1
43	8.915 02	153	8.916 50	153	1.083 50	9.998 53	17	5	16.1	16.0	15.9	15.8	15.7
44	8.916 55	152	8.918 03	154	1.081 97	9.998 52	16	6	18.8	18.7	18.6	18.4	18.3
45	8.918 07	152	8.919 57	153	1.080 43	9.998 51	15	7	21.5	21.3	21.2	21.1	20.9
46	8.919 59	151	8.921 10	152	1.078 90	9.998 50	14	8	24.2	24.0	23.8	23.7	23.6
47	8.921 10	151	8.922 62	152	1.077 38	9.998 49	13	9	"	156	153	154	153
48	8.922 61	150	8.924 14	151	1.075 86	9.998 47	12	1	2.6	2.6	2.6	2.6	2.5
49	8.924 11	150	8.925 65	151	1.074 35	9.998 46	11	2	5.2	5.2	5.1	5.1	5.1
50	8.925 61	149	8.927 16	150	1.072 84	9.998 45	10	3	7.8	7.8	7.7	7.6	7.6
51	8.927 10	149	8.928 66	150	1.071 34	9.998 44	9	4	10.4	10.3	10.3	10.2	10.1
52	8.928 59	148	8.930 16	149	1.069 84	9.998 43	8	5	13.0	12.9	12.8	12.8	12.7
53	8.930 07	147	8.931 65	148	1.068 35	9.998 42	7	6	15.6	15.5	15.4	15.3	15.2
54	8.931 54	147	8.933 13	149	1.066 87	9.998 41	6	7	18.2	18.1	18.0	17.8	17.7
55	8.933 01	147	8.934 62	147	1.065 38	9.998 40	5	8	20.8	20.7	20.5	20.4	20.3
56	8.934 48	146	8.936 09	147	1.063 91	9.998 39	4	9	23.4	23.2	23.1	23.0	22.8
57	8.935 94	146	8.937 56	147	1.062 44	9.998 38	3	10	26.0	25.8	25.7	25.5	25.3
58	8.937 40	145	8.939 03	146	1.060 97	9.998 37	2	"	156	153	154	153	152
59	8.938 85	145	8.940 49	146	1.059 51	9.998 36	1	1	2.6	2.6	2.6	2.6	2.5
60	8.940 30	145	8.941 95	146	1.058 05	9.998 34	0	2	5.2	5.2	5.1	5.1	5.1
	L. cos.	d.	L. cot.	c.a.	L. Tan.	L. Sin.	'	P.P.					

94 (274°)

(265°) 85°

(Continued)

TABLE 3 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*

5° (185")

(354°) 174"

	L. Sin.	d.	L. Tan.	c.d.	L. cot.	L. Cos.		P.P.					
0	8.940 30	144	8.941 9.5	145	1.058 05	9.998 34	10	151	149	148	147	146	
1	8.941 74	143	8.943 40	145	1.056 60	9.998 33	9	2.5	2.5	2.5	2.4	2.4	
2	8.943 17	144	8.944 85	145	1.055 15	9.998 32	8	5.0	5.0				
3	8.944 61	142	8.946 63	143	1.053 70	9.998 31	7	7.6	7.4	4.974	4.974	4.973	
4	8.946 03	143	8.947 73	144	1.052 27	9.998 30	6	10.1	9.9	9.9	9.8	9.7	
5	8.947 46	141	8.949 17	143	1.050 83	9.998 29	5	12.6	12.4	12.3	12.2	12.2	
6	8.948 87	142	8.950 60	142	1.049 40	9.998 28	4	15.1	14.9	14.8	14.7	14.6	
7	8.950 29	141	8.952 02	142	1.047 98	9.998 27	3	17.6	17.4	17.3	17.2	17.0	
8	8.951 70	140	8.953 44	142	1.046 56	9.998 25	2	20.1	19.9	19.7	19.6	19.5	
9	8.953 10	140	8.954 86	141	1.045 14	9.998 24	1	22.6	22.4	22.2	22.0	21.9	
10	8.954 50	139	8.956 27	140	1.043 73	9.998 23	50	145	144	143	142	141	
11	8.955 89	139	8.957 67	141	1.042 33	9.998 22	49	2.4	2.4	2.4	2.4	2.4	
12	8.957 28	139	8.959 08	139	1.040 92	9.998 21	48	4.8	4.8	4.8	4.7	4.7	
13	8.958 67	138	8.960 47	140	1.039 53	9.998 20	47	7.2	7.2	7.2	7.1	7.0	
14	8.960 05	138	8.961 87	138	1.038 13	9.998 19	46	9.7	9.6	9.5	9.5	9.4	
15	8.961 43	137	8.963 25	139	1.036 75	9.998 17	45	12.1	12.0	11.9	11.8	11.8	
16	8.962 80	137	8.964 64	138	1.035 36	9.998 16	44	14.5	14.4	14.3	14.2	14.1	
17	8.964 17	136	8.966 02	137	1.033 98	9.998 15	43	16.9	16.8	16.7	16.6	16.4	
18	8.965 53	136	8.967 39	138	1.032 61	9.998 14	42	19.3	19.2	19.1	18.9	18.8	
19	8.966 89	136	8.968 77	136	1.031 23	9.998 13	41	21.8	21.6	21.4	21.3	21.2	
20	8.968 25	135	8.970 13	137	1.029 87	9.998 12	40	2.3	2.3	2.3	2.3	136	
21	8.969 60	135	8.971 50	135	1.028 50	9.998 10	39	4.7	4.6	4.6	4.6	4.5	
22	8.970 95	134	8.972 85	136	1.027 1.5	9.998 09	38	7.0	7.0	6.9	6.8	6.8	
23	8.972 29	134	8.974 21	135	1.025 79	9.998 08	37	9.3	9.3	9.2	9.1	9.1	
24	8.973 63	133	8.975 56	135	1.024 44	9.998 07	36	11.7	11.6	11.5	11.4	11.3	
25	8.974 96	133	8.976 91	134	1.023 09	9.998 06	35	14.0	13.9	13.8	13.7	13.6	
26	8.976 29	133	8.978 25	134	1.021 75	9.998 04	34	16.3	16.2	16.1	16.0	15.9	
27	8.977 62	132	8.979 59	133	1.020 41	9.998 03	33	18.7	18.5	18.4	18.3	18.1	
28	8.978 94	132	8.980 92	133	1.019 08	9.998 02	32	21.0	20.8	20.7	20.6	20.4	
29	8.980 26	131	8.982 25	133	1.017 75	9.998 01	31	2.2	2.2	2.2	2.2	131	
30	8.981 57	131	8.983 58	132	1.016 42	9.998 00	30	4.5	4.5	4.4	4.4	4.4	
31	8.982 88	131	8.984 90	132	1.015 10	9.997 98	29	6.8				6.6	
32	8.984 19	130	8.986 22	131	1.013 78	9.997 97	28	9.0	6.7	6.6	6.6	8.7	
33	8.985 49	130	8.987 53	131	1.012 47	9.997 96	27	11.2	11.2	11.1	11.0	10.9	
34	8.986 79	129	8.988 84	131	1.011 16	9.997 95	26	13.5	13.4	13.3	13.2	13.1	
35	8.988 08	129	8.990 15	130	1.009 8.5	9.997 93	25	15.8	15.6	15.5	15.4	15.3	
36	8.989 37	129	8.991 45	130	1.008 55	9.997 92	24	18.0	17.9	17.7	17.6	17.5	
37	8.990 66	128	8.992 75	130	1.007 25	9.997 91	23	20.2	20.1	20.0	19.8	19.6	
38	8.991 94	128	8.994 05	129	1.005 95	9.997 90	22	2.2	2.2	2.1	2.1	2.1	
39	8.993 22	128	8.995 34	128	1.004 66	9.997 88	21	4.3	4.3	4.3	4.2	4.2	
40	8.994 50	127	8.996 62	129	1.003 38	9.997 87	20	6.5	6.4	6.4			
41	8.995 77	127	8.997 91	128	1.002 09	9.997 86	19	8.7	8.6	8.5	8.4	8.4	
42	8.997 04	126	8.999 19	127	1.000 81	9.997 85	18	10.8	10.8	10.7	10.6	10.5	
43	8.998 30	126	9.000 46	127	0.999 54	9.997 83	17	13.0	12.9	12.8	12.7	12.6	
44	8.999 56	126	9.001 74	128	0.998 26	9.997 82	16	15.2	15.0	14.9	14.8	14.7	
45	9.000 82	125	9.003 01	126	0.996 99	9.997 81	15	17.3	17.2	17.1	16.9	16.8	
46	9.002 07	125	9.004 27	126	0.995 73	9.997 80	14	19.5	19.4	19.2	19.0	18.9	
47	9.003 32	124	9.005 53	126	0.994 47	9.997 78	13	2.2	2.2	2.2	2.2	121	
48	9.004 56	125	9.006 79	126	0.993 21	9.997 77	12	4.2	4.1	4.1	4.1	2.0	
49	9.005 81	123	9.008 05	125	0.991 95	9.997 76	11	6.2	6.2	6.2	6.1	6.0	
50	9.007 04	124	9.009 30	125	0.990 70	9.997 75	10	8.3	8.3	8.2	8.1	8.1	
51	9.008 28	123	9.010 55	124	0.989 45	9.997 73	9	10.4	10.3	10.2	10.2	10.1	
52	9.009 51	123	9.011 79	124	0.988 21	9.997 72	8	12.5	12.4	12.3	12.2	12.1	
53	9.010 74	122	9.013 03	124	0.986 97	9.997 71	7	14.6	14.5	14.4	14.2	14.1	
54	9.011 96	122	9.014 27	123	0.985 73	9.997 69	6	16.7	16.5	16.4	16.3	16.1	
55	9.013 18	122	9.015 50	123	0.984 50	9.997 68	5	18.8	18.6	18.4	18.3	18.2	
56	9.014 40	121	9.016 73	123	0.983 27	9.997 67	4	20.8	20.7	20.5	20.3	20.2	
57	9.015 61	121	9.017 96	122	0.982 04	9.997 65	3						
58	9.016 82	121	9.019 18	122	0.980 82	9.997 64	2						
59	9.018 03	121	9.020 40	122	0.979 60	9.997 63	1						
60	9.019 23	120	9.021 62	122	0.978 38	9.997 61	0						
	L. Cos.	d.	L. Cot.	c.d.	L. Tan.	L. Sin.		P.P.					

95° (275")

(264°) 84"

(Continued)

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS -- *Contd*
(353°) 173°

6° (186)

'	L.Sin.	d.	L. Tan.	c.d.	L. Cot.	L. Cos.	'	P.P.				
0	9.019 23	120	9.021 62	121	0.978 38	9.997 61	60	"	121	120	119	118
1	9.020 43	120	9.022 83	121	0.977 17	9.997 60	59	1	2.0	2.0	2.0	2.0
2	9.021 63	120	9.024 04	121	0.975 96	9.997 59	58	2	4.0	4.0	4.0	3.9
3	9.022 83	119	9.025 25	120	0.974 75	9.997 57	57	3	6.0	6.0	6.0	5.9
4	9.024 02	118	9.026 45	121	0.973 55	9.997 56	56	4	8.1	8.0	7.9	7.9
5	9.025 20	119	9.027 66	119	0.972 34	9.997 55	55	5	10.1	10.0	9.9	9.8
6	9.026 39	118	9.028 8.5	120	0.971 15	9.997 53	54	6	12.1	12.0	11.9	11.8
7	9.027 57	117	9.030 05	119	0.969 95	9.997 52	53	7	14.1	14.0	13.9	13.8
8	9.028 74	118	9.031 24	118	0.968 76	9.997 51	52	8	16.1	16.0	15.9	15.7
9	9.029 92	117	9.032 42	119	0.967 58	9.997 49	51	9	18.2	18.0	17.8	17.7
10	9.031 09	117	9.033 61	118	0.966 39	9.997 48	50	10	20.2	20.0	19.8	19.7
11	9.032 26	116	9.034 79	118	0.965 21	9.997 47	49	20	40.3	40.0	39.7	39.3
12	9.033 42	116	9.035 97	117	0.964 03	9.997 45	48	30	60.5	60.0	59.5	59.0
13	9.034 58	116	9.037 14	118	0.962 86	9.997 44	47	40	80.7	80.0	79.3	78.7
14	9.035 74	116	9.038 32	116	0.961 68	9.997 42	46	50	100.8	100.0	99.2	98.3
15	9.036 90	115	9.039 48	117	0.960 52	9.997 41	45	"	117	116	115	114
16	9.038 05	115	9.040 6.5	116	0.959 35	9.997 40	44	1	2.0	1.9	1.9	1.9
17	9.039 20	114	9.041 81	116	0.958 19	9.997 38	43	2	3.9	3.9	3.8	3.8
18	9.040 34	115	9.042 97	116	0.957 03	9.997 37	42	3	5.8	5.8	5.8	5.7
19	9.041 49	113	9.044 13	115	0.955 87	9.997 36	41	4	7.8	7.7	7.7	7.6
20	9.042 62	114	9.045 28	115	0.954 72	9.997 34	40	5	9.8	9.7	9.6	9.5
21	9.043 76	114	9.046 43	115	0.953 57	9.997 33	39	6	11.7	11.6	11.5	11.4
22	9.044 90	113	9.047 58	115	0.952 42	9.997 31	38	7	13.6	13.5	13.4	13.3
23	9.046 03	112	9.048 73	114	0.951 27	9.997 30	37	8	15.6	15.5	15.3	15.2
24	9.047 15	113	9.049 87	114	0.950 13	9.997 28	36	9	17.6	17.4	17.2	17.1
25	9.048 28	112	9.051 01	113	0.948 99	9.997 27	35	10	19.5	19.3	19.2	19.0
26	9.049 40	112	9.052 14	114	0.947 86	9.997 26	34	20	39.0	38.7	38.3	38.0
27	9.050 52	112	9.053 28	113	0.946 72	9.997 24	33	30	58.5	58.0	57.5	57.0
28	9.051 64	111	9.054 41	112	0.945 59	3.997 23	32	40	78.0	77.3	76.7	76.0
29	9.052 75	111	9.055 53	113	0.944 47	9.997 21	31	50	97.5	96.7	95.8	95.0
30	9.053 86	111	9.056 66	112	0.943 34	9.997 20	30	"	113	112	111	110
31	9.054 97	110	9.057 78	112	0.942 22	9.997 18	29	1	1.9	1.9	1.8	1.8
32	9.056 07	110	9.058 90	112	0.941 10	9.997 17	28	2	3.8	3.7	3.7	3.7
33	9.057 17	110	9.060 02	111	0.939 98	9.997 16	27	3	5.6	5.6	5.6	5.5
34	9.058 27	110	9.061 13	111	0.938 87	9.997 14	26	4	7.5	7.5	7.4	7.3
35	9.059 37	109	9.062 24	111	0.937 76	9.997 13	25	5	9.4	9.3	9.2	9.2
36	9.060 46	109	9.063 35	110	0.936 65	9.997 11	24	6	11.3	11.2	11.1	11.0
37	9.061 55	109	9.064 45	111	0.935 55	9.997 10	23	7	13.2	13.1	13.0	12.8
38	9.062 64	108	9.065 56	110	0.934 44	9.997 08	22	8	15.1	14.9	14.8	14.7
39	9.063 72	109	9.066 66	109	0.933 34	9.997 07	21	9	17.0	16.8	16.6	16.5
40	9.064 81	108	9.067 75	110	0.932 25	9.997 05	20	10	18.8	18.7	18.5	18.3
41	9.065 89	107	9.068 85	109	0.931 15	9.997 04	19	20	37.7	37.3	37.0	36.7
42	9.066 96	108	9.069 94	109	0.930 06	9.997 02	18	30	56.5	56.0	55.5	55.0
43	9.068 04	107	9.071 03	108	0.928 97	9.997 01	17	40	75.3	74.7	74.0	73.3
44	9.069 11	107	9.072 11	109	0.927 89	9.996 99	16	50	94.2	93.3	92.5	91.7
45	9.070 18	106	9.073 20	108	0.926 80	9.996 98	15	"	109	108	107	106
46	9.071 24	107	9.074 28	108	0.925 72	9.996 96	14	1	1.8	1.8	1.8	1.8
47	9.072 3.1	106	9.075 36	107	0.924 64	9.996 95	13	2	3.6	3.6	3.6	3.5
48	9.073 37	105	9.076 43	108	0.923 57	9.996 93	12	3	5.4	5.4	5.4	5.3
49	9.074 42	106	9.077 51	107	0.922 49	9.996 92	11	4	7.3	7.2	7.1	7.1
50	9.075 48	105	9.078 58	106	0.921 42	9.996 90	10	5	9.1	9.0	8.9	8.8
51	9.076 53	105	9.079 64	107	0.920 36	9.996 89	9	6	10.9	10.8	10.7	10.6
52	9.077 58	105	9.080 71	106	0.919 29	9.996 87	8	7	12.7	12.6	12.5	12.4
53	9.078 63	105	9.081 77	106	0.918 23	9.996 86	7	8	14.5	14.4	14.3	14.1
54	9.079 68	104	9.082 83	106	0.917 17	9.996 84	6	9	16.4	16.2	16.0	15.9
55	9.080 72	104	9.083 89	106	0.916 11	9.996 83	5	10	18.2	18.0	17.8	17.7
56	9.081 76	103	9.084 95	105	0.915 05	9.996 81	4	20	36.3	35.0	35.7	35.9
57	9.082 80	103	9.086 00	105	0.914 00	9.996 80	3	30	54.5	54.0	53.5	53.0
58	9.083 83	133	9.087 08	105	0.912 95	9.996 78	2	40	72.7	72.0	71.3	70.7
59	9.084 86	103	9.088 10	104	0.911 90	9.996 77	1	50	90.8	90.0	89.2	88.3
60	9.085 89		9.089 14		0.910 86	9.996 75	0					
	L. Cos.	d.	L. cot.	c.d.	L. Tan.	L. Sin.	'	P.P.				

96 (276)

(263°) 83°

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS --Contd
(352°) 172°

7 (187)

	I. Sin.	d.	L. Tan.	c.d.	L. Cot.	L. Cos.	'	P.P.				
0	9.085 89		9.089 14		0.910 86	9.996 75	50	"	105	104	103	102
1	9.086 92	103	9.090 19	105	0.909 81	9.996 74	49	1	1.8	1.7	1.7	1.7
2	9.087 95	103	9.091 23	104	0.908 77	9.996 72	48	2	3.5	3.5	3.4	3.4
3	9.088 97	102	9.092 27	104	0.907 73	9.996 70	47	3	5.2	5.2	5.2	5.1
4	9.089 99	102	9.093 30	103	0.906 70	9.996 69	46	4	7.0	6.9	6.9	6.8
		102		104								
5	9.091 01	101	9.094 34	103	0.905 66	9.996 67	45	5	8.8	8.7	8.6	8.5
6	9.092 02	102	9.095 37	103	0.904 63	9.996 66	44	6	10.5	10.4	10.3	10.2
7	9.093 04	101	9.096 40	102	0.903 60	9.996 64	43	7	12.2	12.1	12.0	11.9
8	9.094 05	101	9.097 42	103	0.902 58	9.996 63	42	8	14.0	13.9	13.7	13.6
9	9.095 06	100	9.098 45	102	0.901 55	9.996 61	41	9	15.8	15.6	15.4	15.3
		100		102								
10	9.096 06	101	9.099 47	102	0.900 53	9.996 59	40	10	17.5	17.3	17.2	17.0
11	9.097 07	101	9.100 49	102	0.899 51	9.996 58	39	20	35.0	34.7	34.3	34.0
12	9.098 07	100	9.101 50	101	0.898 50	9.996 56	38	30	52.5	52.0	51.5	51.0
13	9.099 07	99	9.102 52	102	0.897 48	9.996 55	37	40	70.0	69.3	68.7	68.0
14	9.100 06	100	9.103 53	101	0.896 47	9.996 53	36	50	87.5	86.7	85.8	85.0
		100		101								
15	9.101 06	99	9.104 54	101	0.895 46	9.996 51	35	"	101	100	99	98
16	9.102 05	99	9.105 55	101	0.894 45	9.996 50	34	1	1.7	1.7	1.6	1.6
17	9.103 04	98	9.106 56	100	0.893 44	9.996 48	33	2	3.4	3.3	3.3	3.3
18	9.104 02	99	9.107 56	100	0.892 44	9.996 47	32	3	5.0	5.0	5.0	4.9
19	9.105 01	98	9.108 56	100	0.891 44	9.996 45	31	4	6.7	6.7	6.6	6.5
		98		100								
20	9.105 99	98	9.109 56	100	0.890 44	9.996 43	30	5	8.4	8.3	8.2	8.2
21	9.106 97	98	9.110 56	99	0.889 44	9.996 42	29	6	10.1	10.0	9.9	9.8
22	9.107 95	98	9.111 55	99	0.888 4.5	9.996 40	28	7	11.8	11.7	11.6	11.4
23	9.108 93	97	9.112 54	99	0.887 46	9.996 38	27	8	13.5	13.3	13.2	13.1
24	9.109 90	97	9.113 53	99	0.886 47	9.996 37	26	9	15.2	15.0	14.8	14.7
		97		99								
25	9.110 87	97	9.114 52	99	0.885 48	9.996 35	25	10	16.8	16.7	16.5	16.3
26	9.111 84	97	9.115 51	98	0.884 49	9.996 33	24	20	33.7	33.3	33.0	32.7
27	9.112 81	96	9.116 49	98	0.883 51	9.996 32	23	30	50.5	50.0	49.5	49.0
28	9.113 77	97	9.117 47	98	0.882 53	9.996 30	22	40	67.3	66.7	66.0	65.3
29	9.114 74	96	9.118 45	98	0.881 55	9.996 29	21	50	84.2	83.3	82.5	81.7
		96		98								
30	9.115 70	96	9.119 43	97	0.880 57	9.996 27	20	"	97	96	95	94
31	9.116 66	95	9.120 40	98	0.879 60	9.996 25	19	1	1.6	1.6	1.6	1.6
32	9.117 61	96	9.121 38	97	0.878 62	9.996 24	18	2	3.2	3.2	3.2	3.1
33	9.118 57	95	9.122 35	97	0.877 65	9.996 22	17	3	4.8	4.8	4.8	4.7
34	9.119 52	95	9.123 32	96	0.876 68	9.996 20	16	4	6.5	6.4	6.3	6.3
		95		96								
35	9.120 47	95	9.124 28	97	0.875 72	9.996 18	25	5	8.1	8.0	7.9	7.8
36	9.121 42	94	9.125 25	96	0.874 75	9.996 17	24	6	9.7	9.6	9.5	9.4
37	9.122 36	95	9.126 21	96	0.873 79	9.996 15	23	7	11.3	11.2	11.1	11.0
38	9.123 31	94	9.127 17	96	0.872 83	9.996 13	22	8	12.9	12.8	12.7	12.5
39	9.124 25	94	9.128 13	96	0.871 87	9.996 12	21	9	14.6	14.4	14.2	14.1
		94		96								
40	9.125 19	93	9.129 09	95	0.870 91	9.996 10	20	10	16.2	16.0	15.8	15.7
41	9.126 12	94	9.130 04	95	0.869 96	9.996 08	19	20	32.3	32.0	31.7	31.3
42	9.127 06	93	9.130 99	95	0.869 01	9.996 07	18	30	48.5	48.0	47.5	47.0
43	9.127 99	93	9.131 94	95	0.868 06	9.996 05	17	40	64.7	64.0	63.3	62.7
44	9.128 92	93	9.132 89	95	0.867 11	9.996 03	16	50	80.8	80.0	79.2	78.3
		93		95								
45	9.129 85	93	9.133 84	94	0.866 16	9.996 01	15	"	93	92	91	90
46	9.130 78	93	9.134 78	95	0.865 22	9.996 00	14	1	1.6	1.5	1.5	1.5
47	9.131 71	92	9.135 73	94	0.864 27	9.995 98	13	2	3.1	3.1	3.0	3.0
48	9.132 63	92	9.136 67	94	0.863 33	9.995 96	12	3	4.6	4.6	4.6	4.5
49	9.133 55	92	9.137 61	93	0.862 39	9.995 95	11	4	6.2	6.1	6.1	6.6
		92		93								
50	9.134 47	92	9.138 54	94	0.86146	9.995 93	10	5	7.8	7.7	7.6	7.5
51	9.135 39	91	9.139 48	93	0.860 52	9.995 91	9	6	9.3	9.2	9.1	9.0
52	9.136 30	92	9.140 41	93	0.859 59	9.995 89	8	7	10.8	10.7	10.6	10.5
53	9.137 22	91	9.141 34	93	0.858 66	9.995 88	7	8	12.4	12.3	12.1	12.0
54	9.138 13	91	9.142 27	93	0.857 73	9.995 86	6	9	14.0	13.8	13.6	13.5
		91		93								
55	9.139 04	90	9.143 20	92	0.856 80	9.995 84	5	10	15.5	15.3	15.2	15.0
56	9.139 94	91	9.144 12	92	0.855 88	9.995 82	4	20	31.0	30.7	30.3	30.0
57	9.140 85	90	9.145 04	93	0.854 96	9.995 81	3	30	46.5	46.0	45.5	45.0
58	9.141 79	91	9.145 97	91	0.854 03	9.995 79	2	40	62.0	61.3	60.7	60.0
59	9.142 66	90	9.146 88	92	0.853 12	9.995 77	1	50	77.5	76.7	75.8	75.0
		90		92								
60	9.143 56		9.147 80		0.852 20	9.995 75	0					
'	L. Cos.	d.	L. Cot.	c.d.	L. Tan.	L. Sin.	'	P.P.				

97° (277)

(262) 82°

(Continued)

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*

8° (188°)

(351°) 171°

'	L. Sin.	d.	L. Tan.	c.d.	L.-Cot.	L. Coe.		P.P.			
0	9.143 56	89	9.147 80	92	0.852 20	9.995 75	60	"	92	91	90
1	9.144 45	90	9.148 72	91	0.851 28	9.995 74	59	1	1.5	1.5	1.5
2	9.145 3.5	89	9.149 63	91	0.850 37	9.995 72	58	2	3.1	3.0	3.0
3	9.146 24	90	9.150 54	91	0.849 46	9.995 70	57	3	4.6	4.6	4.5
4	9.147 14	89	9.151 45	91	0.848 55	9.995 68	56	4	6.1	6.1	6.0
5	9.148 03	88	9.152 36	91	0.847 64	9.995 66	55	5	7.7	7.6	7.5
6	9.148 91	89	9.153 27	90	0.846 73	9.995 65	54	6	9.2	9.1	9.0
7	9.149 80	89	9.154 17	91	0.845 83	9.995 63	53	7	10.7	10.6	10.5
8	9.150 69	88	9.155 08	90	0.844 92	9.995 61	52	8	12.3	12.1	12.0
9	9.151 57	88	9.155 98	90	0.844 02	9.995 59	51	9	13.8	13.6	13.5
10	9.152 45	88	9.156 88	89	0.843 12	9.995 57	50	10	15.3	15.2	15.0
11	9.153 33	88	9.157 77	90	0.842 23	9.995 56	49	20	30.7	30.3	30.0
12	9.154 21	87	9.158 67	89	0.841 33	9.995 54	48	30	46.0	45.5	45.0
13	9.155 08	88	9.159 56	90	0.840 44	9.995 52	47	40	61.3	60.7	60.0
14	9.155 96	87	9.160 46	89	0.839 54	9.995 50	46	50	76.7	75.8	75.0
15	9.156 83	87	9.161 35	89	0.838 65	9.995 48	45	"	89	88	87
16	9.157 70	87	9.162 24	88	0.837 76	9.995 46	44	1	1.5	1.5	1.4
17	9.158 57	87	9.163 12	89	0.836 88	9.995 45	43	2	3.0	2.9	2.9
18	9.159 44	86	9.164 01	88	0.835 99	9.995 43	42	3	4.4	4.4	4.4
19	9.160 30	86	9.164 89	88	0.835 11	9.995 41	41	4	5.9	5.9	5.8
20	9.161 16	87	9.165 77	88	0.834 23	9.995 39	40	5	7.4	7.3	7.2
21	9.162 03	86	9.166 65	88	0.833 35	9.995 37	39	6	8.9	8.8	8.7
22	9.162 89	85	9.167 53	88	0.832 47	9.995 35	38	7	10.4	10.3	10.2
23	9.163 74	86	9.168 41	87	0.831 59	9.995 33	37	8	11.9	11.7	11.6
24	9.164 60	85	9.169 28	88	0.830 72	9.995 32	36	9	13.4	13.2	13.0
25	9.165 45	86	9.170 16	87	0.829 84	9.995 30	35	10	14.8	14.7	14.5
26	9.166 31	85	9.171 03	87	0.828 97	9.995 28	34	20	29.7	29.3	29.0
27	9.167 16	85	9.171 90	87	0.828 10	9.995 26	33	30	44.5	44.0	43.5
28	9.168 01	85	9.172 77	86	0.827 23	9.995 24	32	40	59.3	58.7	58.0
29	9.168 86	84	9.173 63	87	0.826 37	9.995 22	31	50	74.2	73.3	72.5
30	9.169 70	85	9.174 50	86	0.825 50	9.995 20	30	"	86	85	84
31	9.170 55	84	9.175 36	86	0.824 64	9.995 18	29	1	1.4	1.4	1.4
32	9.171 39	84	9.176 22	86	0.823 78	9.995 17	28	2	2.9	2.8	2.8
33	9.172 23	84	9.177 08	86	0.822 92	9.995 15	27	3	4.3	4.2	4.2
34	9.173 07	84	9.177 94	86	0.822 06	9.995 13	26	4	5.7	5.7	5.6
35	9.173 91	83	9.178 80	85	0.821 20	9.995 11	25	5	7.2	7.1	7.0
36	9.174 74	84	9.179 65	86	0.820 35	9.995 09	24	6	8.6	8.5	8.4
37	9.175 58	83	9.180 51	85	0.819 49	9.995 07	23	7	10.0	9.9	9.8
38	9.176 41	83	9.181 36	85	0.818 64	9.995 05	22	8	11.5	11.3	11.2
39	9.177 24	83	9.182 21	85	0.817 79	9.995 03	21	9	12.9	12.8	12.6
40	9.178 07	83	9.183 06	85	0.816 94	9.995 01	20	10	14.3	14.2	14.0
41	9.178 90	83	9.183 91	84	0.816 09	9.994 99	19	20	28.7	28.3	28.0
42	9.179 73	82	9.184 75	85	0.815 25	9.994 97	18	30	43.0	42.5	42.0
43	9.180 55	82	9.185 60	84	0.814 40	9.994 95	17	40	57.3	56.7	56.0
44	9.181 37	83	9.186 44	84	0.813 56	9.994 94	16	50	71.7	70.8	70.0
45	9.182 20	82	9.187 28	84	0.812 72	9.994 92	15	"	83	82	81
46	9.183 02	81	9.188 12	84	0.811 88	9.994 90	14	1	1.4	1.4	1.4
47	9.183 83	82	9.188 96	83	0.811 04	9.994 88	13	2	2.8	2.7	2.7
48	9.184 65	82	9.189 79	84	0.810 21	9.994 86	12	3	4.2	4.1	4.0
49	9.185 47	81	9.190 63	83	0.809 37	9.994 84	11	4	5.5	5.5	5.4
50	9.186 28	81	9.191 46	83	0.808 54	9.994 82	10	5	6.9	6.8	6.8
51	9.187 09	81	9.192 29	83	0.807 71	9.994 80	9	6	8.3	8.2	8.1
52	9.187 90	81	9.193 12	83	0.806 88	9.994 78	8	7	9.7	9.6	9.4
53	9.188 71	81	9.193 95	83	0.806 05	9.994 76	7	8	11.1	10.9	10.8
54	9.189 52	81	9.194 78	83	0.805 22	9.994 74	6	9	12.4	12.3	12.2
55	9.190 33	80	9.195 61	82	0.804 39	9.994 72	5	10	13.8	13.7	13.5
56	9.191 13	80	9.196 43	82	0.803 57	9.994 70	4	20	27.7	27.3	27.0
57	9.191 93	80	9.197 25	82	0.802 75	9.994 68	3	30	41.5	41.0	40.5
58	9.192 73	80	9.198 07	82	0.801 93	9.994 66	2	40	55.3	54.7	54.0
59	9.193 53	80	9.198 89	82	0.801 11	9.994 64	1	50	69.2	68.3	67.5
60	9.194 33		9.199 71		0.800 29	9.994 62	0				
'	L. Cos.	d.	L. Cot.	c.d.	L. Tan.	L. Sin.	'	P.P.			

98° (278°)

(261°) 81°

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS --- *Contd*

9° (189°)

(350°) 170°

	L. Sin.	d.	L. Tan.	c.d.	L. Cot.	L. Cos.		P.P.				
0	9.194 33	80	9.199 71	82	0.800 29	9.994 62	60	"	80	79	78	77
1	9.195 13	79	9.200 53	81	0.799 47	9.994 60	59	1	1.3	1.3	1.3	1.3
2	9.195 92	80	9.201 34	82	0.798 66	9.994 58	58	2	2.7	2.6	2.6	2.6
3	9.196 72	79	9.202 16	81	0.797 84	9.994 56	57	3	4.0	4.0	3.9	3.8
4	9.197 15	79	9.202 97	81	0.797 03	9.994 54	56	4	5.3	5.3	5.2	5.1
5	9.198 30	79	9.203 78	81	0.796 22	9.994 52	55	5	6.7	6.6	6.5	6.4
6	9.199 09	59	9.204 59	81	0.795 41	9.994 50	54	6	8.0	7.9	7.8	7.7
7	9.199 88	79	9.205 4.0	81	0.794 60	9.994 48	53	7	9.3	9.2	9.1	9.0
8	9.200 67	78	9.206 2.1	80	0.793 79	9.994 46	52	8	10.7	10.5	10.4	10.3
9	9.201 45	78	9.207 0.1	81	0.792 99	9.994 44	51	9	12.0	11.8	11.7	11.6
10	9.202 23	79	9.207 82	80	0.792 18	9.994 42	50	10	13.3	13.2	13.0	12.8
11	9.203 02	58	9.208 62	80	0.791 38	9.994 40	49	20	26.7	26.3	26.0	25.7
12	9.203 50	78	9.209 42	80	0.790 58	9.994 38	48	30	40.0	39.5	39.0	38.5
13	9.204 58	77	9.210 22	80	0.789 78	9.994 36	47	40	53.3	52.7	52.0	51.3
14	9.205 35	78	9.211 02	80	0.788 98	9.994 34	46	50	66.7	65.8	65.0	64.2
15	9.206 13	78	9.211 82	79	0.788 18	9.994 32	45	"	76	75	74	73
16	9.206 91	77	9.212 61	80	0.787 39	9.994 29	44	1	1.3	1.2	1.2	1.2
17	9.207 68	77	9.213 41	79	0.786 59	9.994 27	43	2	2.5	2.5	2.5	2.4
18	9.208 45	77	9.214 20	79	0.785 80	9.994 25	42	3	3.8	3.8	3.7	3.6
19	9.209 22	77	9.214 YY	79	0.785 01	9.994 23	41	4	5.1	5.0	4.9	4.9
20	9.209 99	77	9.215 78	79	0.784 22	9.994 21	40	5	6.3	6.2	6.2	6.1
21	9.210 76	77	9.216 57	79	0.783 43	9.994 19	39	6	7.6	7.5	7.4	7.3
22	9.211 53	76	9.217 36	78	0.782 64	9.994 17	38	7	8.9	8.8	8.6	8.5
23	9.212 29	77	9.218 14	79	0.781 86	9.994 15	37	8	10.1	10.0	9.9	9.7
24	9.213 06	76	9.218 93	78	0.781 07	9.994 13	36	9	11.4	11.2	11.1	11.0
25	9.213 82	76	9.219 71	78	0.780 29	9.994 11	35	10	12.7	12.5	12.3	12.2
26	9.214 58	76	9.220 49	78	0.779 5.1	9.994 09	34	20	25.3	25.0	24.7	24.3
27	9.215 34	76	9.221 27	78	0.778 73	9.994 07	33	30	38.0	37.5	37.0	36.5
28	9.216 10	75	9.222 05	78	0.777 95	9.994 04	32	40	50.7	50.0	49.3	48.7
29	9.216 85	76	9.222 83	78	0.777 17	9.994 02	31	50	63.3	62.5	61.7	60.8
30	9.217 61	75	9.223 61	77	0.776 39	9.994 00	30	"	72	71	70	69
31	9.218 36	76	9.224 38	78	0.775 62	9.993 98	29	1	1.2	1.2	0.0	0.0
32	9.219 12	75	9.225 16	77	0.774 84	9.993 96	28	2	2.4	2.4	0.1	0.1
33	9.219 87	75	9.225 93	77	0.774 07	9.993 94	27	3	3.6	3.6	0.2	0.1
34	9.220 62	75	9.226 70	77	0.773 30	9.993 92	26	4	4.8	4.7	0.2	0.1
35	9.221 37	74	9.227 47	77	0.772 53	9.993 90	25	5	6.0	5.9	0.2	0.2
36	9.222 11	75	9.228 24	77	0.771 76	9.993 88	24	6	7.2	7.1	0.3	0.2
37	9.222 86	75	9.229.01	76	0.770 99	9.993 85	23	7	8.4	8.3	0.4	0.2
38	9.223 61	74	9.229 77	77	0.770 23	9.993 83	22	8	9.6	9.5	0.4	0.3
39	9.224 35	74	9.230 54	77	0.769 46	9.993 81	21	9	10.8	10.6	0.4	0.3
40	9.225 09	74	9.231 30	76	0.768 70	9.993 79	20	10	12.0	11.8	0.5	0.3
41	9.225 83	74	9.232 06	77	0.767 94	9.993 77	19	20	24.0	23.7	1.0	0.7
42	9.226 57	74	9.232 83	76	0.767 17	9.993 75	18	30	36.0	35.5	1.5	1.0
43	9.227 31	74	9.233 59	76	0.766 41	9.993 72	17	40	48.0	47.3	2.0	1.3
44	9.228 05	73	9.234 35	75	0.765 65	9.993 70	16	50	60.0	59.2	2.5	1.7
45	9.228 78	74	9.235 10	76	0.764 90	9.993 68	15					
46	9.229 52	73	9.235 86	75	0.764 14	9.993 66	14		3	3	3	
47	9.230 25	73	9.236 61	76	0.763 39	9.993 64	13					
48	9.230 98	73	9.237 37	75	0.762 63	9.993 62	12		79	78	77	
49	9.231 71	73	9.238 12	75	0.761 88	9.993 59	11					
50	9.232 44	73	9.238 87	75	0.761 13	9.993 57	10	0				
51	9.233 17	73	9.239 62	75	0.760 38	9.993 55	9	1	13.2	13.0	12.8	
52	9.233 90	72	9.240 37	75	0.759 63	9.993 53	8	2	39.5	39.0	38.5	
53	9.234 62	73	9.241 12	74	0.758 88	9.993 51	7	3	65.8	65.0	64.2	
54	9.235 35	72	9.241 86	75	0.758 14	9.993 48	6					
55	9.236 07		9.242 61	74	0.757 39	9.993 46	5		3	3	3	
56	9.236 79	3:	9.243 35	75	0.756 65	9.993 44	4		-76	75	74	
57	9.237 52	71	9.244 10	74	0.755 90	9.993 42	3	0				
58	9.238 23	72	9.244 84	74	0.755 16	9.993 40	2	1	12.7	12.5	12.3	
59	9.238 95	72	9.245 58	74	0.754 42	9.993 37	1	2	38.0	37.5	37.0	
60	9.239 67		9.246 32		0.753 68	9.993 35	0	3	63.3	62.5	61.7	
	L. Cos.	d.	L. cot.	c.d.	L. Tan.	L. Sin.		P.P.				

99° (279°)

(260°) 80°

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS—Contd

10° (190°)

(349°) 169°

	L. Sin.	d.	L. Tan.	c.d.	L. Cot.	L. Cos.	d.		P.P.
0	9-239 67	72	9-246 32	74	0-753 68	9-993 35	2	60	74 73 72
1	9-240 39	71	9-247 06	73	0-752 94	9-993 33	2	59	1 1-2 1-2 1-2
2	9-241 10	71	9-247 79	74	0-752 21	9-993 31	3	58	2 2-5 2-4 2-4
3	9-241 81	72	9-248 53	73	0-751 47	9-993 28	2	57	3 3-7 3-6 3-6
4	9-242 53	71	9-249 26	74	0-750 74	9-993 26	2	56	4 4-9 4-9 4-8
5	9-243 24	71	9-250 00	73	0-750 00	9-993 24	2	55	5 6-2 6-1 6-0
6	9-243 95	71	9-250 73	73	0-749 27	9-993 22	3	54	6 7-4 7-3 7-2
7	9-244 66	70	9-251 46	73	0-748 54	9-993 19	2	53	7 8-6 8-5 8-4
8	9-245 36	71	9-252 19	73	0-747 81	9-993 17	2	52	8 9-9 9-7 9-6
9	9-246 07	70	9-252 92	73	0-747 08	9-993 15	2	51	9 11-1 11-0 10-8
10	9-246 77	71	9-253 65	72	0-746 35	9-993 13	2	50	10 12-3 12-2 12-0
11	9-247 48	70	9-254 37	73	0-745 63	9-993 10	2	49	20 24-7 24-3 24-0
12	9-248 18	70	9-255 10	72	0-744 90	9-993 08	2	48	30 37-0 36-5 36-0
13	9-248 88	70	9-255 82	73	0-744 18	9-993 06	2	47	40 49-3 48-7 48-0
14	9-249 58	70	9-256 55	72	0-743 45	9-993 04	3	46	50 61-7 60-8 60-0
15	9-250 28	70	9-257 27	72	0-742 73	9-993 01	2	45	71 70 69
16	9-250 98	70	9-257 99	72	0-742 01	9-992 99	2	44	1 1-2 1-2 1-2
17	9-251 68	69	9-258 71	72	0-741 29	9-992 97	2	43	2 2-4 2-3 2-3
18	9-252 37	70	9-259 43	72	0-740 57	9-992 94	3	42	3 3-6 3-5 3-4
19	9-253 07	69	9-260 15	71	0-739 85	9-992 92	2	41	4 4-7 4-7 4-6
20	9-253 76	69	9-260 86	72	0-739 14	9-992 90	2	40	5 5-9 5-8 5-8
21	9-254 45	69	9-261 58	71	0-738 42	9-992 88	3	39	6 7-1 7-0 6-9
22	9-255 14	69	9-262 29	72	0-737 71	9-992 85	2	38	7 8-3 8-2 8-0
23	9-255 83	69	9-263 01	71	0-736 99	9-992 83	2	37	8 9-5 9-3 9-2
24	9-256 52	69	9-263 72	71	0-736 28	9-992 81	3	36	9 10-6 10-5 10-4
25	9-257 21	69	9-264 43	71	0-735 57	9-992 78	2	35	10 11-8 11-7 11-5
26	9-257 90	68	9-265 14	71	0-734 86	9-992 76	2	34	20 23-7 23-3 23-0
27	9-258 58	69	9-265 85	70	0-734 15	9-992 74	3	33	30 35-5 35-0 34-5
28	9-259 27	68	9-266 55	71	0-733 45	9-992 71	2	32	40 47-3 46-7 46-0
29	9-259 95	68	9-267 26	71	0-732 74	9-992 69	2	31	50 59-2 58-3 57-5
30	9-260 63	68	9-267 97	70	0-732 03	9-992 67	3	30	68 67 66
31	9-261 31	68	9-268 67	70	0-731 33	9-992 64	2	29	1 1-1 1-1 1-1
32	9-261 99	68	9-269 37	71	0-730 63	9-992 62	2	28	2 2-3 2-2 2-2
33	9-262 67	68	9-270 08	70	0-729 92	9-992 60	3	27	3 3-4 3-4 3-3
34	9-263 35	68	9-270 78	70	0-729 22	9-992 57	2	26	4 4-5 4-5 4-4
35	9-264 03	67	9-271 48	70	0-728 52	9-992 55	3	25	5 5-7 5-6 5-5
36	9-264 70	68	9-272 18	70	0-727 82	9-992 52	2	24	6 6-8 6-7 6-6
37	9-265 38	67	9-272 88	69	0-727 12	9-992 50	2	23	7 7-9 7-8 7-7
38	9-266 05	67	9-273 57	70	0-726 43	9-992 48	3	22	8 9-1 8-9 8-8
39	9-266 72	67	9-274 27	69	0-725 73	9-992 45	2	21	9 10-2 10-0 9-9
40	9-267 39	67	9-274 96	70	0-725 04	9-992 43	2	20	10 11-3 11-2 11-0
41	9-268 06	67	9-275 66	69	0-724 34	9-992 41	3	19	20 22-7 22-3 22-0
42	9-268 73	67	9-276 35	69	0-723 65	9-992 38	2	18	30 34-0 33-5 33-0
43	9-269 40	67	9-277 04	69	0-722 96	9-992 36	3	17	40 45-3 44-7 44-0
44	9-270 07	66	9-277 73	69	0-722 27	9-992 33	2	16	50 56-7 55-8 55-0
45	9-270 73	67	9-278 42	69	0-721 58	9-992 31	2	15	
46	9-271 40	66	9-279 11	69	0-720 89	9-992 29	3	14	3 3 3
47	9-272 06	67	9-279 80	69	0-720 20	9-992 26	2	13	74 73 72
48	9-272 73	66	9-280 49	68	0-719 51	9-992 24	3	12	
49	9-273 39	66	9-281 17	69	0-718 83	9-992 21	2	11	
50	9-274 05	66	9-281 86	68	0-718 14	9-992 19	2	10	0 12-3 12-2 12-0
51	9-274 71	66	9-282 54	69	0-717 46	9-992 17	3	9	1 37-0 36-5 36-0
52	9-275 37	65	9-283 23	68	0-716 77	9-992 14	2	8	2 61-7 60-8 60-0
53	9-276 02	66	9-283 91	68	0-716 09	9-992 12	3	7	
54	9-276 68	66	9-284 59	68	0-715 41	9-992 09	2	6	3 3 3 3
55	9-277 34	65	9-285 27	68	0-714 73	9-992 07	3	5	71 70 69 68
56	9-277 99	65	9-285 95	67	0-714 05	9-992 04	2	4	0 11-8 11-7 11-5 11-3
57	9-278 64	66	9-286 62	68	0-713 38	9-992 02	2	3	1 35-5 35-0 34-5 34-0
58	9-279 30	65	9-287 30	68	0-712 70	9-992 00	3	2	2 59-2 58-3 57-5 56-7
59	9-279 95	65	9-287 98	67	0-712 02	9-991 97	2	1	
60	9-280 60		9-288 65		0-711 35	9-991 95	0		
	L. Cos.	d.	L. Cot.	c.d.	L. Tan.	L. Sin.	d.		P.P.

100° (280°)

(259°) 79°

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*
(348) 168°

11° (191°)

'	L. Sin.	d.	L. Tan.	c.d.	L. Cot.	L. Cos.	d.	P.P.				
0	9.280 60		9.288 65		0.711 35	9.991 95		60	"	65	64	63
1	9.281 25	65	9.289 33	68	0.710 67	9.991 92	3	59	1	1.1	1.1	1.0
2	9.281 90	65	9.290 00	67	0.710 00	9.991 90	2	58	2	2.2	2.1	2.1
3	9.282 54	64	9.290 67	67	0.709 33	9.991 87	3	57	3	3.2	3.2	3.2
4	9.283 19	65	9.291 34	67	0.708 66	9.991 85	2	56	4	4.3	4.3	4.2
		65		67			3					
5	9.283 84		9.292 01		0.707 99	9.991 82	3	55	5	5.4	5.3	5.2
6	9.284 48	64	9.292 68	67	0.707 32	9.991 80	2	54	6	6.5	6.4	6.3
7	9.285 12	64	9.293 35	67	0.706 65	9.991 77	3	53	7	7.6	7.5	7.4
8	9.285 77	65	9.294 02	66	0.705 98	9.991 75	2	52	8	8.7	8.5	8.4
9	9.286 41	64	9.294 68	66	0.705 32	9.991 72	3	51	9	9.8	9.6	9.4
		64		67			2					
10	9.287 05		9.295 35		0.704 65	9.991 70	2	50	10	10.8	10.7	10.5
11	9.287 69	64	9.296 01	66	0.703 99	9.991 67	3	49	20	21.7	21.3	21.0
12	9.288 33	64	9.296 68	67	0.703 32	9.991 65	2	48	30	32.5	32.0	31.5
13	9.288 96	63	9.297 34	66	0.702 66	9.991 62	3	47	40	43.3	42.7	42.0
14	9.289 60	64	9.298 90	66	0.702 00	9.991 60	2	46	50	54.2	53.3	52.5
		64		66			3					
15	9.290 24		9.298 66		0.701 34	9.991 57	3	45	"	62	61	60
16	9.290 87	63	9.299 32	66	0.700 68	9.991 55	2	44	1	1.0	1.0	1.0
17	9.291 50	63	9.299 98	66	0.700 02	9.991 52	3	43	2	2.1	2.0	2.0
18	9.292 14	64	9.300 64	66	0.699 36	9.991 50	2	42	3	3.1	3.0	3.0
19	9.292 77	63	9.301 30	66	0.698 70	9.991 47	3	41	4	4.1	4.1	4.0
		63		65			2					
20	9.293 40		9.301 95		0.698 05	9.991 45	3	40	5	5.2	5.1	5.0
21	9.294 03	63	9.302 61	66	0.697 39	9.991 42	2	39	6	6.2	6.1	6.0
22	9.294 66	63	9.303 26	65	0.696 74	9.991 40	3	38	7	7.2	7.1	7.0
23	9.295 20	62	9.303 91	66	0.696 09	9.991 37	2	37	8	8.3	8.1	8.0
24	9.295 91	63	9.304 57	65	0.695 43	9.991 35	3	36	9	9.3	9.2	9.0
		63		65			2					
25	9.296 54		9.305 22		0.694 78	9.991 32	3	35	10	10.3	10.2	10.0
26	9.297 16	62	9.305 87	65	0.694 13	9.991 30	2	34	20	20.7	20.3	20.0
27	9.297 79	63	9.306 52	65	0.693 48	9.991 27	3	33	30	31.0	30.5	30.0
28	9.298 41	62	9.307 17	65	0.692 83	9.991 24	2	32	40	41.3	40.7	40.0
29	9.299 03	62	9.307 82	65	0.692 18	9.991 22	3	31	50	51.7	50.8	50.0
		63		64			2					
30	9.299 66		9.308 46		0.691 54	9.991 19	3	30	"	59	3	2
31	9.300 28	62	9.309 11	65	0.690 89	9.991 17	2	29	1	1.0	0.0	0.0
32	9.300 90	62	9.309 75	64	0.690 25	9.991 14	3	28	2	2.0	0.1	0.1
33	9.301 51	61	9.310 40	65	0.689 60	9.991 12	2	27	3	3.0	0.2	0.1
34	9.302 13	62	9.311 04	64	0.688 96	9.991 09	3	26	4	3.9	0.2	0.1
		62		64			2					
35	9.302 75		9.311 68		0.688 32	9.991 06	3	25	5	4.9	0.2	0.2
36	9.303 36	61	9.312 33	65	0.687 67	9.991 04	2	24	6	5.9	0.3	0.2
37	9.303 98	62	9.312 97	64	0.687 03	9.991 01	3	23	7	6.9	0.4	0.2
38	9.304 59	61	9.313 61	64	0.686 39	9.990 99	2	22	8	7.9	0.4	0.3
39	9.305 21	62	9.314 25	64	0.685 75	9.990 96	3	21	9	8.8	0.4	0.3
		61		64			2					
40	9.305 82		9.314 89		0.685 11	9.990 93	3	20	10	9.8	0.5	0.3
41	9.306 43	61	9.315 52	63	0.684 48	9.990 91	2	19	20	19.7	1.0	0.7
42	9.307 04	61	9.316 16	64	0.683 84	9.990 88	3	18	30	29.5	1.5	1.0
43	9.307 65	61	9.316 79	63	0.683 21	9.990 86	2	17	40	39.3	2.0	1.3
44	9.308 26	61	9.317 43	64	0.682 57	9.990 83	3	16	50	49.2	2.5	1.7
		61		63			2					
45	9.308 87		9.318 06		0.681 94	9.990 80	3	15				
46	9.309 47	60	9.318 70	64	0.681 30	9.990 78	2	14				
47	9.310 08	61	9.319 33	63	0.680 67	9.990 75	3	13		3	3	3
48	9.310 68	60	9.319 96	63	0.680 04	9.990 72	2	12		67	66	65
49	9.311 29	61	9.320 59	63	0.679 41	9.990 70	3	11				
		60		63			2					
50	9.311 89		9.321 22		0.678 78	9.990 67	3	10	0	11.2	11.0	10.8
51	9.312 50	61	9.321 85	63	0.678 15	9.990 64	2	9	1	33.5	33.0	32.5
52	9.313 10	60	9.322 48	63	0.677 52	9.990 62	3	8	2	55.8	55.0	54.2
53	9.313 70	60	9.323 11	62	0.676 89	9.990 59	2	7				
54	9.314 30	60	9.323 73	63	0.676 27	9.990 56	3	6		3	3	3
		60		63			2			64	6 3	2
55	9.314 90		9.324 36		0.675 64	9.990 54	3	5				
56	9.315 49	59	9.324 98	62	0.675 02	9.990 51	2	4				
57	9.316 09	60	9.325 61	63	0.674 39	9.990 48	3	3	0	10.7	10.5	10.3
58	9.316 69	60	9.326 23	62	0.673 77	9.990 46	2	2	1	32.0	31.5	31.0
59	9.317 28	59	9.326 85	62	0.673 15	9.990 43	3	1	2	53.3	52.5	51.7
		60		62			2		3			
60	9.317 88		9.327 47		0.672 53	9.990 40	3	0				
'	L. Cos.	d.	L. Cot.	c.d.	L. Tan.	L. sill.	1.	'	P.P.			

101° (281°)

(258°) 78"

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*

12° (192°)

(347°) 167°

'	L. Sin.	d.	L. Tan.	.d.	L. Cot.	L. cos.	d.	'	P.P.			
0	9.317 88	59	9.327 47	63	0.672 53	9.990 40	2	60	"	63	62	61
1	9.318 47	60	9.328 10	62	0.671 90	9.990 38	3	59	1	1.0	1.0	1.0
2	9.319 07	59	9.328 72	61	0.671 28	9.990 35	3	58	2	2.1	2.1	2.0
3	9.319 66	59	9.329 33	62	0.670 67	9.990 32	3	57	3	3.2	3.1	3.0
4	9.320 25	59	9.329 95	62	0.670 05	9.990 30	2	56	4	4.2	4.1	4.1
5	9.320 84	59	9.330 57	62	0.669 43	9.990 27	3	55	5	5.2	5.2	5.1
6	9.321 43	59	9.331 19	61	0.668 81	9.990 24	2	54	6	6.3	6.2	6.1
7	9.322 02	59	9.331 80	62	0.668 20	9.990 22	3	53	7	7.4	7.2	7.1
8	9.322 61	58	9.332 42	61	0.667 58	9.990 19	3	52	8	8.4	8.3	8.1
9	9.323 19	59	9.333 03	62	0.666 97	9.990 16	3	51	9	9.4	9.3	9.2
10	9.323 78	59	9.333 65	61	0.666 35	9.990 13	2	50	10	10.5	10.3	10.2
11	9.324 37	58	9.334 26	61	0.665 74	9.990 11	3	49	20	21.0	20.7	20.3
12	9.324 95	58	9.334 87	61	0.665 13	9.990 08	3	48	30	31.5	31.0	30.5
13	9.325 53	59	9.335 48	61	0.664 52	9.990 05	3	47	40	42.0	41.3	40.7
14	9.326 12	58	9.336 09	61	0.663 91	9.990 02	2	46	50	52.5	51.7	50.8
15	9.326 70	58	9.336 70	61	0.663 30	9.990 00	3	45	"	60	59	58
16	9.327 28	58	9.337 31	61	0.662 69	9.989 97	3	44	1	1.0	1.0	1.0
17	9.327 86	58	9.337 92	61	0.662 08	9.989 94	3	43	2	2.0	2.0	1.9
18	9.328 44	58	9.338 53	60	0.661 47	9.989 91	2	42	3	3.0	3.0	2.9
19	9.329 02	58	9.339 13	61	0.660 87	9.989 89	3	41	4	4.0	3.9	3.9
20	9.329 60	58	9.339 74	60	0.660 26	9.989 86	3	40	5	5.0	4.9	4.8
21	9.330 18	57	9.340 34	61	0.659 66	9.989 83	3	39	6	6.0	5.9	5.8
22	9.330 75	58	9.340 95	60	0.659 05	9.989 80	2	38	7	7.0	6.9	6.8
23	9.331 33	57	9.341 55	60	0.658 45	9.989 78	3	37	8	8.0	7.9	7.7
24	9.331 90	58	9.342 15	61	0.657 85	9.989 75	3	36	9	9.0	8.8	8.7
25	9.332 48	57	9.342 76	60	0.657 24	9.989 72	3	35	10	10.0	9.8	9.7
26	9.333 05	57	9.343 36	60	0.656 64	9.989 69	2	34	20	20.0	19.7	19.3
27	9.333 62	58	9.343 96	60	0.656 04	9.989 67	3	33	30	30.0	29.5	29.0
28	9.334 20	57	9.344 56	60	0.655 44	9.989 64	3	32	40	40.0	39.3	38.7
29	9.334 77	57	9.345 16	60	0.654 84	9.989 61	3	31	50	50.0	49.2	48.3
30	9.335 34	57	9.345 76	59	0.654 24	9.989 58	3	30	"	57	56	55
31	9.335 91	56	9.346 35	60	0.653 65	9.989 55	2	29	1	1.0	0.9	0.9
32	9.336 47	57	9.346 95	60	0.653 05	9.989 53	3	28	2	1.9	1.9	1.8
33	9.337 04	57	9.347 55	59	0.652 45	9.989 50	3	27	3	2.8	2.8	2.8
34	9.337 61	57	9.348 14	60	0.651 86	9.989 47	3	26	4	3.8	3.7	3.7
35	9.338 18	56	9.348 74	59	0.651 26	9.989 44	3	25	5	4.8	4.7	4.6
36	9.338 74	57	9.349 33	59	0.650 67	9.989 41	3	24	6	5.7	5.6	5.5
37	9.339 31	56	9.349 92	59	0.650 08	9.989 38	2	23	7	6.6	6.5	6.4
38	9.339 87	56	9.350 51	60	0.649 49	9.989 36	3	22	8	7.6	7.5	7.3
39	9.340 43	57	9.351 11	59	0.648 89	9.989 33	3	21	9	8.6	8.4	8.2
40	9.341 00	56	9.351 70	59	0.648 30	9.989 30	3	20	10	9.5	9.3	9.2
41	9.341 56	56	9.352 29	59	0.647 71	9.989 27	3	19	20	19.0	18.7	18.3
42	9.342 12	56	9.352 88	59	0.647 12	9.989 24	3	18	30	28.5	28.0	27.5
43	9.342 68	56	9.353 47	58	0.646 53	9.989 21	2	17	40	38.0	37.3	36.7
44	9.343 24	56	9.354 05	59	0.645 95	9.989 19	3	16	50	47.5	46.7	45.8
45	9.343 80	55	9.354 64	59	0.645 36	9.989 16	3	15				
46	9.344 36	55	9.355 23	58	0.644 77	9.989 13	3	14	3	3	3	3
47	9.344 91	56	9.355 81	59	0.644 19	9.989 10	3	13		62	61	60
48	9.345 47	55	9.356 40	58	0.643 60	9.989 07	3	12				
49	9.346 02	56	9.356 98	59	0.643 02	9.989 04	3	11	0			
50	9.346 58	55	9.357 57	58	0.642 43	9.989 01	3	10	1	10.3	10.2	10.0
51	9.347 13	56	9.358 15	58	0.641 85	9.988 98	2	9	2	31.0	30.5	30.0
52	9.347 69	55	9.358 73	58	0.641 27	9.988 96	3	8	3	51.7	50.8	50.0
53	9.348 24	55	9.359 31	58	0.640 69	9.988 93	3	7		3	3	3
54	9.348 73	55	9.359 89	58	0.640 11	9.988 90	3	6	x 9-	58	57	
55	9.349 34	55	9.360 47	58	0.639 53	9.988 87	3	5	0			
56	9.349 89	55	9.361 05	58	0.638 95	9.988 84	3	4	1	9.8	9.7	9.5
57	9.350 44	55	9.361 63	58	0.638 37	9.988 81	3	3	2	29.5	29.0	28.5
58	9.350 99	55	9.362 21	58	0.637 79	9.988 78	3	2	3	49.2	48.3	47.5
59	9.351 54	55	9.362 79	57	0.637 21	9.988 75	3	1				
60	9.352 09		9.363 36		0.636 64	9.988 72		0				
'	L. cos.	a.	L. Cot.	.d.	L. Tan.	L. Sin.	d.	'	P.P.			

102 (282)

(257) 77

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*

13° (193)

(346) 166

	L. Sin.	d.	L. Tan.	d.	L. cot.	L. cos.	d.		P.P.
0	9.352 09	54	9.363 36	58	0.636 64	9.988 72	3	60	57 56 55
1	9.352 63	55	9.363 94	58	0.636 06	9.988 69	3	59	1.0 0.9 0.9
2	9.353 18	55	9.364 52	57	0.635 48	9.988 67	3	58	1.9 1.9 1.8
3	9.353 73	54	9.365 09	57	0.634 91	9.988 64	3	57	2.8 2.8 2.8
4	9.354 27	54	9.365 66	58	0.634 34	9.988 61	3	56	3.8 3.7 3.7
5	9.354 81	55	9.366 24	57	0.633 76	9.988 58	3	55	4.8 4.7 4.6
6	9.355 36	55	9.366 81	57	0.633 19	9.988 55	3	54	5.7 5.6 5.5
7	9.355 90	54	9.367 38	57	0.632 62	9.989 52	3	53	6.6 6.5 6.4
8	9.356 44	54	9.367 95	57	0.632 05	9.988 49	3	52	7.6 7.5 7.3
9	9.356 98	54	9.368 52	57	0.631 48	9.988 46	3	51	8.6 8.4 8.2
10	9.357 52	54	9.369 09	57	0.630 91	9.988 43	3	50	9.5 9.3 9.2
11	9.358 06	54	9.369 66	57	0.630 34	9.988 40	3	49	19.0 18.7 18.3
12	9.358 60	54	9.370 23	57	0.629 77	9.988 37	3	48	28.5 28.0 27.5
13	9.359 14	54	9.370 80	57	0.629 20	9.988 34	3	47	38.0 37.3 36.7
14	9.359 68	54	9.371 37	57	0.628 63	9.988 31	3	46	47.5 46.7 45.8
15	9.360 22	53	9.371 93	57	0.628 07	9.988 28	3	45	54 53 52
16	9.360 75	54	9.372 50	56	0.627 50	9.988 25	3	44	0.9 0.9 0.9
17	9.361 29	53	9.373 06	57	0.626 94	9.988 22	3	43	1.8 1.8 1.7
18	9.361 82	54	9.373 63	56	0.626 37	9.988 19	3	42	2.7 2.6 2.6
19	9.362 36	53	9.374 19	57	0.625 81	9.988 16	3	41	3.6 3.5 3.5
20	9.362 89	53	9.374 76	56	0.625 24	9.988 13	3	40	4.5 4.4 4.3
21	9.363 3	53	9.375 32	56	0.624 68	9.988 10	3	39	5.4 5.3 5.2
22	9.363 3	54	9.375 88	56	0.624 12	9.988 07	3	38	6.3 6.2 6.1
23	9.364 49	53	9.376 44	56	0.623 56	9.988 04	3	37	7.2 7.1 6.9
24	9.365 02	53	9.377 00	56	0.623 00	9.988 01	3	36	8.1 8.0 7.8
25	9.365 55	53	9.377 56	56	0.622 44	9.987 98	3	35	9.0 8.8 8.7
26	9.366 08	52	9.378 12	56	0.621 88	9.987 95	3	34	18.0 17.7 17.3
27	9.366 60	53	9.378 68	56	0.621 32	9.987 92	3	33	27.0 26.5 26.0
28	9.367 13	53	9.379 24	56	0.620 76	9.987 89	3	32	36.0 35.3 34.7
29	9.367 66	53	9.379 80	55	0.620 20	9.987 86	3	31	45.0 44.2 43.3
30	9.368 19	52	9.380 35	56	0.619 65	9.987 83	3	30	51 4 3 2
31	9.368 71	53	9.380 91	56	0.619 09	9.987 80	3	29	0.8 0.1 0.0 0.0
32	9.369 24	52	9.381 47	55	0.618 53	9.987 77	3	28	1.7 0.1 0.1 0.1
33	9.369 76	52	9.382 02	55	0.617 98	9.987 74	3	27	2.6 0.2 0.2 0.1
34	9.370 28	53	9.382 57	56	0.617 43	9.987 71	3	26	3.4 0.3 0.2 0.1
35	9.370 81	52	9.383 13	55	0.616 87	9.987 68	3	25	4.2 0.3 0.2 0.2
36	9.371 33	52	9.383 68	55	0.616 32	9.987 65	3	24	5.1 0.4 0.3 0.2
37	9.371 85	52	9.384 23	56	0.615 77	9.987 62	3	23	6.0 0.5 0.4 0.2
38	9.372 37	52	9.384 79	55	0.615 21	9.987 59	3	22	6.8 0.5 0.4 0.3
39	9.372 89	52	9.385 34	55	0.614 66	9.987 56	3	21	7.6 0.6 0.4 0.3
40	9.373 41	52	9.385 89	55	0.614 11	9.987 53	3	20	8.5 0.7 0.5 0.3
41	9.373 93	52	9.386 44	55	0.613 56	9.987 50	3	19	17.0 1.3 1.0 0.7
42	9.374 45	52	9.386 99	55	0.613 01	9.987 46	3	18	25.5 2.0 1.5 1.0
43	9.374 97	52	9.387 54	54	0.612 46	9.987 43	3	17	34.0 2.7 2.0 1.3
44	9.375 49	51	9.388 08	55	0.611 92	9.987 40	3	16	42.5 3.3 2.5 1.7
45	9.376 00	52	9.388 63	55	0.611 37	9.987 37	3	15	
46	9.376 52	51	9.389 18	54	0.610 82	9.987 34	3	14	
47	9.377 03	52	9.389 72	55	0.610 28	9.987 31	3	13	
48	9.377 55	51	9.390 27	55	0.609 73	9.987 28	3	12	
49	9.378 06	52	9.390 82	54	0.609 18	9.987 25	3	11	
50	9.378 58	51	9.391 36	54	0.608 64	9.987 22	3	10	
51	9.379 09	51	9.391 90	55	0.608 10	9.987 19	3	9	
52	9.379 60	51	9.392 45	54	0.607 55	9.987 15	3	8	
53	9.380 11	51	9.392 99	54	0.607 01	9.987 12	3	7	
54	9.380 62	51	9.393 53	54	0.606 47	9.987 09	3	6	
55	9.381 13	51	9.394 07	54	0.605 93	9.987 06	3	5	
56	9.381 64	51	9.394 61	54	0.605 39	9.987 03	3	4	
57	9.382 15	51	9.395 15	54	0.604 85	9.987 00	3	3	
58	9.382 66	51	9.395 69	54	0.604 31	9.986 97	3	2	
59	9.383 17	51	9.396 23	54	0.603 77	9.986 94	3	1	
60	9.383 68	51	9.396 77	54	0.603 23	9.986 90	4	0	
	L. Cos.	d.	L. cat.	d.	L. Tan.	L. Sin.	d.		P.P.

103° (283)

(256°) 76°

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*

14 (194)

(345) 165

'	L. Sin.	d.	L. Tan.	∴d.	L. cot.	L. cos.	d.	'	P.P.			
0	9.383 68	50	9.396 77	54	0.603 23	9.986 90	3	60	"	54	53	52
1	9.384 18	51	9.397 31	54	0.602 69	9.986 87	3	59	1	0.9	0.9	0.9
2	9.384 69	50	9.397 85	53	0.602 15	9.986 84	3	58	2	1.8	1.8	1.7
3	9.385 19	51	9.398 38	54	0.601 62	9.986 81	3	57	3	2.7	2.6	2.6
4	9.385 70	50	9.398 92	53	0.601 08	9.986 78	3	56	4	3.6	3.5	3.5
5	9.386 20	50	9.399 45	54	0.600 55	9.986 75	4	55	5	4.5	4.4	4.3
6	9.386 70	51	9.399 99	53	0.600 01	9.986 71	3	54	6	5.4	5.3	5.2
7	9.387 21	50	9.400 52	54	0.599 48	9.986 68	3	53	7	6.3	6.2	6.1
8	9.387 71	50	9.401 06	53	0.598 94	9.986 65	3	52	8	7.2	7.1	6.9
9	9.388 21	50	9.401 59	53	0.598 41	9.986 62	3	51	9	8.1	8.0	7.8
10	9.388 71	50	9.402 12	54	0.597 88	9.986 59	3	50	10	9.0	8.8	8.7
11	9.389 21	50	9.402 66	53	0.597 34	9.986 56	4	49	20	18.0	17.7	17.3
12	9.389 71	50	9.403 19	53	0.596 81	9.986 52	3	48	30	27.0	26.5	26.0
13	9.390 21	50	9.403 72	53	0.596 28	9.986 49	3	47	40	36.0	35.3	34.7
14	9.390 71	50	9.404 25	53	0.595 75	9.986 46	3	46	50	45.0	44.2	43.3
15	9.391 21	49	9.404 78	53	0.595 22	9.986 43	3	45	"	51	50	49
16	9.391 70	50	9.405 31	53	0.594 69	9.986 40	4	44	1	0.8	0.8	0.8
17	9.392 20	50	9.405 84	52	0.594 16	9.986 36	3	43	2	1.7	1.7	1.6
18	9.392 70	49	9.406 36	53	0.593 64	9.986 33	3	42	3	2.6	2.5	2.4
19	9.393 19	50	9.406 89	53	0.593 11	9.986 30	3	41	4	3.4	3.3	3.3
20	9.393 69	49	9.407 42	53	0.592 58	9.986 27	4	40	5	4.2	4.2	4.1
21	9.394 18	49	9.407 95	52	0.592 05	9.986 23	3	39	6	5.1	5.0	4.9
22	9.394 67	50	9.408 47	53	0.591 53	9.986 20	3	38	7	6.0	5.8	5.7
23	9.395 17	49	9.409 00	52	0.591 00	9.986 17	3	37	8	6.8	6.7	6.5
24	9.395 66	49	9.409 52	53	0.590 48	9.986 14	4	36	9	7.6	7.5	7.4
25	9.396 15	49	9.410 05	52	0.589 95	9.986 10	3	35	10	8.5	8.3	8.2
26	9.396 64	49	9.410 57	52	0.589 43	9.986 07	3	34	20	17.0	16.7	16.3
27	9.397 13	49	9.411 09	52	0.588 91	9.986 04	3	33	30	25.5	25.0	24.5
28	9.397 62	49	9.411 61	53	0.588 39	9.986 01	3	32	40	34.0	33.3	32.7
29	9.398 11	49	9.412 14	52	0.587 86	9.985 97	4	31	50	42.5	41.7	40.8
30	9.398 60	49	9.412 66	52	0.587 34	9.985 94	3	30	"	48	47	4
31	9.399 09	49	9.413 18	52	0.586 82	9.985 91	3	29	1	0.8	0.8	0.1
32	9.399 58	48	9.413 70	52	0.586 30	9.985 88	3	28	2	1.6	1.6	0.1
33	9.400 06	49	9.414 22	52	0.585 78	9.985 84	4	27	3	2.4	2.4	0.2
34	9.400 55	48	9.414 74	52	0.585 26	9.985 81	3	26	4	3.2	3.1	0.3
35	9.401 03	49	9.415 26	52	0.584 74	9.985 78	4	25	5	4.0	3.9	0.3
36	9.401 52	48	9.415 78	51	0.584 22	9.985 74	3	24	6	4.8	4.7	0.4
37	9.402 00	49	9.416 29	52	0.583 71	9.985 71	3	23	7	5.6	5.5	0.5
38	9.402 49	48	9.416 81	52	0.583 19	9.985 68	3	22	8	6.4	6.3	0.5
39	9.402 97	49	9.417 33	51	0.582 67	9.985 65	4	21	9	7.2	7.0	0.6
40	9.403 46	48	9.417 84	52	0.582 16	9.985 61	3	20	10	8.0	7.8	0.7
41	9.403 94	48	9.418 36	51	0.581 64	9.985 58	3	19	20	16.0	15.7	2.0
42	9.404 42	48	9.418 87	52	0.581 13	9.985 55	4	18	30	24.0	23.5	2.7
43	9.404 90	48	9.419 39	51	0.580 61	9.985 51	3	17	40	32.0	31.3	2.0
44	9.405 38	48	9.419 90	51	0.580 10	9.985 48	3	16	50	40.0	39.2	2.5
45	9.405 86	48	9.420 41	51	0.579 59	9.985 45	4	15				
46	9.406 34	48	9.420 93	51	0.579 07	9.985 41	3	14		4	4	4
47	9.406 82	48	9.421 44	51	0.578 56	9.985 38	3	13		54	53	52
48	9.407 30	48	9.421 95	51	0.578 05	9.985 35	3	12				
49	9.407 78	47	9.422 46	51	0.577 54	9.985 31	4	11	0			
50	9.408 25	48	9.422 97	51	0.577 03	9.985 28	3	10	1	6.8	6.6	6.5
51	9.408 73	48	9.423 48	51	0.576 52	9.985 25	3	9	2	20.2	19.9	19.5
52	9.409 21	47	9.423 99	51	0.576 01	9.985 21	4	8	3	33.8	33.1	32.5
53	9.409 68	48	9.424 50	51	0.575 50	9.985 18	3	7	4	47.2	46.4	45.5
54	9.410 16	47	9.425 01	51	0.574 99	9.985 15	3	6				
55	9.410 63	48	9.425 52	51	0.574 48	9.985 11	4	5		3	3	3
56	9.411 11	47	9.426 03	50	0.573 97	9.985 08	3	4		54	53	52
57	9.411 58	47	9.426 53	51	0.573 47	9.985 05	3	3	0			
58	9.412 05	47	9.427 04	51	0.572 96	9.985 01	4	2	1	9.0	8.8	8.7
59	9.412 52	48	9.427 55	50	0.572 45	9.984 98	3	1	2	27.0	26.5	26.0
60	9.413 00	48	9.428 05	50	0.571 95	9.984 94	4	0	3	45.0	44.2	43.3
'	L. cos.	d.	L. cot.	∴d.	L. Tan.	L. Sin.	d.	'	P.P.			

104 (284)

(255) 75°

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*

15° (195)

(344°) 164

'	L. Sin.	d.	L. Tan.	r.d.	L. cot.	L. cos.	d.	'	P.P.			
0	9.413 00	47	9.428 05	51	0.571 9.5	9.984 94	3	60	51	50	49	
1	9.413 47	47	9.428 56	50	0.571 44	9.984 91	3	59	1	0.8	0.8	0.8
2	9.413 94	47	9.429 06	51	0.570 94	9.984 88	4	58	2	1.7	1.7	1.6
3	9.414 41	47	9.429 57	50	0.570 43	9.984 84	3	57	3	2.6	2.5	2.4
4	9.414 88	47	9.430 07	50	0.569 93	9.984 81	4	56	4	3.4	3.3	3.3
5	9.415 35	47	9.430 57	51	0.569 43	9.984 77	3	55	5	4.2	4.2	4.1
6	9.415 82	46	9.431 08	50	0.568 92	9.984 74	3	54	6	5.1	5.0	4.9
7	9.416 28	47	9.431 58	50	0.568 42	9.984 71	4	53	7	6.0	5.8	5.7
8	9.416 75	47	9.432 08	50	0.567 92	9.984 67	3	52	8	6.8	6.7	6.5
9	9.417 22	46	9.432 58	50	0.567 42	9.984 64	4	51	9	7.6	7.5	7.4
10	9.417 68	47	9.433 08	50	0.566 92	9.984 60	3	50	10	8.5	8.3	8.2
11	9.418 15	46	9.433 58	50	0.566 42	9.984 57	4	49	20	17.0	16.7	16.3
12	9.418 61	47	9.434 08	50	0.565 92	9.984 53	3	48	30	25.5	25.0	24.5
13	9.419 08	46	9.434 58	50	0.565 42	9.984 50	3	47	40	34.0	33.3	32.7
14	9.419 54	47	9.435 08	50	0.564 92	9.984 47	4	46	50	42.5	41.7	40.8
15	9.420 01	46	9.435 58	49	0.564 42	9.984 43	3	45	"	48	47	46
16	9.420 47	46	9.436 07	50	0.563 93	9.984 40	4	44	1	0.8	0.8	0.8
17	9.420 93	47	9.436 57	50	0.563 43	9.984 36	3	43	2	1.6	1.6	1.5
18	9.421 40	46	9.437 07	49	0.562 93	9.984 33	4	42	3	2.4	2.4	2.3
19	9.421 86	46	9.437 56	50	0.562 44	9.984 29	3	41	4	3.2	3.1	3.1
20	9.422 32	46	9.438 06	49	0.561 94	9.984 26	4	40		4.0	3.9	3.8
21	9.422 78	46	9.438 5.5	50	0.561 45	9.984 22	3	39		4.8	4.7	4.6
22	9.423 24	46	9.439 05	49	0.560 95	9.984 19	4	38	4	5.6	5.5	5.4
23	9.423 70	46	9.439 54	50	0.560 46	9.984 15	3	37	8	6.4	6.3	6.1
24	9.424 16	45	9.440 04	49	0.559 96	9.984 12	3	36	9	7.2	7.0	6.9
25	9.424 61	46	9.440 53	49	0.559 47	9.984 09	4	35	10	8.0	7.8	7.7
26	9.425 07	46	9.441 02	49	0.558 98	9.984 05	3	34	20	16.0	15.7	15.3
27	9.425 53	46	9.441 51	50	0.558 49	9.984 02	4	33	30	24.0	23.5	23.0
28	9.425 99	45	9.442 01	49	0.557 99	9.983 98	3	32	40	32.0	31.3	30.7
29	9.426 44	46	9.442 50	49	0.557 50	9.983 95	4	31	50	40.0	39.2	38.3
30	9.426 90	45	9.442 99	49	0.557 01	9.983 91	3	30	"	45	44	4 3
31	9.427 35	46	9.443 48	49	0.556 52	9.983 88	4	29	1	0.8	0.7	0.1
32	9.427 81	45	9.443 97	49	0.556 03	9.983 84	3	28	2	1.5	1.5	0.1
33	9.428 26	46	9.444 46	49	0.555 54	9.983 81	4	27	3	2.2	2.2	0.2
34	9.428 72	45	9.444 95	49	0.555 05	3.983 77	3	26	4	3.0	2.9	0.3
35	9.429 17	45	9.445 44	48	0.554 56	9.983 73	3	25	5	3.8	3.7	0.3
36	9.429 62	46	9.445 92	49	0.554 08	9.983 70	4	24	6	4.5	4.4	0.3
37	9.430 08	45	9.446 41	49	0.553 59	9.983 66	3	23	7	5.2	5.1	0.4
38	9.430 53	45	9.446 90	48	0.553 10	9.983 63	4	22	8	6.0	5.9	0.4
39	9.430 98	45	9.447 38	49	0.552 62	9.983 59	3	21	9	6.8	6.6	0.4
40	9.431 43	45	9.447 87	49	0.552 13	9.983 56	4	20	10	7.5	7.3	0.7
41	9.431 88	45	9.448 36	48	0.551 64	9.983 52	3	19	20	15.0	14.7	1.3
42	9.432 33	45	9.448 84	49	0.551 16	9.983 49	4	18	30	22.5	22.0	2.0
43	9.432 78	45	9.449 33	48	0.550 67	9.983 45	3	17	40	30.0	29.3	2.7
44	9.433 23	14	9.449 81	48	0.550 19	9.983 42	4	16	50	37.5	36.7	3.3
45	9.433 67	45	9.450 29	49	0.549 71	9.983 38	3	15				
46	9.434 12	45	9.450 78	48	0.549 22	9.983 34	4	14		4	4	4
47	9.434 57	45	9.451 26	48	0.548 74	9.983 31	3	13		50	49	48
48	9.435 02	44	9.451 7 4	48	0.548 26	9.983 27	4	12				
49	9.435 46	45	9.452 22	49	0.547 78	9.983 24	3	11				
50	9.435 91	44	9.452 71	48	0.547 29	9.983 20	4	10	0	6.2	6.1	6.0
51	9.436 35	45	9.453 19	48	0.546 81	9.983 17	3	9	1	18.8	18.4	18.0
52	9.436 80	44	9.453 67	48	0.546 33	9.983 13	4	8	2	31.2	30.6	30.0
53	9.437 24	45	9.454 15	48	0.545 85	9.983 09	3	7	3	43.8	42.9	42.0
54	9.437 69	44	9.454 63	48	0.545 37	9.983 06	4	6	4			
55	9.438 13	44	9.455 11	48	0.544 89	9.983 02	3	5		3	3	3
56	9.438 57	44	9.455 59	47	0.544 41	9.982 99	4	4		51	50	49
57	9.439 01	45	9.456 06	48	0.543 94	9.982 95	3	3				
58	9.439 46	44	9.456 54	48	0.543 46	9.982 91	4	2	0	8.5	8.3	8.2
59	9.439 90	44	9.457 02	48	0.542 98	9.982 88	3	1	1	25.5	25.0	24.5
60	9.440 34	44	9.457 50	48	0.542 50	9.982 84	4	0	2	42.5	41.7	40.8
									3			
'	L. cos.	a.	L. cot.	r.d.	L. Tan.	L. Sin.	d.	'	P.P.			

105° (285°)

(254°) 74

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*

16° (196)

(343") 163°

	L. Sin.	a.	L. Tan.	c.d.	L. cot.	L. cos.	d.	'	P.P.			
0	9.440 34	44	9.457 50	47	0.542 50	9.982 84	3	60	"	48	47	46
1	9.440 78	44	9.457 97	48	0.542 03	9.982 81	4	59	1	0.8	0.8	0.8
2	9.441 22	44	9.458 45	47	0.541 5.5	9.982 77	4	58	2	1.6	1.6	1.5
3	9.441 66	44	9.458 92	48	0.541 08	9.982 73	3	57	3	2.4	2.4	2.3
4	9.442 10	44	9.459 40	47	0.540 60	9.982 70	4	56	4	3.2	3.1	3.1
5	9.442 53	44	9.459 87	48	0.540 13	9.982 66	4	55	5	4.0	3.9	3.8
6	9.442 97	44	9.460 35	47	0.539 65	9.982 62	3	54	6	4.8	4.7	4.6
7	9.443 41	44	9.460 82	48	0.539 18	9.982 59	4	53	7	5.6	5.5	5.4
8	9.443 85	43	9.461 30	47	0.538 70	9.982 55	4	52	8	6.4	6.3	6.1
9	9.444 28	44	9.461 77	47	0.538 23	9.982 51	3	51	9	7.2	7.0	6.9
10	9.444 72	44	9.462 24	47	0.537 76	9.982 48	4	50	10	8.0	7.8	7.7
11	9.445 16	43	9.462 71	48	0.537 29	9.982 44	4	49	20	16.0	15.7	15.3
12	9.445 59	43	9.463 19	47	0.536 81	9.982 40	3	48	30	24.0	23.5	23.0
13	9.446 02	44	9.463 66	47	0.536 34	9.982 37	4	47	40	32.0	31.3	30.7
14	9.446 46	43	9.464 13	47	0.535 87	9.982 33	4	50	50	40.0	39.2	38.3
15	9.446 89	44	9.464 60	47	0.535 40	9.982 29	3	45	"	45		43
16	9.447 33	43	9.465 07	47	0.534 93	9.982 26	4	44	1	0.8	Of.	0.7
17	9.447 76	43	9.465 54	47	0.534 46	9.982 22	4	43	2	1.5	1.5	1.4
18	9.448 19	43	9.466 01	47	0.533 99	9.982 18	3	42	3	2.2	2.2	2.2
19	9.448 62	43	9.466 48	46	0.533 52	9.982 15	4	41	4	3.0	2.9	2.9
20	9.449 05	43	9.466 94	47	0.533 06	9.982 11	4	40	5	3.8	3.7	3.6
21	9.449 48	44	9.467 41	47	0.532 59	9.982 07	3	39	6	4.5	4.4	4.3
22	9.449 92	43	9.467 88	47	0.532 12	9.982 04	4	38	7	5.2	5.1	5.0
23	9.450 35	42	9.468 35	46	0.531 65	9.982 00	4	37	8	6.0	5.9	5.7
24	9.450 77	43	9.468 81	47	0.531 19	9.981 96	4	36	9	6.8	6.6	6.4
25	9.451 20	43	9.469 28	47	0.530 72	9.981 92	3	35	10	7.5	7.3	7.2
26	9.451 63	43	9.469 75	46	0.530 25	9.981 89	4	34	20	15.0	14.7	14.3
27	9.452 06	43	9.470 21	47	0.529 79	9.981 85	4	33	30	22.5	22.0	21.5
28	9.452 49	43	9.470 68	46	0.529 32	9.981 81	4	32	40	30.0	29.3	28.7
29	9.452 92	42	9.471 14	46	0.528 86	9.981 77	3	31	50	37.5	36.7	35.8
30	9.453 34	43	9.471 60	47	0.528 40	9.981 74	4	30	"	42	41	4
31	9.453 77	42	9.472 07	46	0.527 93	9.981 70	4	29	1	0.7	0.7	0.0
32	9.454 19	43	9.472 53	46	0.527 47	9.981 66	4	28	2	1.4	1.4	0.1
33	9.454 62	42	9.472 99	47	0.527 01	9.981 62	3	27	3	2.1	2.0	0.2
34	9.455 04	43	9.473 46	46	0.526 54	9.981 59	4	26	4	2.8	2.7	0.3
35	9.455 47	42	9.473 92	46	0.526 08	9.981 55	4	25	5	3.5	3.4	0.3
36	9.455 89	43	9.474 38	46	0.525 62	9.981 51	4	24	6	4.2	4.1	0.4
37	9.456 32	42	9.474 84	46	0.525 16	9.981 47	3	23	7	4.9	4.8	0.5
38	9.456 74	42	9.475 30	46	0.524 70	9.981 44	4	22	8	5.6	5.5	0.5
39	9.457 16	42	9.475 76	46	0.524 24	9.981 40	4	21	9	6.3	6.2	0.6
40	9.457 58	43	9.476 22	46	0.523 78	9.981 36	4	20	10	7.0	6.8	0.7
41	9.458 01	42	9.476 68	46	0.523 32	9.981 32	3	19	20	14.0	13.7	1.3
42	9.458 43	42	9.477 14	46	0.522 86	9.981 29	4	18	30	21.0	20.5	2.0
43	9.458 85	42	9.477 60	46	0.522 40	9.981 25	4	17	40	28.0	27.3	2.7
44	9.459 27	42	9.478 06	46	0.521 94	9.981 21	4	16	50	35.0	34.2	3.3
45	9.459 69	42	9.478 52	45	0.521 48	9.981 17	4	15				
46	9.460 11	42	9.478 97	46	0.521 03	9.981 13	3	14		4	4	4
47	9.460 53	42	9.479 43	46	0.520 57	9.981 10	4	13		48	47	46
48	9.460 95	41	9.479 89	46	0.520 11	9.981 06	4	12	0			
49	9.461 36	42	9.480 35	45	0.519 65	9.981 02	4	11	1	6.0	5.9	5.8
50	9.461 78	42	9.480 80	46	0.519 20	9.980 98	4	10	2	18.0	17.6	17.2
51	9.462 20	42	9.481 26	45	0.518 74	9.980 94	4	9	3	30.0	29.4	28.8
52	9.462 62	41	9.481 71	46	0.518 29	9.980 90	3	8	4	42.0	41.1	40.2
53	9.463 03	42	9.482 17	45	0.517 83	9.980 87	4	7				
54	9.463 45	41	9.482 62	45	0.517 38	9.980 83	4	6		3	3	3
55	9.463 86	42	9.483 07	46	0.516 93	9.980 79	4	5		4 8	47	46
56	9.464 28	41	9.483 53	45	0.516 47	9.980 75	4	4	0			
57	9.464 69	42	9.483 98	45	0.516 02	9.980 71	4	3	1	8.0	7.8	7.7
58	9.465 11	41	9.484 43	46	0.515 57	9.980 67	4	2	2	24.0	23.5	23.0
59	9.465 52	42	9.484 89	45	0.515 11	9.980 63	3	1	3	40.0	39.2	38.3
60	9.465 94		9.485 34		0.514 66	9.980 60		0				
	L. cos.	d.	L. cot.	.a.	L. Tan.	L. Sin.	a.	'	P.P.			

106 (286)

(253) 73

(Continued)

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*

17° (197°)

(342) 162°

'	L. Sin.	d.	L. Tan.	1.	L. Cot.	L. Cos.			P.P.
0	9.465 94	1	9.485 34	5	0.514 66	9.980 60	4	60	45 44 43
1	9.466 35	1	9.485 79	5	0.514 21	9.980 56	4	59	1 0.8 0.7 0.7
2	9.466 76	1	9.486 24	5	0.513 76	9.980 52	4	58	2 1.5 1.5 1.4
3	9.467 17	1	9.486 69	5	0.513 31	9.980 48	4	57	3 2.2 2.2 2.2
4	9.467 58	2	9.487 14	5	0.512 86	9.980 44	4	56	4 3.0 2.9 2.9
5	9.468 00	1	9.487 59	5	0.512 41	9.980 40	4	55	5 3.8 3.7 3.6
6	9.468 41	1	9.488 04	5	0.511 96	9.980 36	4	54	6 4.5 4.4 4.3
7	9.468 82	1	9.488 49	5	0.511 51	9.980 32	4	53	7 5.2 5.1 5.0
8	9.469 23	1	9.488 94	5	0.511 06	9.980 29	4	52	8 6.0 5.9 5.7
9	9.469 64	1	9.489 39	5	0.510 61	9.980 25	4	51	9 6.8 6.6 6.4
10	9.470 05	10	9.489 84	15	0.510 16	9.980 21	4	50	0 7.3 7.2 7.2
11	9.470 45	11	9.490 29	14	0.509 71	9.980 17	4	49	10 1.1 14.7 14.3
12	9.470 86	11	9.490 73	15	0.509 27	9.980 13	4	48	10 22.5 22.0 21.5
13	9.471 27	11	9.491 18	15	0.508 82	9.980 09	4	47	10 30.0 29.3 28.7
14	9.471 68	11	9.491 63	14	0.508 37	9.980 05	4	46	10 37.5 36.7 35.8
15	9.472 09	4	9.492 07	15	0.507 93	9.980 01	4	45	" 42 41 40
16	9.472 49	4	9.492 52	14	0.507 48	9.979 97	4	44	1 0.7 0.7 0.7
17	9.472 90	4	9.492 96	15	0.507 04	9.979 93	4	43	2 1.4 1.4 1.3
18	9.473 30	4	9.493 41	14	0.506 59	9.979 89	4	42	3 2.1 2.0 2.0
19	9.473 71	4	9.493 85	15	0.506 15	9.979 86	4	41	4 2.8 2.7 2.7
20	9.474 11	4	9.494 30	14	0.505 70	9.979 82	4	40	5 3.5 3.4 3.3
21	9.474 52	4	9.494 74	15	0.505 26	9.979 78	4	39	6 4.2 4.1 4.0
22	9.474 92	4	9.495 19	14	0.504 81	9.979 74	4	38	7 4.9 4.8 4.7
23	9.475 33	4	9.495 63	14	0.504 37	9.979 70	4	37	8 5.6 5.5 5.3
24	9.475 73	4	9.496 07	15	0.503 93	9.979 66	4	36	9 6.3 6.2 6.0
25	9.476 13	4	9.496 52	14	0.503 48	9.979 62	4	35	10 7.0 6.8 6.7
26	9.476 54	4	9.496 96	14	0.503 04	9.979 58	4	34	20 14.0 13.7 13.3
27	9.476 94	4	9.497 40	14	0.502 60	9.979 54	4	33	30 21.0 20.5 20.0
28	9.477 34	4	9.497 84	14	0.502 16	9.979 50	4	32	40 28.0 27.3 26.7
29	9.477 74	4	9.498 28	14	0.501 72	9.979 46	4	31	50 35.0 34.2 33.3
30	9.478 14	4	9.498 72	14	0.501 28	9.979 42	4	30	" 39 5 4 3
31	9.478 54	4	9.499 16	14	0.500 84	9.979 38	4	29	1 0.6 0.1 0.1 0.0
32	9.478 94	4	9.499 60	14	0.500 40	9.979 34	4	28	2 1.3 0.2 0.1 0.1
33	9.479 34	4	9.500 04	14	0.499 96	9.979 30	4	27	3 2.0 0.2 0.2 0.2
34	9.479 74	4	9.500 48	14	0.499 52	9.979 26	4	26	4 2.6 0.3 0.3 0.2
35	9.480 14	4	9.500 92	14	0.499 08	9.979 22	4	25	5 3.2 0.4 0.3 0.2
36	9.480 54	4	9.501 36	14	0.498 64	9.979 18	4	24	6 3.9 0.5 0.5 0.5
37	9.480 94	3	9.501 80	14	0.498 20	9.979 14	4	23	7 4.6 0.7 0.4 0.3
38	9.481 33	4	9.502 23	14	0.497 77	9.979 10	4	22	8 5.2 0.8 0.5 0.4
39	9.481 73	4	9.502 67	14	0.497 33	9.979 06	4	21	9 5.8 0.8 0.5 0.4
40	9.482 13	3	9.503 11	14	0.496 89	9.979 02	4	20	10 6.5 0.8 0.7 0.5
41	9.482 52	4	9.503 55	14	0.496 45	9.978 98	4	19	20 13.0 1.7 0.7 0.5
42	9.482 92	4	9.503 98	14	0.496 02	9.978 94	4	18	30 19.5 2.5 1.3 1.5
43	9.483 32	4	9.504 42	14	0.495 58	9.978 90	4	17	40 26.0 3.3 2.7 2.0
44	9.483 71	4	9.504 85	14	0.495 15	9.978 86	4	16	50 32.5 4.2 3.3 2.5
45	9.484 11	3	9.505 29	14	0.494 71	9.978 82	4	15	5 4 4
46	9.484 50	4	9.505 72	14	0.494 28	9.978 78	4	14	43 45 44
47	9.484 90	4	9.506 16	14	0.493 84	9.978 74	4	13	
48	9.485 29	3	9.506 59	14	0.493 41	9.978 70	4	12	0 4.3 5.6 5.5
49	9.485 68	3	9.507 03	14	0.492 97	9.978 66	4	11	1 12.9 16.9 16.5
50	9.486 07	4	9.507 46	14	0.492 54	9.978 61	5	10	2 21.5 28.1 27.5
51	9.486 47	3	9.507 89	14	0.492 11	9.978 57	4	9	3 30.1 39.4 38.5
52	9.486 86	3	9.508 33	14	0.491 67	9.978 53	4	8	4 38.7 — —
53	9.487 25	3	9.508 76	14	0.491 24	9.978 49	4	7	
54	9.487 64	3	9.509 19	14	0.490 81	9.978 45	4	6	4 3 3
55	9.488 03	3	9.509 62	14	0.490 38	9.978 41	4	5	43 45 44
56	9.488 42	3	9.510 05	14	0.489 95	9.978 37	4	4	
57	9.488 81	3	9.510 48	14	0.489 52	9.978 33	4	3	0 5.4 7.5 7.3
58	9.489 20	3	9.510 92	14	0.489 08	9.978 29	4	2	1 16.1 22.5 22.0
59	9.489 59	3	9.511 35	14	0.488 65	9.978 25	4	1	2 26.9 37.5 36.7
60	-9.489 98	3	9.511 78	14	0.488 22	9.978 21	4	0	3 37.6 — —
	L. Cos.	d.	L. cot.	d.	L. Tan.	L. Sin.	d.		P.P.

107° (287)

(252°) 72

(Continued)

TABLE 6 **LOGARITHMS OF TRIGONOMETRIC FUNCTIONS** — *Contd***18° (198°)****(341°) 161°**

'	L. Sin.	d.	L. Tan.,	∴d	L. Cot.	L. Cos.	d.	'	P.P.		
0	9.489 98	39	9.511 78	43	0.488 22	9.978 21	4	60	43	42	41
1	9.490 37	39	9.512 21	43	0.487 79	9.978 17	5	59	1	0.7	0.7
2	9.490 76	39	9.512 64	42	0.487 36	9.978 12	4	58	2	1.4	1.4
3	9.491 15	38	9.513 06	43	0.486 94	9.978 08	4	57	3	2.2	2.1
4	9.491 53	39	9.513 49	43	0.486 51	9.978 04	4	56	4	2.9	2.8
5	9.491 92	39	9.513 92	43	0.486 08	9.978 00	4	55	5	3.6	3.5
6	9.492 31	38	9.514 35	43	0.485 65	9.977 96	4	54	6	4.3	4.2
7	9.492 69	39	9.514 78	42	0.485 22	9.977 92	4	53	7	5.0	4.9
8	9.493 08	39	9.515 20	43	0.484 80	9.977 88	4	52	8	5.7	5.6
9	9.493 47	38	9.515 63	43	0.484 37	9.977 84	5	51	9	6.4	6.3
10	9.493 85	39	9.516 06	42	0.483 94	9.977 79	4	50	10	7.2	7.0
11	9.494 24	38	9.516 48	43	0.483 52	9.977 75	4	49	10	14.3	14.0
12	9.494 62	38	9.516 91	43	0.483 09	9.977 71	4	48	10	21.5	21.0
13	9.495 00	39	9.517 34	42	0.482 66	9.977 67	4	47	10	28.7	28.0
14	9.495 39	38	9.517 76	43	0.482 24	9.977 63	4	46	10	35.8	35.0
15	9.495 77	38	9.518 19	42	0.481 81	9.977 59	5	45	1	39	38
16	9.496 15	39	9.518 61	42	0.481 39	9.977 54	4	44	1	0.6	0.6
17	9.496 54	38	9.519 03	43	0.480 97	9.977 50	4	43	2	1.3	1.3
18	9.496 92	38	9.519 46	42	0.480 54	9.977 46	4	42	3	2.0	1.9
19	9.497 30	38	9.519 88	43	0.480 12	9.977 42	4	41	4	2.6	2.5
20	9.497 68	38	0.520 31	42	0.479 69	9.977 38	4	40	5	3.2	3.2
21	9.498 06	38	9.520 73	42	0.479 27	9.977 34	5	39	6	3.9	3.8
22	9.498 44	38	9.521 15	42	0.478 85	9.977 29	4	38	7	4.6	4.4
23	9.498 82	38	9.521 57	43	0.478 43	9.977 25	4	37	8	5.2	5.1
24	9.499 20	38	9.522 00	42	0.478 00	9.977 21	4	36	9	5.8	5.7
25	9.499 58	38	9.522 42	42	0.477 58	9.977 17	4	35	10	6.5	6.3
26	9.499 96	38	9.522 84	42	0.477 16	9.977 13	5	34	10	13.0	12.7
27	9.500 34	38	9.523 26	42	0.476 74	9.977 08	4	33	10	19.5	19.0
28	9.500 72	38	9.523 68	42	0.476 32	9.977 04	4	32	10	26.0	25.3
29	9.501 10	38	9.524 10	42	0.475 90	9.977 00	4	31	10	32.5	31.7
30	9.501 48	37	9.524 52	42	0.475 48	9.976 96	5	30	1	36	5
31	9.501 85	38	9.524 94	42	0.475 06	9.976 91	4	29	1	0.6	0.1
32	9.502 23	38	9.525 36	42	0.474 64	9.976 87	4	28	2	1.2	0.2
33	9.502 61	37	9.525 78	42	0.474 22	9.976 83	4	27	3	1.8	0.2
34	9.502 98	38	9.526 20	41	0.473 80	9.976 79	8	26	4	2.4	0.3
35	9.503 36	38	9.526 61	42	0.473 39	9.976 74	4	25	5	3.0	0.4
36	9.503 74	37	9.527 03	42	0.472 97	9.976 70	4	24	6	3.6	0.5
37	9.504 11	38	9.527 45	42	0.472 55	9.976 66	4	23	7	4.2	0.6
38	9.504 49	37	9.527 87	42	0.472 13	9.976 62	5	22	8	4.8	0.7
39	9.504 86	37	9.528 29	41	0.471 71	9.976 57	4	21	9	5.4	0.8
40	9.505 23	38	9.528 70	42	0.471 30	9.976 63	4	20	10	6.0	0.8
41	9.505 61	37	9.529 12	41	0.470 88	9.976 49	4	19	10	12.0	1.7
42	9.505 98	37	9.529 53	42	0.470 47	9.976 45	5	18	10	18.0	2.5
43	9.506 35	38	9.529 95	42	0.470 05	9.976 40	4	17	10	24.0	3.3
44	9.506 73	37	9.530 37	41	0.469 63	9.976 36	4	16	10	30.0	4.2
45	9.507 10	37	9.530 78	42	0.469 22	9.976 32	4	15	11	5	5
46	9.507 47	37	9.531 20	41	0.468 80	9.976 28	5	14	0	43	42
47	9.507 84	37	9.531 61	41	0.468 39	9.976 23	4	13	1	4.3	4.2
48	9.508 21	37	9.532 02	42	0.467 98	9.976 19	4	12	2	12.9	12.6
49	9.508 58	38	9.532 44	41	0.467 56	9.976 15	5	11	3	21.5	21.0
50	9.508 96	37	9.532 85	42	0.467 15	9.976 10	4	10	4	30.1	29.4
51	9.509 33	37	9.533 27	41	0.466 73	9.976 06	4	9	5	38.7	37.8
52	9.509 70	37	9.533 68	41	0.466 32	9.976 02	5	8	6	4	4
53	9.510 07	36	9.534 09	41	0.465 91	9.975 97	4	7	0	43	4 2
54	9.510 43	37	9.534 50	42	0.465 50	9.975 93	4	6	1	5.4	5.2
55	9.510 80	37	9.534 92	41	0.465 08	9.975 89	5	5	2	16.1	15.8
56	9.511 17	37	9.535 33	41	0.464 67	9.975 84	4	4	3	26.9	26.2
57	9.511 54	37	9.535 74	41	0.464 26	9.975 80	4	3	4	37.6	36.8
58	9.511 91	36	9.536 15	41	0.463 85	9.975 76	5	2	1		
59	9.512 27	37	9.536 56	41	0.463 44	9.975 71	4	1			
60	9.512 64		9.536 97		0.463 03	9.975 67		0			
'	L. Cos.	d.	L. Cot.	∴d.	L. Tan.	L. Sin.	d.	'	P.P.		

108° (288°)**(251) 71°**

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*

19° (199°)

(340) 160°

	L. Sin.	d.	L. Tan.	c.d.	L. cot.	L. cos.	1.	'	P.P.			
0	9.512 64	37	9.536 97	41	0.463 03	9.975 67	4	10	"	41	40	39
1	9.513 01	37	9.537 38	41	0.462 62	9.975 63	5	19	1	0.7	0.7	0.6
2	9.513 38	36	9.537 79	41	0.462 21	9.975 58	4	18	2	1.4	1.8	1.3
3	9.513 74	37	9.538 20	41	0.461 80	9.975 54	4	17	3	2.0	2.0	2.0
4	9.514 11	36	9.538 61	41	0.461 39	9.975 50	5	16	4	2.7	2.7	2.6
5	9.514 47	37	9.539 02	41	0.460 98	9.975 45	4	15	5	3.4	3.3	3.2
6	9.514 84	36	9.539 43	41	0.460 57	9.975 41	5	14	6	4.1	4.0	3.9
7	9.515 20	37	9.539 84	4:	0.460 16	9.975 36	4	13	7	4.8	4.7	4.6
8	9.515 57	36	9.540 25	40	0.459 75	9.975 32	4	12	8	5.5	5.3	5.2
9	9.515 93	36	9.540 65	41	0.459 35	9.975 28	5	11	9	6.2	6.0	5.8
10	9.516 29	37	9.541 06	41	0.458 94	9.975 23	4	10	10	6.8	6.7	6.5
11	9.516 66	36	9.541 47	40	0.458 53	9.975 19	4	19	20	13.7	13.3	13.0
12	9.517 02	36	9.541 87	41	0.458 13	9.975 15	5	18	30	20.5	20.0	19.5
13	9.517 38	36	9.542 28	41	0.457 72	9.975 10	4	17	10	27.3	26.7	26.0
14	9.517 74	37	9.542 69	40	0.457 31	9.975 06	5	16	50	34.2	33.3	32.5
15	9.518 11	36	9.543 09	41	0.456 91	9.975 01	4	15	"	37	36	35
16	9.518 47	36	9.543 50	40	0.456 50	9.974 97	5	14	1	0.6	0.6	0.6
17	9.518 83	36	9.543 90	41	0.456 10	9.974 92	4	13	2	1.2	1.2	1.2
18	9.519 19	36	9.544 31	40	0.455 69	9.974 88	4	12	3	1.8	1.8	1.8
19	9.519 55	36	9.544 71	41	0.455 29	9.974 84	5	11	4	2.5	2.4	2.3
20	9.519 91	36	9.545 12	40	0.454 88	9.974 79	4	10	5	3.1	3.0	2.9
21	9.520 27	36	9.545 52	41	0.454 48	9.974 75	5	19	6	3.7	3.6	3.5
22	9.520 63	36	9.545 93	40	0.454 07	9.974 70	4	18	7	4.3	4.2	4.1
23	9.520 99	36	9.546 33	40	0.453 67	9.974 66	5	17	8	4.9	4.8	4.7
24	9.521 35	36	9.546 73	41	0.453 27	9.974 61	4	16	9	5.6	5.4	5.2
25	9.521 71	36	9.547 14	40	0.452 86	9.974 57	4	15	10	6.2	6.0	5.8
26	9.522 07	35	9.547 54	40	0.452 46	9.974 53	5	14	20	12.3	12.0	11.7
27	9.522 42	36	9.547 94	40	0.452 06	9.974 48	4	13	30	18.5	18.0	17.5
28	9.522 78	36	9.548 35	40	0.451 65	9.974 44	5	12	40	24.7	24.0	23.3
29	9.523 14	36	9.548 75	40	0.451 25	9.974 39	4	11	50	30.8	30.0	29.2
30	9.523 50	35	9.549 15	40	0.450 85	9.974 35	5	10	"	34	5	4
31	9.523 85	36	9.549 55	40	0.450 45	9.974 30	4	19	1	0.6	0.1	0.1
32	9.524 21	35	9.549 95	40	0.450 05	9.974 26	5	18	2	1.1	0.2	0.1
33	9.524 56	36	9.550 35	40	0.449 65	9.974 21	4	17	3	1.7	0.2	0.2
34	9.524 92	35	9.550 75	40	0.449 25	9.974 17	5	16	4	2.3	0.3	0.3
35	9.525 27	36	9.551 15	40	0.448 85	9.974 12	4	15	5	2.8	0.4	0.3
36	9.525 63	35	9.551 55	40	0.448 45	9.974 08	5	14	6	3.4	0.5	0.4
37	9.525 98	36	9.551 95	40	0.448 05	9.974 03	4	13	7	4.0	0.6	0.5
38	9.526 34	35	9.552 35	40	0.447 65	9.973 99	5	12	8	4.5	0.7	0.5
39	9.526 69	36	9.552 75	40	0.447 25	9.973 94	4	11	9	5.1	0.8	0.6
40	9.527 05	35	9.553 15	40	0.446 85	9.973 90	5	10	2a	5.7	0.8	0.7
41	9.527 40	35	9.553 55	40	0.446 45	9.973 85	4	19	20	11.3	1.7	1.3
42	9.527 75	36	9.553 95	40	0.446 05	9.973 81	5	18	30	17.0	2.5	2.0
43	9.528 11	35	9.554 34	40	0.445 66	9.973 76	4	17	40	22.7	3.3	2.7
44	9.528 46	35	9.554 74	40	0.445 26	9.973 72	5	16	50	28.3	4.2	3.3
45	9.528 81	35	9.555 14	40	0.444 86	9.973 67	4	15		5	5	5
46	9.529 16	35	9.555 54	39	0.444 46	9.973 63	5	14		41	40	39
47	9.529 51	35	9.555 93	40	0.444 07	9.973 58	5	13				
48	9.529 86	35	9.556 33	40	0.443 67	9.973 53	4	12	0			
49	9.530 21	35	9.556 73	39	0.443 27	9.973 49	5	11	1			
50	9.530 56	36	9.557 12	40	0.442 88	9.973 44	4	10	2	4.1	4.0	3.9
51	9.530 92	34	9.557 52	39	0.442 48	9.973 40	5	9	3	12.3	12.0	11.7
52	9.531 26	35	9.557 91	40	0.442 09	9.973 35	4	8	4	20.5	20.0	19.5
53	9.531 61	35	9.558 31	39	0.441 69	9.973 31	5	7	5	28.7	28.0	27.3
54	9.531 96	35	9.558 70	40	0.441 30	9.973 26	4	6		36.9	36.0	35.1
55	9.532 31	35	9.559 10	39	0.440 90	9.973 22	5	5		4	4	4
56	9.532 66	35	9.559 49	40	0.440 51	9.973 17	5	4	0			
57	9.533 01	35	9.559 89	39	0.440 11	9.973 12	4	3	1	5.1	5.0	4.9
58	9.533 36	34	9.560 28	39	0.439 72	9.973 08	5	2	2	15.4	15.0	14.6
59	9.533 70	35	9.560 67	40	0.439 33	9.973 03	4	1	3	25.6	25.0	24.4
60	9.534 05		9.561 07		0.438 93	9.972 99		0	4	35.9	35.0	34.1
'	L. Cos.	d.	L. cot.	c.d	L. Tan.	L. Sin.	a.	'	P.P.			

109° (289°)

(250) 70°

(Continued)

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*

20° (200)

(339) 159

'	L. Sin.	d.	L. Tan.	.d.	L. cot.	L. cos.	d.		P.P.
0	9.534 05	35	9.561 07	39	0.438 93	9.972 99	5	60	" 40 39 38
1	9.534 40	35	9.561 46	39	0.438 54	9.972 94	5	59	1 0.7 0.6 0.6
2	9.534 78	34	9.561 85	39	0.438 18	9.972 89	5	58	2 1.3 1.3 1.3
3	9.535 09	34	9.562 24	39	0.437 76	9.972 85	4	57	3 2.0 2.0 1.9
4	9.535 44	35	9.562 64	40	0.437 36	9.972 80	5	56	4 2.7 2.6 2.5
		34		39			4		
5	9.535 78	35	9.563 03	39	0.436 97	9.972 76	5	55	5 3.3 3.2 3.2
6	9.536 13	34	9.563 42	39	0.436 58	9.972 71	5	54	6 4.0 3.9 3.8
7	9.536 47	35	9.563 81	39	0.436 19	9.972 66	5	53	7 4.7 4.6 4.4
8	9.536 82	34	9.564 20	39	0.435 80	9.972 62	4	52	8 5.3 5.2 5.1
9	9.537 16	34	9.564 59	39	0.435 41	9.972 57	5	51	9 6.0 5.8 5.7
		35		39			5		
10	9.537 51	34	9.564 98	39	0.435 02	9.972 52	4	50	10 6.7 6.5 6.3
11	9.537 85	34	9.565 37	39	0.434 63	9.972 48	4	49	20 13.3 13.0 12.7
12	9.538 19	35	9.565 76	39	0.434 24	9.972 43	5	48	30 20.0 19.5 19.0
13	9.538 54	34	9.566 15	39	0.433 85	9.972 38	5	47	40 26.7 26.0 25.3
14	9.538 88	34	9.566 54	39	0.433 46	9.972 34	4	46	50 33.3 32.5 31.7
		34		39			5		
15	9.539 22	35	9.566 93	39	0.433 07	9.972 29	5	45	" 37 35 34
16	9.539 57	34	9.567 32	39	0.432 68	9.972 24	4	44	1 0.6 0.6 0.6
17	9.539 91	34	9.567 71	39	0.432 29	9.972 20	4	43	2 1.2 1.2 1.1
18	9.540 25	34	9.568 10	39	0.431 90	9.972 15	5	42	3 1.8 1.8 1.7
19	9.540 59	34	9.568 49	39	0.431 51	9.972 10	4	41	4 2.5 2.3 2.3
		34		38			5		
20	9.540 93	34	9.568 87	39	0.431 13	9.972 06	5	40	5 3.1 2.9 2.8
21	9.541 27	34	9.569 26	39	0.430 74	9.972 01	5	39	6 3.7 3.5 3.4
22	9.541 61	34	9.569 65	39	0.430 35	9.971 96	5	38	7 4.3 4.1 4.0
23	9.541 95	34	9.570 04	39	0.429 96	9.971 92	4	37	8 4.9 4.7 4.5
24	9.542 29	34	9.570 42	39	0.429 58	9.971 87	5	36	9 5.6 5.2 5.1
		34		39			5		
25	9.542 63	34	9.570 81	39	0.429 19	9.971 82	4	35	10 6.2 5.8 5.7
26	9.542 97	34	9.571 20	38	0.428 80	9.971 78	4	34	20 12.3 11.7 11.3
27	9.543 31	34	9.571 58	38	0.428 42	9.971 73	5	33	30 18.5 17.5 17.0
28	9.543 65	34	9.571 97	39	0.428 03	9.971 68	5	32	40 24.7 23.3 22.7
29	9.543 99	34	9.572 35	39	0.427 65	9.971 63	5	31	50 30.8 29.2 28.3
		34		39			4		
30	9.544 33	33	9.572 74	38	0.427 26	9.971 59	5	30	" 33 5 4
31	9.544 66	34	9.573 12	39	0.426 88	9.971 54	5	29	1 0.6 0.6 0.6
32	9.545 00	34	9.573 51	39	0.426 49	9.971 49	5	28	2 1.1 0.2 0.1
33	9.545 34	33	9.573 89	38	0.426 11	9.971 45	4	27	3 1.6 0.2 0.2
34	9.545 67	34	9.574 28	39	0.425 72	9.971 40	5	26	4 2.2 0.3 0.3
		34		38			5		
35	9.546 01	34	9.574 66	38	0.425 34	9.971 38	5	25	5 2.8 0.4 0.3
36	9.546 35	33	9.575 04	39	0.424 96	9.971 30	5	24	6 3.3 0.5 0.4
37	9.546 68	34	9.575 43	38	0.424 57	9.971 26	4	23	7 3.8 0.6 0.5
38	9.547 02	33	9.575 81	38	0.424 19	9.971 21	5	22	8 4.4 0.7 0.5
39	9.547 35	34	9.576 19	39	0.423 81	9.971 16	5	21	9 5.0 0.8 0.6
		34		39			5		
40	9.547 69	33	9.576 58	38	0.423 42	9.971 11	4	20	10 5.5 0.8 0.7
41	9.548 02	34	9.576 96	38	0.423 04	9.971 07	4	19	20 11.0 1.7 1.3
42	9.548 36	33	9.577 34	38	0.422 66	9.971 02	5	18	30 16.5 2.5 2.0
43	9.548 69	34	9.577 72	38	0.422 28	9.970 97	5	17	40 22.0 3.3 2.7
44	9.549 03	33	9.578 10	39	0.421 90	9.970 92	5	16	50 27.5 4.2 3.3
		33		39			5		
45	9.549 36	33	9.578 49	38	0.421 51	9.970 87	4	15	5 5 5
46	9.549 69	34	9.578 87	38	0.421 13	9.970 83	5	14	40 39 38
47	9.550 03	33	9.579 25	38	0.420 75	9.970 78	5	13	
48	9.550 36	33	9.579 63	38	0.420 37	9.970 73	5	12	0 4.0 3.9 3.8
49	9.550 69	33	0.580 01	38	0.419 99	9.970 68	5	11	1 12.0 11.7 11.4
		33		38			5		
50	9.551 02	34	9.580 39	38	0.419 61	9.970 63	4	10	2 20.0 19.5 19.0
51	9.551 36	33	9.580 77	38	0.419 23	9.970 59	4	9	3 28.0 27.3 26.6
52	9.551 69	33	9.581 15	38	0.418 85	9.970 54	5	8	4 36.0 35.1 34.2
53	9.552 02	33	9.581 53	38	0.418 47	9.970 49	5	7	5 5 5
54	9.552 35	33	9.581 91	38	0.418 09	9.970 44	5	6	5 4 4
		33		38			5		
55	9.552 68	33	9.582 29	38	0.417 71	9.970 39	5	5	37 39 38
56	9.553 01	33	9.582 67	38	0.417 33	9.970 35	4	4	0 3.7 4.9 4.8
57	9.553 34	33	9.583 04	37	0.416 96	9.970 30	5	3	1 11.1 14.6 14.2
58	9.553 67	33	9.583 42	38	0.416 58	9.970 25	5	2	2 18.5 24.4 23.8
59	9.554 00	33	9.583 80	38	0.416 20	9.970 20	5	1	3 25.9 34.1 33.2
		33		38			5		
60	9.554 33		9.584 18		0.415 82	9.970 15		0	4 33.3 — —
'	L. cos.	d.	L. cot.	.d.	L. Tan.	L. Sin.	d.	'	P.P.

110° (290°)

(249) 69

(Continued)

TABLE 6 LOGARITHMS OF **TRIGONOMETRIC** FUNCTIONS — *Contd*
(338°) 158°

	L. Sin.	d.	L. Tan.	c.d.	L. Cot.	L. cos.	d.		P.P.
0	9.554 33	33	9-584 18	37	0-415 82	9.970 15	5	60	38 37 36
1	9.554 66	33	9.584 55	38	0-415 45	9-970 10	5	59	1 0-6 0-6
2	9.554 99	33	9.584 93	38	0-415 07	9-970 05	4	58	2 1.3 1.2
3	9.555 32	32	9.585 31	38	0-414 69	9.970 01	5	57	3 1-9 1-8
4	9.555 64	33	9.585 69	37	0-414 31	9.969 96	5	56	4 2-5 2-4
5	9.555 97	23	9.586 06	38	0.413 94	9.969 91	5	55	5 3.2 3-1 3-0
6	9.556 30	33	9-586 44	37	0-413 56	9.969 86	5	54	6 3.8 3-7 3-6
7	9.556 63	32	9-586 81	38	0.413 19	9.969 81	5	53	7 4.4 4-3 4-2
8	9.556 95	33	9.587 19	38	0.412 81	9-969 76	5	52	8 5-1 4-9 4-8
9	9-557 28	33	9.587 57	37	0.412 43	9-969 71	5	51	9 5.7 5.6 5.4
10	9.557 61	32	9-587 94	38	0.412 06	9.969 66	4	50	10 6-3 6-2 6-0
11	9.557 93	33	9-588 32	37	0-411 68	9.969 52	5	49	20 12-7 12-3 12-0
12	9.558 26	32	9-588 69	38	0-411 31	9.969 57	5	48	30 19.0 18.5 18.0
13	9-558 58	33	9.589 07	37	0-410 93	9.969 52	5	47	40 25.3 24.7 24.0
14	9-558 91	32	9.589 44	37	0-410 56	9.969 47	5	46	50 31-7 30-8 30-0
15	9-559 23	33	9-589 81	38	0.410 19	9.969 42	5	45	33 32 31
16	9.559 56	32	9-590 19	37	0-409 81	9.969 37	5	44	1 0-6 0-5 0-5
17	9.559 88	33	9-590 56	38	0-409 44	9.969 32	5	43	2 1-1 1-1 1-0
18	9.560 21	32	9-590 94	37	0-409 06	9.969 27	5	42	3 1-6 1-6 1-6
19	9.560 53	32	9-591 31	37	0.408 69	9.969 22	5	41	4 2-2 2-1 2-1
20	9.560 85	33	9-591 68	37	0.408 32	9.969 17	5	40	5 2.8 2-7 2-6
21	9-561 18	32	9.592 05	38	0-407 95	9-969 12	5	39	6 3.3 3-2 3-1
22	9.561 50	32	9.592 43	37	0.407 57	9-969 07	4	38	7 3.8 3-7 4-6
23	9-561 82	33	9.592 80	37	0-407 20	9.969 03	5	37	8 4.4 4-3 4-1
24	9-562 15	32	9.593 17	37	0.406 83	9.968 98	5	36	9 5-0 4-8 4-6
25	9.562 47	32	9-593 54	37	0.406 46	9.968 93	5	35	10 5-5 5-3 5-2
26	9-562 79	32	9-593 91	38	0.406 09	9-968 88	5	34	20 11-0 10-7 10-3
27	9-563 11	32	9.594 29	37	0-405 71	9.968 83	5	33	30 16.5 16-0 15-5
28	9.563 43	32	9.594 66	37	0-405 34	9.968 78	5	32	40 22.0 21-3 20-7
29	9-563 75	33	9.595 03	37	0-404 97	9-968 73	5	31	50 27.5 26-7 25-8
30	9-564 08	32	9-595 40	37	0.404 60	9.968 68	5	30	6 5 4
31	9-564 40	32	9-595 77	37	0.404 23	9.968 63	5	29	1 0-1 0-1 0-1
32	9.564 72	32	9.596 14	37	0-403 86	9.968 58	5	28	2 0-2 0-2 0-1
33	9-565 04	32	9.596 51	37	0-403 49	9.968 53	5	27	3 0-3 0-2 0-2
34	9.565 36	32	9.596 88	37	0.403 12	9.968 48	5	26	4 0-4 0-3 0-3
35	9.565 68	31	9-597 25	37	0.402 75	9.968 43	5	25	5 0-5 0-4 0-3
36	9.565 99	32	9.597 62	37	0-402 38	9.968 38	5	24	6 0-6 0-5 0-4
37	9-566 31	32	9-597 99	37	0.402 01	9.968 33	5	23	7 0-7 0-6 0-5
38	9.566 63	32	9-598 35	36	0.401 65	9.968 28	5	22	8 0-8 0-7 0-5
39	9.566 95	32	9-598 72	37	0.401 28	9.968 23	5	21	9 0-9 0-8 0-6
40	9.567 27	32	9.599 09	37	0-400 91	9-968 18	5	20	10 1-0 0-8 0-7
41	9.567 59	31	9-599 46	37	0-400 54	9-968 13	5	19	20 2-0 1-7 1-3
42	9.567 90	32	9-599 83	37	0-400 17	9.968 08	5	18	30 3-0 2-5 2-0
43	9-568 22	32	9-600 19	36	0.399 81	9.968 03	5	17	40 4-0 3-3 2-7
44	9-568 54	32	9-600 56	37	0.399 44	9.967 98	5	16	50 5-0 4-2 3-3
45	9.568 86	31	9-600 93	37	0-399 07	9.967 93	5	15	6 5 5
46	9.569 17	32	9-601 30	36	0-398 70	9-967 88	5	14	37 38 37
47	9.569 49	31	9.601 66	37	0-398 34	9.967 83	5	13	
48	9.569 80	32	9.602 03	37	0.397 97	9-967 78	5	12	0 3-1 3-8 3-7
49	9.570 12	32	9.602 40	37	0-397 60	9.967 72	6	11	1 9-2 11-4 11-1
50	9-570 44	31	9.602 76	36	0-397 24	9.967 67	5	10	2 15.4 19.0 18.5
51	9-570 75	32	9-603 13	37	0-396 87	9.967 62	5	9	3 21.6 26-6 25.9
52	9-571 07	31	9.603 49	36	0-396 51	9.967 57	5	8	4 27.8 34.2 33.3
53	9-571 38	32	9-603 86	37	0-396 14	9-967 52	5	7	5 33.9
54	9-571 69	31	9.604 22	36	0-395 78	9-967 47	5	6	6 5 4 4
55	9-572 01	32	9-604 59	37	0-395 41	9.967 42	5	5	36 38 37
56	9.572 32	31	9-604 95	36	0-395 05	9.967 37	5	4	0 3-6 4-8 4-6
57	9-472 64	32	9-605 32	37	0.394 68	9.967 32	5	3	1 10-8 14-2 13.9
58	9-572 95	31	9-605 68	36	0-394 32	9.967 27	5	2	2 18.0 23.8 23.1
59	9.573 26	32	9-606 05	37	0-393 95	9-967 22	5	1	3 25.2 33-2 32.4
60	9-573 58	31	9-606 41	36	0.393 59	9.967 17	5	0	4 32.4
	L. Cos.	d.	L. cot.	:d.	L. Tan.	L. Sin.	d.		P.P.

111° (291°)

(248°) 68°

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*

22 (202°)

(337) 157°

'	L. Sin.	d.	L. Tan.	d.	L. cot.	L. cos.	d.	'	P.P.			
0	9.573 58		9.606 41		0.393 59	9.967 17		60	37	36	35	
1	9.573 89	31	9.606 77	16	0.393 23	9.967 11	6	59	1	0.6	0.6	0.6
2	9.574 20	31	9.607 14	16	0.392 86	9.967 06	5	58	2	1.2	1.2	1.2
3	9.574 51	31	9.607 50	16	0.392 50	9.967 01	5	57	3	1.8	1.8	1.8
4	9.574 82	31	9.607 86	16	0.392 14	9.966 96	5	56	4	2.5	2.4	2.3
		32		17			5					
5	9.575 14		9.608 23		0.391 77	9.966 91		55	5	3.1	3.0	2.9
6	9.575 45	31	9.608 59	16	0.391 41	9.966 86	5	54	6	3.7	3.6	3.5
7	9.575 76	31	9.608 95	16	0.391 05	9.966 81	5	53	7	4.3	4.2	4.1
8	9.576 07	31	9.609 31	16	0.390 69	9.966 76	5	52	8	4.9	4.8	4.7
9	9.576 38	31	9.609 67	16	0.390 33	9.966 70	6	51	9	5.6	5.4	5.2
		31		17			5					
10	9.576 69		9.610 04		0.389 96	9.966 65		50	10	6.2	6.0	5.8
11	9.577 00	31	9.610 40	16	0.389 60	9.966 60	5	49	20	12.3	12.0	11.7
12	9.577 31	31	9.610 76	16	0.389 24	9.966 55	5	48	30	18.5	18.0	17.5
13	9.577 62	31	9.611 12	16	0.388 88	9.966 50	5	47	40	24.7	24.0	23.3
14	9.577 93	31	9.611 48	16	0.388 52	9.966 45	5	46	50	30.8	30.0	29.2
		31		16			5					
15	9.578 24		9.611 84		0.388 16	9.966 40		45	"	32	31	30
16	9.578 55	31	9.612 20	16	0.387 80	9.966 34	6	44	1	0.5	0.5	0.5
17	9.578 85	30	9.612 56	16	0.387 44	9.966 29	5	43	2	1.1	1.0	1.0
18	9.579 16	31	9.612 92	16	0.387 08	9.966 24	5	42	3	1.6	1.6	1.5
19	9.579 47	31	9.613 28	16	0.386 72	9.966 19	5	41	4	2.1	2.1	2.0
		31		16			5					
20	9.579 78		9.613 64		0.386 36	9.966 14		40	5	2.7	2.6	2.5
21	9.580 08	30	9.614 00	16	0.386 00	9.966 08	6	39	6	3.2	3.1	3.0
22	9.580 39	31	9.614 36	16	0.385 64	9.966 03	5	38	7	3.7	3.6	3.5
23	9.580 70	31	9.614 72	16	0.385 28	9.965 98	5	37	8	4.3	4.1	4.0
24	9.581 01	31	9.615 08	16	0.384 92	9.965 93	5	36	9	4.8	4.6	4.5
		30		16			5					
25	9.581 31		9.615 44		0.384 56	9.965 88		35	10	5.3	5.2	5.0
26	9.581 62	31	9.615 79	16	0.384 21	9.965 82	6	34	20	10.7	10.3	10.0
27	9.581 92	30	9.616 15	16	0.383 85	9.965 77	5	33	30	16.0	15.5	15.0
28	9.582 23	31	9.616 51	16	0.383 49	9.965 72	5	32	40	21.3	20.7	20.0
29	9.582 53	30	9.616 87	16	0.383 13	9.965 67	5	31	50	26.7	25.8	25.0
		31		15			5					
30	9.582 84		9.617 22		0.382 78	9.965 62		30	"	29	6	5
31	9.583 14	30	9.617 58	16	0.382 42	9.965 56	6	29	1	0.5	0.1	0.1
32	9.583 45	31	9.617 94	16	0.382 06	9.965 51	5	28	2	1.0	0.2	0.2
33	9.583 75	30	9.618 30	16	0.381 70	9.965 46	5	27	3	1.4	0.3	0.2
34	9.584 06	31	9.618 65	16	0.381 35	9.965 41	5	26	4	1.9	0.4	0.3
		30		16			6					
35	9.584 36		9.619 01		0.380 99	9.965 35		25	5	2.4	0.5	0.4
36	9.584 67	31	9.619 36	16	0.380 64	9.965 30	5	24	6	2.9	0.6	0.5
37	9.584 97	30	9.619 72	16	0.380 28	9.965 25	5	23	7	3.4	0.7	0.6
38	9.585 27	30	9.620 08	16	0.379 92	9.965 20	5	22	8	3.9	0.8	0.7
39	9.585 57	30	9.620 43	16	0.379 57	9.965 14	6	21	9	4.4	0.9	0.8
		31		16			5					
40	9.585 88		9.620 79		0.379 21	9.965 09		20	10	4.8	1.0	0.8
41	9.586 18	30	9.621 14	16	0.378 86	9.965 04	5	19	20	9.7	2.0	1.7
42	9.586 48	30	9.621 50	16	0.378 50	9.964 98	6	18	30	14.5	3.0	2.5
43	9.586 78	30	9.621 85	16	0.378 15	9.964 93	5	17	40	19.3	4.0	3.3
44	9.587 09	31	9.622 21	16	0.377 79	9.964 88	5	16	50	24.2	5.0	4.2
		30		15			5					
45	9.587 39		9.622 56		0.377 44	9.964 83		15		6	6	
46	9.587 69	30	9.622 92	16	0.377 08	9.964 77	6	14		36	35	
47	9.587 99	30	9.623 27	16	0.376 73	9.964 72	5	13				
48	9.588 29	30	9.623 62	16	0.376 38	9.964 67	5	12	0			
49	9.588 59	30	9.623 98	16	0.376 02	9.964 61	6	11	1	3.0	2.9	
		30		15			5		2	9.0	8.8	
50	9.588 89		9.624 33		0.375 67	9.964 56		10	3	15.0	14.6	
51	9.589 19	30	9.624 68	16	0.375 32	9.964 51	5	9	4	21.0	20.4	
52	9.589 49	30	9.625 04	16	0.374 96	9.964 45	6	8	5	27.0	26.2	
53	9.589 79	30	9.625 39	16	0.374 61	9.964 40	5	7	6	33.0	32.1	
54	9.590 09	30	9.625 74	16	0.374 26	9.964 35	5	6		5	5	5
		30		15			6			37	36	35
55	9.590 39		9.626 09		0.373 91	9.964 29		5	0			
56	9.590 69	30	9.626 45	16	0.373 55	9.964 24	5	4	1	3.7	3.6	3.5
57	9.590 98	25	9.626 80	16	0.373 20	9.964 19	5	3	2	11.1	10.8	10.5
58	9.591 28	30	9.627 15	16	0.372 85	9.964 13	6	2	3	18.5	18.0	17.5
59	9.591 58	30	9.627 50	16	0.372 50	9.964 08	5	1	4	25.9	25.2	24.5
		30		15			5		5	33.3	32.4	31.5
60	9.591 88		9.627 85		0.372 15	9.964 03		0				
'	L. cos.	d.	L. cot.	d.	L. Tan.	L. Sin.	d.	'	P.P.			

112° (292)

(247°) 67

(Continued)

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*

23° (203°)

(336°) 156

	L. Sin.	d.	L. Tan.	d.	L. cot.	L. cos.	d.		P.P.
0	9.591 88	30	9.627 85	35	0.372 15	9.964 03	6	60	" 36 35 34
1	9.592 18	29	9.628 20	35	0.371 80	9.963 97	5	59	1 0.6 0.6 0.6
2	9.592 47	30	9.628 55	35	0.371 45	9.963 92	5	58	2 1.2 1.2 1.1
3	9.592 77	30	9.628 90	35	0.371 10	9.963 87	5	57	3 1.8 1.8 1.7
4	9.593 07	29	9.629 26	35	0.370 74	9.963 81	5	56	4 2.4 2.3 2.3
5	9.593 36	30	9.629 61	35	0.370 39	9.963 76	6	55	5 3.0 2.9 2.8
6	9.593 66	30	9.629 96	35	0.370 04	9.963 70	5	54	6 3.6 3.5 3.4
7	9.593 96	29	9.630 31	35	0.369 69	9.963 65	5	53	7 4.2 4.1 4.0
8	9.594 25	30	9.630 66	35	0.369 34	9.963 60	6	52	8 4.8 4.7 4.5
9	9.594 55	29	9.631 01	35	0.368 99	9.963 54	5	51	9 5.4 5.2 5.1
10	9.594 84	30	9.631 35	35	0.368 65	9.963 49	6	50	10 5.8 5.7
11	9.595 14	29	9.631 70	35	0.368 30	9.963 43	5	49	11 11.7 11.3
12	9.595 43	30	9.632 05	35	0.367 95	9.963 38	5	48	20 18.0 17.5 17.0
13	9.595 73	29	9.632 40	35	0.367 60	9.963 33	6	47	30 24.0 23.3 22.7
14	9.596 02	30	9.632 7.5	35	0.367 25	9.963 27	5	46	40 30.0 29.2 28.3
15	9.596 32	29	9.633 10	35	0.366 90	9.963 22	6	45	" 30 29 28
16	9.596 61	29	9.633 45	35	0.366 55	9.963 16	5	44	1 0.5 0.5 0.5
17	9.596 90	30	9.633 79	35	0.366 21	9.963 11	6	43	2 1.0 1.0 0.9
18	9.597 20	29	9.634 14	35	0.365 86	9.963 05	5	42	3 1.5 1.4 1.4
19	9.597 49	29	9.634 49	35	0.365 51	9.963 00	6	41	4 2.0 1.9 1.9
20	9.597 78	30	9.634 84	35	0.365 16	9.962 94	5	40	5 2.5 2.4 2.3
21	9.598 08	29	9.635 19	35	0.364 81	9.962 89	6	39	6 3.0 2.9 2.8
22	9.598 37	29	9.635 53	35	0.364 47	9.962 84	5	38	7 3.5 3.4 3.3
23	9.598 66	29	9.635 88	35	0.364 12	9.962 78	6	37	8 4.0 3.9 3.7
24	9.598 95	29	9.636 23	35	0.363 77	9.962 73	5	36	9 4.5 4.4 4.2
25	9.599 24	30	9.636 57	35	0.363 43	9.962 67	6	35	10 5.0 4.8 4.7
26	9.599 54	29	9.636 92	35	0.363 08	9.962 62	5	34	20 10.0 9.7 9.3
27	9.599 83	29	9.637 26	35	0.362 74	9.962 56	6	33	30 15.0 14.5 14.0
28	9.600 12	29	9.637 61	35	0.362 39	9.962 51	5	32	40 20.0 19.3 18.7
29	9.600 41	29	9.637 96	35	0.362 04	9.962 45	6	31	50 25.0 24.2 23.3
30	9.600 70	29	9.638 30	35	0.361 70	9.962 40	5	30	" 6 5
31	9.600 99	29	9.638 65	35	0.361 35	9.962 34	6	29	1 0.1 0.1 0.1
32	9.601 28	29	9.638 99	35	0.361 01	9.962 29	5	28	2 0.2 0.2 0.2
33	9.601 57	29	9.639 34	35	0.360 66	9.962 23	6	27	3 0.3 0.2 0.2
34	9.601 86	29	9.639 68	35	0.360 32	9.962 18	5	26	4 0.4 0.3 0.3
35	9.602 15	29	9.640 03	35	0.359 97	9.962 12	6	25	5 0.5 0.4 0.4
36	9.602 44	29	9.640 37	35	0.359 63	9.962 07	5	24	6 0.6 0.5 0.5
37	9.602 73	29	9.640 72	35	0.359 28	9.962 01	6	23	7 0.7 0.6 0.6
38	9.603 02	29	9.641 06	35	0.358 94	9.961 96	5	22	8 0.8 0.7 0.7
39	9.603 31	29	9.641 40	35	0.358 60	9.961 90	6	21	9 0.9 0.8 0.8
40	9.603 59	28	9.641 75	35	0.358 25	9.961 85	5	20	10 1.0 0.8 0.8
41	9.603 88	29	9.642 09	35	0.357 91	9.961 79	6	19	20 2.0 1.7 1.7
42	9.604 17	29	9.642 43	35	0.357 57	9.961 74	5	18	30 3.0 2.5 2.5
43	9.604 46	29	9.642 78	35	0.357 22	9.961 68	6	17	40 4.0 3.3 3.3
44	9.604 74	28	9.643 12	35	0.356 88	9.961 62	5	16	50 5.0 4.2 4.2
45	9.605 03	29	9.643 46	35	0.356 54	9.961 57	6	15	6 6 6
46	9.605 32	29	9.643 81	35	0.356 19	9.961 51	5	14	36 35 34
47	9.605 61	28	9.644 15	35	0.355 8.5	9.961 46	6	13	0 3.0 2.9 2.8
48	9.605 89	29	9.644 49	35	0.355 51	9.961 40	5	12	1 9.0 8.8 8.5
49	9.606 18	28	9.644 83	35	0.355 17	9.961 35	6	11	2 15.0 14.6 14.2
50	9.606 46	29	9.645 17	35	0.354 83	9.961 29	5	10	3 21.0 20.4 19.8
51	9.606 75	29	9.645 52	35	0.354 48	9.961 23	6	9	4 27.0 26.2 25.5
52	9.607 04	28	9.645 86	35	0.354 14	9.961 18	5	8	5 33.0 32.1 31.2
53	9.607 32	29	9.646 20	35	0.353 80	9.961 12	6	7	6 5 5
54	9.607 61	28	9.646 54	35	0.353 46	9.961 07	5	6	3 5 34
55	9.607 89	29	9.646 88	35	0.353 12	9.961 01	6	5	0 3.5 3.4 3.4
56	9.608 18	28	9.647 22	35	0.352 78	9.960 95	5	4	1 10.5 10.2 10.2
57	9.608 46	29	9.647 56	35	0.352 44	9.960 90	6	3	2 17.5 17.0 17.0
58	9.608 75	28	9.647 90	35	0.352 10	9.960 84	5	2	3 24.5 23.8 23.8
59	9.609 03	28	9.648 24	35	0.351 76	9.960 79	6	1	4 31.5 30.6 30.6
60	9.609 31	28	9.648 58	35	0.351 42	9.960 73	5	0	5
	L. cos.	d.	L. cot.	d.	L. Tan.	L. Sin.	d.		P.P.

113° (293°)

(246°) 66

(Continued)

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*

24° (204°)

(335°) 155

'	L. Sin.	d.	L. Tan.	c.d.	L. cot.	L. Cos.	3.	'	P.P.
0	9.609 31	29	9.648 58	34	0.351 42	9.960 73	6	60	
1	9.609 60	28	9.648 92	34	0.351 08	9.960 67	5	59	34 33
2	9.609 88	28	9.649 26	34	0.350 74	9.960 62	5	58	0.6 0.6
3	9.610 16	29	9.649 60	34	0.350 40	9.960 56	6	57	1.1 1.1
4	9.610 45	28	9.649 94	34	0.350 06	9.960 50	6	56	1.7 1.6
				34			5	55	2.3 2.2
5	9.610 73	28	9.650 28	34	0.349 72	9.960 45	6	54	
6	9.611 01	28	9.650 62	34	0.349 38	9.960 39	5	53	2.8
7	9.611 29	29	9.650 96	34	0.349 04	9.960 34	6	52	3.8 3.3
8	9.611 58	28	9.651 30	34	0.348 70	9.960 28	6	51	7.0 3.8
9	9.611 86	28	9.651 64	33	0.348 36	9.960 22	5	50	4.5 4.4
				34			6	49	5.1 5.0
10	9.612 14	28	9.651 97	34	0.348 03	9.960 17	6	48	
11	9.612 42	28	9.652 31	34	0.347 69	9.960 11	6	47	5.7 5.5
12	9.612 70	28	9.652 65	34	0.347 35	9.960 05	5	46	11.3 11.0
13	9.612 98	28	9.652 99	34	0.347 01	9.960 00	6	45	17.0 16.5
14	9.613 26	28	9.653 33	33	0.346 67	9.959 94	6	44	22.7 22.0
				34			5	43	28.3 27.5
15	9.613 54	28	9.653 66	34	0.346 34	9.959 88	6	42	
16	9.613 82	29	9.654 00	34	0.346 00	9.959 82	5	41	29 28
17	9.614 11	27	9.654 34	33	0.345 66	9.959 77	6	40	0.4
18	9.614 38	28	9.654 67	34	0.345 33	9.959 71	6	39	0.9
19	9.614 66	28	9.655 01	34	0.344 99	9.959 65	5	38	1.4 1.4
				33			6	37	1.9 1.8
20	9.614 94	28	9.655 35	33	0.344 65	9.959 60	6	36	
21	9.615 22	28	9.655 68	34	0.344 32	9.959 54	5	35	2.2
22	9.615 50	28	9.656 02	34	0.343 98	9.959 48	6	34	2.7
23	9.615 78	28	9.656 36	33	0.343 64	9.959 42	6	33	3.2
24	9.616 06	28	9.656 69	34	0.343 31	9.959 37	5	32	3.6
				33			6	31	4.0
25	9.616 34	28	9.657 03	33	0.342 97	9.959 31	6	30	
26	9.616 62	27	9.657 36	34	0.342 64	9.959 25	5	29	4.8 4.7
27	9.616 89	28	9.657 70	33	0.342 30	9.959 20	6	28	9.3 9.0
28	9.617 17	28	9.658 03	34	0.341 97	9.959 14	6	27	14.5 14.0
29	9.617 45	28	9.658 37	33	0.341 63	9.959 08	5	26	19.3 18.7
				34			6	25	24.2 23.3
30	9.617 73	27	9.658 70	34	0.341 30	9.959 02	5	24	22.5
31	9.618 00	28	9.659 04	33	0.340 96	9.958 97	6	23	
32	9.618 28	28	9.659 37	34	0.340 63	9.958 91	6	22	6 5
33	9.618 56	27	9.659 71	33	0.340 29	9.958 85	6	21	0.1 0.1
34	9.618 83	28	9.660 04	34	0.339 96	9.958 79	5	20	0.2 0.2
				33			6	19	0.3 0.2
35	9.619 11	28	9.660 38	33	0.339 62	9.958 73	6	18	0.4 0.3
36	9.619 39	27	9.660 71	33	0.339 29	9.958 68	5	17	
37	9.619 66	28	9.661 04	34	0.338 96	9.958 62	6	16	0.5 0.4
38	9.619 94	27	9.661 38	33	0.338 62	9.958 56	6	15	0.6 0.5
39	9.620 21	28	9.661 71	33	0.338 29	9.958 50	5	14	0.7 0.6
				34			6	13	0.8 0.7
40	9.620 49	27	9.662 04	34	0.337 96	9.958 44	5	12	0.8 0.8
41	9.620 76	28	9.662 38	33	0.337 62	9.958 39	6	11	1.0 0.8
42	9.621 04	27	9.662 71	33	0.337 29	9.958 33	5	10	2.0 1.7
43	9.621 31	28	9.663 04	33	0.336 96	9.958 27	6	9	3.0 2.5
44	9.621 59	27	9.663 37	34	0.336 63	9.958 21	6	8	4.0 3.3
				33			5	7	5.0 4.2
45	9.621 86	28	9.663 71	33	0.336 29	9.958 15	6	6	
46	9.622 14	27	9.664 04	33	0.335 96	9.958 10	5	5	
47	9.622 41	27	9.664 37	33	0.335 63	9.958 04	6	4	6 6 5
48	9.622 68	28	9.664 70	33	0.335 30	9.957 98	6	3	34 33 34
49	9.622 96	27	9.665 03	34	0.334 97	9.957 92	5	2	
				33			6	1	
50	9.623 23	27	9.665 37	33	0.334 63	9.957 86	5	0	
51	9.623 50	27	9.665 70	33	0.334 30	9.957 80	6		2.8 2.8 3.4
52	9.623 77	28	9.666 03	33	0.333 97	9.957 75	5		8.5 8.2 10.2
53	9.624 05	27	9.666 36	33	0.333 64	9.957 69	6		14.2 13.8 17.0
54	9.624 32	27	9.666 69	33	0.333 31	9.957 63	6		19.8 19.2 23.8
				33			5		25.5 24.8 30.6
55	9.624 59	27	9.667 02	33	0.332 98	9.957 57	6		31.2 30.2 —
56	9.624 86	27	9.667 35	33	0.332 65	9.957 51	5		
57	9.625 13	28	9.667 68	33	0.332 32	9.957 45	6		
58	9.625 41	27	9.668 01	33	0.331 99	9.957 39	6		
59	9.625 68	27	9.668 34	33	0.331 66	9.957 33	5		
60	9.625 95		9.668 67		0.331 33	9.957 28			
'	L. Cos.	d.	L. cot.	c.d.	L. Tan.	L. Sin.	d.	'	P.P.

114° (294°)

(245°) 65°

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*

25 (205)

(334) 154

'	L. Sin.	d.	L. Tan.	:d.	L. cot.	L. Cos.	d.	'	P.P.
0.	9.625 95	27	9.668 67	33	0.331 33	9.957 28	6	60	
1	9.626 22	27	9.669 00	33	0.331 00	9.957 22	6	59	"
2	9.626 49	27	9.669 33	33	0.330 67	9.957 16	6	58	1 33 32
3	9.626 76	27	9.669 66	33	0.330 34	9.957 10	6	57	2 0.6 0.5
4	9.627 03	27	9.669 99	33	0.330 01	9.957 04	6	56	3 1.1 1.1
5	9.627 30	27	9.670 32	33	0.329 68	9.956 98	6	55	4 1.6 1.6
6	9.627 57	27	9.670 65	33	0.329 35	9.956 92	6	54	5 2.2 2.1
7	9.627 84	27	9.670 98	33	0.329 02	9.956 86	6	53	6 2.8 2.7
8	9.628 11	27	9.671 31	32	0.328 69	9.956 80	6	52	7 3.3 3.2
9	9.628 38	27	9.671 63	33	0.328 37	9.956 74	6	51	8 3.8 3.7
10	9.628 65	27	9.671 96	33	0.328 04	9.956 68	6	50	9 4.4 4.3
11	9.628 92	26	9.672 29	33	0.327 71	9.956 63	5	49	10 5.0 4.8
12	9.629 18	27	9.672 62	33	0.327 38	9.956 57	6	48	11 5.5 5.3
13	9.629 45	27	9.672 95	33	0.327 08	9.956 51	6	47	20 11.0 10.7
14	9.629 72	27	9.673 27	32	0.326 73	9.956 45	6	46	30 16.5 16.0
15	9.629 99	27	9.673 60	33	0.326 40	9.956 39	6	45	40 22.0 21.3
16	9.630 26	26	9.673 93	33	0.326 07	9.956 33	6	44	50 27.5 26.7
17	9.630 52	27	9.674 26	33	0.325 74	9.956 27	6	43	"
18	9.630 79	27	9.674 58	32	0.325 42	9.956 21	6	42	1 27 26
19	9.631 06	27	9.674 91	33	0.325 09	9.956 15	6	41	2 0.4 0.4
20	9.631 33	26	9.675 24	32	0.324 76	9.956 09	6	40	3 0.9 0.9
21	9.631 59	27	9.675 56	33	0.324 44	9.956 03	6	39	4 1.4 1.3
22	9.631 86	27	9.675 89	33	0.324 11	9.955 97	6	38	5 1.8 1.7
23	9.632 13	26	9.676 22	32	0.323 78	9.955 91	6	37	6 2.2 2.2
24	9.632 39	27	9.676 54	33	0.323 46	9.955 85	6	36	7 2.7 2.6
25	9.632 66	26	9.676 87	32	0.323 13	9.955 79	6	35	8 3.2 3.0
26	9.632 92	27	9.677 19	33	0.322 81	9.955 73	6	34	9 3.6 3.5
27	9.633 19	27	9.677 52	33	0.322 48	9.955 67	6	33	10 4.0 3.9
28	9.633 45	27	9.677 85	32	0.322 15	9.955 61	6	32	20 4.5 4.3
29	9.633 72	26	9.678 17	33	0.321 83	9.955 55	6	31	30 9.0 8.7
30	9.633 98	27	9.678 50	32	0.321 50	9.955 49	6	30	40 13.5 13.0
31	9.634 25	26	9.678 82	33	0.321 18	9.955 43	6	29	50 18.0 17.3
32	9.634 51	27	9.679 15	33	0.320 85	9.955 37	6	28	22.5 21.7
33	9.634 78	26	9.679 47	32	0.320 53	9.955 31	6	27	"
34	9.635 04	27	9.679 80	33	0.320 20	9.955 2s	6	26	1 7 6 5
35	9.635 31	26	9.680 12	32	0.319 88	9.955 19	6	25	2 0.1 0.1 0.1
36	9.635 57	27	9.680 44	33	0.319 56	9.955 13	6	24	3 0.2 0.2 0.2
37	9.635 83	26	9.680 77	32	0.319 23	9.955 07	6	23	4 0.4 0.3 0.3
38	9.636 10	27	9.681 09	33	0.318 91	9.955 00	6	22	5 0.5 0.4 0.4
39	9.636 36	26	9.681 42	32	0.318 58	9.954 94	6	21	6 0.6 0.5 0.5
40	9.636 62	27	9.681 74	33	0.318 26	9.954 88	6	20	7 0.7 0.6 0.6
41	9.636 89	26	9.682 06	32	0.317 94	9.954 82	6	19	8 0.8 0.7 0.7
42	9.637 15	27	9.682 39	33	0.317 61	9.954 76	6	18	9 0.9 0.8 0.8
43	9.637 41	26	9.682 71	32	0.317 29	9.954 70	6	17	10 1.0 0.9 0.9
44	9.637 67	27	9.683 03	33	0.316 97	9.954 64	6	16	20 1.2 1.0 0.8
45	9.637 94	26	9.683 36	32	0.316 64	9.954 58	6	15	30 2.3 2.0 1.7
46	9.638 20	27	9.683 68	33	0.316 32	9.954 52	6	14	40 3.5 3.0 2.5
47	9.638 46	26	9.684 00	32	0.316 00	9.954 46	6	13	50 4.7 4.0 3.3
48	9.638 72	27	9.684 32	33	0.315 68	9.954 40	6	12	5.8 5.0 4.2
49	9.638 98	26	9.684 65	32	0.315 3s	9.954 34	6	11	
50	9.639 24	27	9.684 97	33	0.315 03	9.954 27	7	10	7 6 5
51	9.639 50	26	9.685 29	32	0.314 71	9.954 21	6	9	32 32 33
52	9.639 76	27	9.685 61	33	0.314 39	9.954 15	6	8	0
53	9.640 02	26	9.685 93	32	0.314 07	9.954 09	6	7	1 2.3 2.7 3.3
54	9.640 28	27	9.686 26	33	0.313 74	9.954 03	6	6	2 6.9 8.0 9.9
55	9.640 54	26	9.686 58	32	0.313 42	9.953 97	6	5	3 11.4 13.3 16.5
56	9.640 80	27	9.686 90	33	0.313 10	9.953 91	6	4	4 16.0 18.7 23.1
57	9.641 06	26	9.687 22	32	0.312 78	9.953 84	6	3	5 20.6 24.0 29.7
58	9.641 32	27	9.687 54	33	0.312 46	9.953 78	7	2	6 25.1 29.3 —
59	9.641 58	26	9.687 86	32	0.312 14	9.953 72	6	1	7 29.7 — —
60	9.641 84	27	9.688 18	33	0.311 82	9.953 66	6	0	
'	L. Cos.	d.	L. Cot.	:d.	L. Tan.	L. Sin.	1.	'	P.P.

115° (295°)

(244) 64

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*

26° (206°)

(333°) 153°

'	L. Sin.	d.	L. Tan.	:d	L. Cot.	L. cos.	d.	'	P.P.		
0	9.641 84		9.688 18		0.311 82	9.953 66		60			
1	9.642 10	26	9.688 50	32	0.311 50	9.953 60	6	59	"	32	31
2	9.642 36	26	9.688 82	32	0.311 18	9.953 54	6	58	1	0.5	0.5
3	9.642 62	26	9.689 14	32	0.310 86	9.953 48	6	57	2	1.1	1.0
4	9.642 88	26	9.689 46	32	0.310 54	9.953 41	7	56	3	1.6	1.6
		25		32			6		4	2.1	2.1
5	9.643 13		9.689 78		0.310 22	9.953 35		55			
6	9.643 39	26	9.690 10	32	0.309 90	9.953 29	6	54	5	2.7	2.6
7	9.643 65	26	9.690 42	32	0.309 58	9.953 23	6	53	6	3.2	3.1
8	9.643 91	26	9.690 74	32	0.309 26	9.953 17	6	52	7	3.7	3.6
9	9.644 17	26	9.691 06	32	0.308 94	9.953 10	7	51	8	4.1	4.1
		25		32			6		9	4.8	4.6
10	9.644 42		9.691 38		0.308 62	9.953 04		50			
11	9.644 68	26	9.691 70	32	0.308 30	9.952 98	6	49	10	5.3	5.2
12	9.644 94	26	9.692 02	32	0.307 98	9.952 92	6	48	20	10.7	10.3
13	9.645 19	25	9.692 34	32	0.307 66	9.952 86	6	47	30	16.0	15.5
14	9.645 45	26	9.692 66	32	0.307 34	9.952 79	7	46	40	21.3	20.7
		26		32			6		so	26.7	25.8
15	9.645 71		9.692 98		0.307 02	9.952 73		45			
16	9.645 96	25	9.693 29	31	0.306 71	9.952 67	6	44	"	26	25
17	9.646 22	26	9.693 61	32	0.306 39	9.952 61	6	43	1	0.4	0.4
18	9.646 47	25	9.693 93	32	0.306 07	9.952 54	7	42	2	0.9	0.8
19	9.646 73	26	9.694 25	32	0.305 75	9.952 48	6	41	3	1.3	1.2
		25		32			6		4	1.7	1.6
20	9.646 98		9.694 57		0.305 43	9.952 42		40			
21	9.647 24	26	9.694 88	31	0.305 12	9.952 36	6	39	5	2.2	2.1
22	9.647 49	25	9.695 20	32	0.304 80	9.952 29	7	38	6	2.6	2.5
23	9.647 75	26	9.695 52	32	0.304 48	9.952 23	6	37	7	3.0	2.9
24	9.648 00	25	9.695 84	32	0.304 16	9.952 17	6	36	8	3.5	3.3
		26		31					9	3.9	3.8
25	9.648 26		9.696 15		0.303 85	9.952 11		35			
26	9.648 51	25	9.696 47	32	0.303 53	9.952 04	7	34	10	4.3	4.2
27	9.648 77	26	9.696 79	32	0.303 21	9.951 98	6	33	20	8.7	8.3
28	9.649 02	25	9.697 10	31	0.302 90	9.951 92	6	32	30	13.0	12.5
29	9.649 27	25	9.697 42	32	0.302 58	9.951 85	7	31	40	17.3	16.7
		26		32					so	21.7	20.8
30	9.649 53		9.697 74		0.302 26	9.951 79		30			
31	9.649 78	25	9.698 05	31	0.301 95	9.951 73	6	29			
32	9.650 03	25	9.698 37	32	0.301 63	9.951 67	6	28			
33	9.650 29	26	9.698 68	31	0.301 32	9.951 60	7	27	"	7	6
34	9.650 54	25	9.699 00	32	0.301 00	9.951 54	6	26	1	0.1	0.1
		25		32					2	0.2	0.2
35	9.650 79		9.699 32		0.300 68	9.951 48		25	3	0.4	0.3
36	9.651 04	25	9.699 63	31	0.300 37	9.951 41	7	24	4	0.5	0.4
37	9.651 30	26	9.699 95	32	0.300 05	9.951 35	6	23			
38	9.651 55	25	9.700 26	31	0.299 74	9.951 29	6	22	5	0.6	0.5
39	9.651 80	25	9.700 58	32	0.299 42	9.951 22	7	21	6	0.7	0.6
		25		31					7	0.8	0.7
40	9.652 05		9.700 89		0.299 11	9.951 16		20	8	0.9	0.8
41	9.652 30	25	9.701 21	32	0.298 79	9.951 10	6	19	9	1.0	0.9
42	9.652 55	25	9.701 52	31	0.298 48	9.951 03	7	18			
43	9.652 81	26	9.701 84	32	0.298 16	9.950 97	6	17	10	1.2	1.0
44	9.653 06	25	9.702 15	31	0.297 85	9.950 90	7	16	20	2.3	2.0
		25		32					30	3.5	3.0
45	9.653 31		9.702 47		0.297 53	9.950 84		15	40	4.7	4.0
46	9.653 56	25	9.702 78	31	0.297 22	9.950 78	6	14	so	5.8	5.0
47	9.653 81	25	9.703 09	31	0.296 91	9.950 71	7	13			
48	9.654 06	25	9.703 41	32	0.296 59	9.950 65	6	12			
49	9.654 31	25	9.703 72	31	0.296 28	9.950 59	6	11			
		25		32						7	7
50	9.654 56		9.704 04		0.295 96	9.950 52		10		32	31
51	9.654 81	25	9.704 35	31	0.295 65	9.950 46	6	9	0	2.3	2.2
52	9.655 06	25	9.704 66	31	0.295 34	9.950 39	7	8	1	6.9	6.6
53	9.655 31	25	9.704 98	32	0.295 02	9.950 33	6	7	2	11.4	11.1
54	9.655 56	25	9.705 29	31	0.294 71	9.950 27	6	6	3	16.0	15.5
		24		31					4	20.6	19.9
55	9.655 80		9.705 60		0.294 40	9.950 20		5	5	25.1	24.4
56	9.656 05	25	9.705 92	32	0.294 08	9.950 14	6	4	6	29.7	28.8
57	9.656 30	25	9.706 23	31	0.293 77	9.950 07	7	3	7		
58	9.656 55	25	9.706 54	31	0.293 46	9.950 01	6	2			
59	9.656 80	25	9.706 85	31	0.293 15	9.949 95	6	1			
60	9.657 05	25	9.707 17	32	0.292 83	9.949 88	7	0			
'	L. Cos.	d.	L. Cot.	:d	L. Tan.	L. Sin.	d.	'	P.P.		

116° (296°)

(243°) 63°

(Continued)

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*
(332°) 152°

'	L. Sin.,	d.	L. Tan.	∠d	L. Cot.	L. Cos.	d.	'	P.P.			
0	9-657 08	24	9.707 17	31	0-292 83	9.949 88	6	60				
1	9-657 29	25	9.707 48	31	0-292 52	9-949 82	7	59	"	32	31	30
2	9-657 54	25	9.707 79	31	0-292 21	9-949 75	7	58	1	0-5	0-5	0-5
3	9-657 79	25	9-708 10	31	0-291 90	9.949 69	7	57	2	1-1	1-0	1-0
4	9-658 04	25	9.708 41	31	0.291 59	9.949 62	7	56	3	1-6	1-6	1-5
		24		32			6	56	4	2-1	2.1	2-0
5	9-658 28	25	9-708 73	31	0-291 27	9-949 56	7	55	5	2-7	2.6	2-5
6	9-658 53	25	9.709 04	31	0-290 96	9-949 49	7	54	6	3-2	3-1	3-0
7	9-658 78	24	9.709 38	31	0.290 65	9-949 43	6	53	7	3-7	3-6	3-5
8	9-659 02	25	9-709 66	31	0.290 34	9-949 36	6	52	8	4-3	4-1	4-0
9	9-659 27	25	9.709 97	31	0-290 03	9.949 30	6	51	9	4.8	4.6	4-5
		2s		31			7					
10	9-659 52	24	9-710 28	31	0.289 72	9.949 23	6	50	10	5-3	5-2	5-0
11	9-659 76	25	9-710 59	31	0.289 41	9.949 17	6	49	20	10-7	10-3	10-0
12	9-660 01	24	9-710 90	31	0-289 10	9.949 11	7	48	30	16.0	15-5	15-0
13	9-660 25	25	9-711 21	32	0.288 79	9.949 04	6	47	40	21.3	20-7	20-0
14	9-660 50	2s	9-711 53	3i	0-288 47	9.948 98	6	46	50	26.7	25-8	25-0
		24		31			7					
15	9-660 75	24	9.711 84	31	0-288 16	9.948 91	6	4s				
16	9-660 99	25	9.712 15	31	0-287 85	9.948 85	7	44				
17	9.661 24	24	9-712 46	31	0.287 54	9-948 78	7	43	"	25	24	23
18	9.661 48	25	9-712 77	31	0-287 23	9.948 71	7	42	1	0-4	0-4	0-4
19	9.661 73	25	9.713 08	31	0-286 92	9-948 65	6	41	2	0-8	0-8	0-8
		24		31			7		3	1-2	1-2	1-2
20	9.661 97	24	9.713 39	31	0.286 61	9.948 58	6	40	4	1.7	1-6	1-5
21	9.662 21	25	9-713 70	31	0.286 30	9.948 52	7	39				
22	9.662 46	24	9-714 01	30	0.285 99	9.948 45	6	38	5	2-1	2-0	1-9
23	9.662 70	25	9-714 31	31	0.285 69	9.948 39	7	37	6	2-5	2-4	2-3
24	9.662 95	24	9.714 62	31	0.285 38	9.948 32	7	36	7	2-9	2-8	2-7
		24		31			6		8	3-3	3.2	3-1
25	9.663 19	24	9-714 93	31	0-285 07	9.948 26	7	35	9	3-8	3.6	3-4
26	9.663 43	25	9-715 24	31	0-284 76	9.948 19	6	34				
27	9.663 68	24	9-715 55	31	0284 45	9.948 13	7	33	10	4.2	4-0	3-8
28	9.663 92	24	9-715 86	31	0.284 14	9-948 06	7	32	20	8-3	8-0	7-7
29	9.664 16	24	9-716 17	31	0.283 83	9.947 99	7	31	30	12-5	12.0	11-5
		2s		31			6	30	40	16.7	16-0	15-3
30	9.664 41	24	9-716 48	31	0.283 52	9.947 93	7	29	50	20-8	20.0	19-2
31	9.664 65	24	9-716 79	30	0-283 21	9.947 86	6	28				
32	9.664 89	24	9.717 09	31	0.282 91	9.947 80	7	27	"	7	6	
33	9-665 13	24	9.717 40	31	0-282 60	9.947 73	7	26	1	0-1	0-1	
34	9-665 37	24	9.717 71	31	0.282 29	9.947 67	6	25	2	0-2	0-2	
		2s		31			7		3	0-4	0-3	
35	9.665 62	24	9.718 02	31	0-281 98	9.947 60	7	24	4	0-5	0-4	
36	9.665 86	24	9.718 33	30	0-281 67	9.947 53	6	23	5	0-6	0-5	
37	9.666 10	24	9.718 63	31	0-281 37	9-947 47	7	22	6	0-7	0-6	
38	9.666 34	24	9-718 94	31	0.281 06	9.947 40	6	21	7	0-8	0-7	
39	9.666 58	24	9-719 25	30	0-280 75	9.947 34	7	20	8	0-9	0-8	
		24		31			7	19	9	1-0	0-9	
40	9.666 82	24	9.719 55	31	0.280 45	9.947 27	6	18	10	1-2	1-0	
41	9.667 06	25	9-719 86	31	0-280 14	9.947 20	7	17	20	2-3	2-0	
42	9.667 31	24	9-720 17	31	0-279 83	9.947 14	7	16	30	3-5	3-0	
43	9.667 55	24	9-720 48	30	0-279 52	9.947 07	6	15	40	4-7	4-0	
44	9.667 79	24	9-720 78	31	0-279 22	9.947 00	7	14	50	5-8	5-0	
		24		31			7	13				
45	9.668 03	24	9.721 09	31	0-278 91	9.946 94	7	12				
46	9.668 27	24	9-721 40	30	0.278 60	9.946 87	6	11				
47	9.668 51	24	9-721 70	31	0-278 30	9.946 80	7	10	7	30	31	30
48	9.668 75	24	9.722 01	30	0.277 99	9.946 74	6	9				
49	9.668 99	23	9.722 31	31	0.277 69	9.946 67	7	8				
		24		31			7	7				
50	9.669 22	24	9-722 62	31	0-277 38	9.946 60	6	6	0			
51	9.669 46	24	9-722 93	30	0-277 07	9.946 54	7	5	1	2-1	2.6	2-5
52	9.669 70	24	9.723 23	31	0-276 77	9.946 47	7	4	2	6-4	7-8	7-5
53	9-669 94	24	9-723 54	30	0-276 46	9.946 40	6	3	3	10-7	12-9	12-5
54	9-670 18	24	9-723 84	31	0.276 16	9.946 34	7	2	4	15-0	18.1	17-5
		24		30			7	1	5	19-3	23-2	22-5
55	9-670 42	24	9.724 15	31	0-275 85	9.946 27	6	0	6	23.6	28.4	27-5
56	9-670 66	24	9.724 45	30	0.275 55	9.946 20	7		7	27.9	—	
57	9-670 90	23	9-724 76	31	0-275 24	9-946 14	7					
58	9.671 13	24	9-725 06	31	0-274 94	9.946 07	7					
59	9-671 37	24	9-725 37	30	0.274 63	9.946 00	7					
60	9.671 61		9.725 67		0.274 33	9-945 93						
'	L. Cos.	d.	L. cot.	∠d	L. Tan.	L. Sin.	d.	'	P.P.			

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*
(331) 151°

28° (208)

'	L. Sin.	l.	L. Tan.	c.d.	L. Cot.	L. cos.	l.	'	P.P.
0	9.671 61	4	9.725 67	31	0.274 33	9.945 93	6	0	
1	9.671 85	4	9.725 98	30	0.274 02	9.945 87	7	9	31 30 29
2	9.672 08	4	9.726 28	31	0.273 72	9.945 80	7	8	1 0.5 0.5 0.5
3	9.672 32	4	9.726 59	30	0.273 41	9.945 73	7	7	2 1.0 1.0 1.0
4	9.672 56	4	9.726 89	30	0.273 11	9.945 67	6	6	3 1.6 1.5 1.4
		4		31			7	4	2.1 2.0 1.9
5	9.672 80	4	9.727 20	30	0.272 80	9.945 60	7	5	
6	9.673 03	4	9.727 50	30	0.272 50	9.945 53	7	4	5 2.6 2.5 2.4
7	9.673 27	4	9.727 80	31	0.272 20	9.945 46	7	3	6 3.1 3.0 2.9
8	9.673 50	4	9.728 11	30	0.271 89	9.945 40	6	2	7 3.6 3.5 3.4
9	9.673 74	4	9.728 41	30	0.271 59	9.945 33	7	1	8 4.1 4.0 3.9
		4		31			7	9	4.6 4.5 4.4
10	9.673 98	4	9.728 72	30	0.271 28	9.945 26	7	0	5.0 4.8
11	9.674 21	4	9.729 02	30	0.270 98	9.945 19	6	0	10.0 9.7
12	9.674 45	4	9.729 32	31	0.270 68	9.945 13	7	0	15.5 14.5
13	9.674 68	4	9.729 63	30	0.270 37	9.945 06	7	0	20.7 19.3
14	9.674 92	4	9.729 93	30	0.270 07	9.944 99	7	0	25.8 24.2
		4		30			7	0	
15	9.675 15	4	9.730 23	31	0.269 77	9.944 92	7	15	
16	9.675 39	4	9.730 54	30	0.269 46	9.944 85	7	14	24 23 22
17	9.675 62	4	9.730 84	30	0.269 16	9.944 79	4	13	1 0.4 0.4 0.4
18	9.675 86	4	9.731 14	30	0.268 86	9.944 72	7	12	2 0.8 0.8 0.7
19	9.676 09	4	9.731 44	30	0.268 56	9.944 65	7	11	3 1.2 1.2 1.1
		4		31			7	4	1.6 1.5 1.5
20	9.676 33	4	9.731 75	30	0.268 25	9.944 58	7	10	
21	9.676 56	4	9.732 05	30	0.267 95	9.944 51	6	9	5 2.0 1.9 1.8
22	9.676 80	4	9.732 35	30	0.267 65	9.944 45	7	8	6 2.4 2.3 2.2
23	9.677 03	4	9.732 65	30	0.267 35	9.944 38	7	7	7 2.8 2.7 2.6
24	9.677 26	4	9.732 95	30	0.267 05	9.944 31	7	6	8 3.2 3.1 2.9
		4		31			7	9	3.6 3.4 3.3
25	9.677 50	4	9.733 26	30	0.266 74	9.944 24	7	35	
26	9.677 73	4	9.733 56	30	0.266 44	9.944 17	7	34	10 4.0 3.8 3.7
27	9.677 96	4	9.733 86	30	0.266 14	9.944 10	7	33	20 8.0 7.7 7.3
28	9.678 20	4	9.734 16	30	0.265 84	9.944 04	6	32	30 12.0 11.5 11.0
29	9.678 43	4	9.734 46	30	0.265 54	9.943 97	7	31	40 16.0 15.3 14.7
		4		30			7	50	20.0 19.2 18.3
30	9.678 66	4	9.734 76	31	0.265 24	9.943 90	7	30	
31	9.678 90	4	9.735 07	30	0.264 93	9.943 83	7	29	
32	9.679 13	4	9.735 37	30	0.264 63	9.943 76	7	28	7 6
33	9.679 36	4	9.735 67	30	0.264 33	9.943 69	7	27	1 0.1 0.1 0.1
34	9.679 59	4	9.735 97	30	0.264 03	9.943 62	7	26	2 0.2 0.2 0.2
		4		30			7	3	3 0.4 0.3 0.3
35	9.679 82	4	9.736 27	30	0.263 73	9.943 55	6	25	4 0.5 0.4 0.4
36	9.680 06	4	9.736 57	30	0.263 43	9.943 49	7	24	
37	9.680 29	4	9.736 87	30	0.263 13	9.943 42	7	23	5 0.6 0.5 0.5
38	9.680 52	4	9.737 17	30	0.262 83	9.943 35	7	22	6 0.7 0.6 0.6
39	9.680 75	4	9.737 47	30	0.262 53	9.943 28	7	21	7 0.8 0.7 0.7
		4		30			7	8	8 0.9 0.8 0.8
40	9.680 98	4	9.737 77	30	0.262 23	9.943 21	7	9	9 1.0 0.9 0.9
41	9.681 21	4	9.738 07	30	0.261 93	9.943 14	7	10	
42	9.681 44	4	9.738 37	30	0.261 63	9.943 07	7	11	1.2 1.0 1.0
43	9.681 67	4	9.738 67	30	0.261 33	9.943 00	7	12	2.3 2.0 2.0
44	9.681 90	4	9.738 97	30	0.261 03	9.942 93	7	13	3.5 3.0 3.0
		4		30			7	40	4.7 4.0 4.0
45	9.682 13	4	9.739 27	30	0.260 73	9.942 86	7	50	5.8 5.0 5.0
46	9.682 37	4	9.739 57	30	0.260 43	9.942 79	7	14	
47	9.682 60	4	9.739 87	30	0.260 13	9.942 73	6	15	
48	9.682 83	4	9.740 17	30	0.259 83	9.942 66	7	16	7 6 6
49	9.683 05	4	9.740 47	30	0.259 53	9.942 59	7	17	31 31 30
		4		30			7	18	
50	9.683 28	4	9.740 77	30	0.259 23	9.942 52	7	19	
51	9.683 51	4	9.741 07	30	0.258 93	9.942 45	7	20	
52	9.683 74	4	9.741 37	30	0.258 63	9.942 38	5	21	0 2.2 2.6 2.5
53	9.683 97	4	9.741 66	29	0.258 34	9.942 31	7	22	1 6.6 7.8 7.5
54	9.684 20	4	9.741 96	30	0.258 04	9.942 24	7	23	2 11.1 12.9 12.5
		4		30			7	3	3 15.5 18.1 17.5
55	9.684 43	4	9.742 26	30	0.257 74	9.942 17	7	4	4 19.9 23.2 22.5
56	9.684 66	4	9.742 56	30	0.257 44	9.942 10	7	5	5 24.4 28.4 27.5
57	9.684 89	4	9.742 86	30	0.257 14	9.942 03	7	6	
58	9.685 12	4	9.743 16	30	0.256 84	9.941 96	7	7	28.8
59	9.685 34	4	9.743 45	29	0.256 55	9.941 89	7		
		4		30			7		
60	9.685 57	4	9.743 75	30	0.256 25	9.941 82	7		
		4					7		
	L. Cos.	c	L. Cot.	c.d.	L. Tan.	L. Sin.	d		P.P.

118° (298)

(241) 61°

(Continued)

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — Contd

29° (209°)

(330°) 150°

	L. Sin.	d.	L. Tan.	c.d.	L. cot.	L. cos.	d.		P.P.
0	9.685 57	23	9.743 75	30	0.256 25	9.941 82	56		
1	9.685 80	23	9.744 0.5	30	0.255 99	9.941 75	55		
2	9.686 03	22	9.744 35	30	0.255 65	9.941 68	54	30	29 23
3	9.686 2.5	22	9.744 65	29	0.255 35	9.941 61	53	1	0.5 0.5 0.4
4	9.686 48	22	9.744 94	30	0.255 06	9.941 54	52	2	1.0 1.0 0.8
		22		30			51	3	1.5 1.4 1.2
5	9.686 71	22	9.745 24	30	0.254 76	9.941 47	50	4	2.0 1.9 1.5
6	9.686 94	22	9.745 54	29	0.254 46	9.941 40	49		
7	9.687 16	22	9.745 83	30	0.254 17	9.941 33	48	5	2.5 2.4 1.9
8	9.687 39	22	9.746 13	30	0.253 87	9.941 26	47	6	3.0 2.9 2.3
9	9.687 62	22	9.746 43	30	0.253 57	9.941 19	46	7	3.5 3.4 2.7
		22		30			45	8	4.0 3.9 3.1
0	9.687 84	22	9.746 73	29	0.253 27	9.941 12	44	9	4.5 4.4 3.4
1	9.688 07	22	9.747 02	30	0.252 98	9.941 05	43		
2	9.688 29	22	9.747 32	30	0.252 68	9.940 98	42	10	5.0 4.8 3.8
3	9.688 52	22	9.747 62	29	0.252 38	9.940 90	41	20	10.0 9.7 7.7
4	9.688 75	22	9.747 91	30	0.252 09	9.940 83	40	30	15.0 14.5 11.5
		22		30			39	40	20.0 19.3 15.3
5	9.688 97	22	9.748 21	30	0.251 79	9.940 76	38	50	25.0 24.2 19.2
6	9.689 20	22	9.748 51	29	0.251 49	9.940 69	37		
7	9.689 42	22	9.748 80	30	0.251 20	9.940 62	36		
8	9.689 65	22	9.749 10	29	0.250 90	9.940 55	35	22	8 7
9	9.689 87	22	9.749 39	30	0.250 61	9.940 48	34	1	0.4 0.1 0.1
		22		30			33	2	0.7 0.3 0.2
10	9.690 10	22	9.749 69	29	0.250 31	9.940 41	32	3	1.1 0.4 0.4
11	9.690 32	22	9.749 98	30	0.250 02	9.940 34	31	4	1.5 0.5 0.5
12	9.690 55	22	9.750 28	30	0.249 72	9.940 27	30		
13	9.690 77	22	9.750 58	29	0.249 42	9.940 20	29	5	1.8 0.7 0.6
14	9.691 00	22	9.750 87	30	0.249 13	9.940 12	28	6	2.2 0.8 0.7
		22		30			27	7	2.6 0.9 0.8
25	9.691 22	22	9.751 17	29	0.248 83	9.940 05	26	8	2.9 1.1 0.9
26	9.691 44	22	9.751 46	30	0.248 54	9.939 98	25	9	3.3 1.2 1.0
27	9.691 67	22	9.751 76	29	0.248 24	9.939 91	24		
28	9.691 89	22	9.752 05	30	0.247 95	9.939 84	23	10	3.7 1.3 1.2
29	9.692 12	22	9.752 35	29	0.247 65	9.939 77	22	20	7.3 2.7 2.3
		22		30			21	30	11.0 4.0 3.5
30	9.692 34	22	9.752 64	30	0.247 36	9.939 70	20	40	14.7 5.3 4.7
31	9.692 56	22	9.752 94	29	0.247 06	9.939 63	19	50	18.3 6.7 5.8
32	9.692 79	22	9.753 23	30	0.246 77	9.939 55	18		
33	9.693 01	22	9.753 53	29	0.246 47	9.939 48	17		
34	9.693 23	22	9.753 82	30	0.246 18	9.939 41	16		
		22		29			15		
35	9.693 45	22	9.754 11	30	0.245 89	9.939 34	14		
36	9.693 68	22	9.754 41	29	0.245 59	9.939 27	13	8	8
37	9.693 90	22	9.754 70	30	0.245 30	9.939 20	12	3	29
38	9.694 12	22	9.755 00	29	0.245 00	9.939 12	11		
39	9.694 34	22	9.755 29	30	0.244 71	9.939 05	10		
		22		29			9		
40	9.694 56	22	9.755 58	30	0.244 42	9.938 98	8		
41	9.694 79	22	9.755 88	29	0.244 12	9.938 91	7		
42	9.695 01	22	9.756 17	30	0.243 83	9.938 84	6		
43	9.695 23	22	9.756 47	29	0.243 53	9.938 76	5		
44	9.695 45	22	9.756 76	30	0.243 24	9.938 69	4		
		22		29			3		
45	9.695 67	22	9.757 05	30	0.242 95	9.938 62	2		
46	9.695 89	22	9.757 35	29	0.242 65	9.938 55	1		
47	9.696 11	22	9.757 64	30	0.242 36	9.938 47			
48	9.696 33	22	9.757 93	29	0.242 07	9.938 40			
49	9.696 55	22	9.758 22	30	0.241 78	9.938 33			
		22		29					
50	9.696 77	22	9.758 52	30	0.241 48	9.938 26			
51	9.696 99	22	9.758 81	29	0.241 19	9.938 19			
52	9.697 21	22	9.759 10	30	0.240 90	9.938 11			
53	9.697 43	22	9.759 39	29	0.240 61	9.938 04			
54	9.697 65	22	9.759 69	30	0.240 31	9.937 97			
		22		29					
55	9.697 87	22	9.759 98	30	0.240 02	9.937 89			
56	9.698 09	22	9.760 27	29	0.239 73	9.937 82			
57	9.698 31	22	9.760 56	30	0.239 44	9.937 75			
58	9.698 53	22	9.760 86	29	0.239 14	9.937 68			
59	9.698 75	22	9.761 15	30	0.238 85	9.937 60			
		22		29					
60	9.698 97	22	9.761 44	30	0.238 56	9.937 53			
		22		29					
	L. Cos.	d.	L. Cot.	c.d.	L. Tan.	L. Sin.	d.		P.P.

119° (299°)

(240°) 60°

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*
(329°) 149°

30° (210°)

'	L. Sin.	l.	L. Tan.	c.d.	L. cot.	L. Cos.	'	'	P.P.
0	9-698 97	2	9.761 44	29	0-238 56	9.937 53	7	60	
1	9-699 19	2	9.761 73	29	0-238 27	9-937 46	8	59	" 30 29 28
2	9-699 41	2	9-762 02	29	0-237 98	9-937 38	7	58	1 0-5 0-5 0-5
3	9-699 63	1	9-762 31	30	0-237 69	9.937 31	7	57	2 1-0 1-0 0-9
4	9.699 84	1	9.762 61	29	0.237 39	9.937 24	7	56	3 1-5 1-4 1-4
		2		29			7	55	4 2-0 1-9 1-9
5	9.700 06	2	9-762 90	9	0-237 10	9.937 17	8	54	
6	9.700 28	2	9-763 19	49	0-236 81	9.937 09	7	53	5 2-5 2-4 2-3
7	9-700 50	2	9-763 48	29	0-236 52	9-937 02	7	52	6 3-0 2-9 2-8
8	9-700 72	1	9.763 77	29	0-236 23	9-936 95	8	51	7 3-5 3-4 3-3
9	9-700 93	1	9-764 06	29	0.235 94	9.936 87	7	50	8 4-0 3-9 3-7
		2		29			7	49	9 4-5 4-4 4-2
10	9-701 15	2	9-764 35	29	0-235 65	9.936 80	7	48	
11	9-701 37	2	9-764 64	29	0-235 36	9.936 73	8	47	0 5-0 4-8 4-7
12	9-701 59	1	9-764 93	29	0-235 07	9.936 65	7	46	10 10-0 9-7 9-3
13	9-701 80	1	9-765 22	29	0.234 78	9.936 58	8	45	10 15-0 14-5 14-0
14	9-702 02	1	9-765 51	29	0-234 49	9.936 50	7	44	10 20-0 19-3 18-7
		2		29			7	43	10 25-0 24-2 23-3
15	9.702 24	2	9-765 80	29	0-234 20	9.936 43	7	42	
16	9.702 45	2	9-766 09	30	0-233 91	9.936 36	8	41	" 22 21
17	9.702 67	2	9-766 39	29	0-233 61	9-936 28	7	40	1 0-4 0-4
18	9.702 88	2	9-766 68	29	0-233 32	9.936 21	7	39	2 0-7 0-7
19	9.703 10	2	9-766 97	29	0-233 03	9.936 14	8	38	3 1-1 1-0
		2		28			7	37	4 1-5 1-4
20	9-703 32	2	9.767 25	29	0-232 75	9.936 06	7	36	
21	9.703 53	2	9-767 54	29	0-232 46	9-935 99	8	35	5 1-8 1-8
22	9-703 75	2	9-767 83	29	0-232 17	9-935 91	7	34	6 2-2 2-1
23	9-703 96	2	9.768 12	29	0.231 88	9.935 84	7	33	7 2-6 2-4
24	9.704 18	2	9.768 41	29	0-231 59	9-935 77	8	32	8 2-9 2-8
		2		29			7	31	9 3-3 3-2
25	9-704 39	2	9-768 70	29	0-231 30	9.935 69	7	30	
26	9-704 61	2	9-768 99	29	0-231 01	9-935 62	8	29	10 3-7 3-5
27	9-704 82	2	9-769 28	29	0-230 72	9.935 54	7	28	20 7-3 7-0
28	9-705 04	2	9-769 57	29	0-230 43	9.935 47	8	27	30 11-0 10-5
29	9-705 25	2	9-769 86	29	0-230 14	9.935 39	7	26	40 14-7 14-0
		2		29			7	25	50 18-3 17-5
30	9-705 47	2	9-770 15	29	0-229 85	9.935 32	7	24	
31	9-705 68	2	9-770 44	29	0-229 56	9.935 25	8	23	" 8 7
32	9-705 90	2	9-770 73	29	0-229 27	9.935 17	7	22	1 0-1 0-1
33	9.706 11	2	9.771 01	28	0.228 99	9-935 10	8	21	2 0-3 0-2
34	9.706 33	2	9.771 30	29	0.228 70	9.935 02	7	20	3 0-4 0-4
		2		29			8	19	4 0-5 0-5
35	9-706 54	2	9.771 59	29	0.228 41	9.934 95	7	18	
36	9.706 75	2	9.771 88	29	0-228 12	9.934 87	8	17	5 0-7 0-6
37	9.706 97	2	9.772 17	29	0-227 83	9-934 80	7	16	6 0-8 0-7
38	9.707 18	4	9.772 46	28	0.227 54	9-934 72	8	15	7 0-9 0-8
39	9.707 39	2	9.772 74	29	0.227 26	9.934 65	7	14	8 1-1 0-9
		2		29			8	13	9 1-2 1-0
40	9.707 61	3	9.773 03	29	0-226 97	9.934 57	7	12	
41	9-707 82	2	9-773 32	29	0-226 68	9-934 50	8	11	10 1-3 1-2
42	9-708 03	2	9-773 61	29	0.226 39	9-934 42	7	10	20 2-7 2-3
43	9.708 24	2	9.773 90	28	0.226 10	9.934 35	8	9	30 4-0 3-5
44	9.708 46	2	9.774 18	29	0.225 82	9-934 27	7	8	40 5-3 4-7
		2		29			8	7	50 6-7 5-8
45	9-708 67	2	9.774 47	29	0.225 53	9.934 20	7	6	
46	9-708 88	2	9-774 76	29	0-225 24	9.934 12	8	5	1 1-3 1-2
47	9-709 09	2	9-775 05	28	0-224 95	9.934 05	7	4	10 2-7 2-3
48	9-709 31	2	9.775 33	29	0-224 67	9.933 97	8	3	20 4-0 3-5
49	9-709 52	2	9.775 62	29	0-224 38	9.933 90	7	2	30 5-3 4-7
		2		29			8	1	40 6-7 5-8
50	9-709 73	2	9.775 91	28	0-224 09	9.933 82	7	0	
51	9-709 94	2	9.776 19	2	0-223 81	9.933 75	8		7 7 7
52	9-710 15	2	9.776 48	2	0-223 52	9.933 67	7		30 29 28
53	9-710 36	2	9.776 77	2	0.223 23	9.933 60	8		
54	9-710 58	2	9.777 06	2	0.222 94	9.933 52	7		0 2-1 2-1 2-0
		2		2			8		1 6-4 6-2 6-0
55	9.710 79	2	9-777 34	2	0.222 66	9-933 44	7		2 10-7 10-4 10-3
56	9-711 00	2	9-777 63	2	0.222 37	9-933 37	8		3 15-0 14-5 14-0
57	9.711 21	2	9-777 91	2	0.222 09	9.933 29	7		4 19-3 18-6 18-1
58	9-711 42	2	9-778 20	2	0.221 80	9.933 22	8		5 23-6 22-8 22-3
59	9-711 63	2	9-778 49	2	0.221 51	9.933 14	7		6 27-9 26-9 26-4
60	9-711 84	2	9-778 77	2	0-221 23	9.933 07	8		
		2		2			7		0
	L. cos.	d	L. cot.	c.d.	L. Tan.	L. Sin.	d.	'	P.P.

120° (300°)

(239°) 59°

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*

31° (211)

(328°) 148

'	L. Sin.	d.	L. Tan.	d.	L. Cot.	L. cos.	d.	'	P.P.
0	9.711 84	21	9.778 77	29	0.221 23	9.933 07	61		
1	9.712 05	21	9.779 06	29	0.220 94	9.932 99	59	29	28
2	9.712 26	21	9.779 35	28	0.220 65	9.932 91	58	1	0.5
3	9.712 47	21	9.779 63	29	0.220 37	9.932 84	57	2	1.0
4	9.712 68	21	9.779 92	28	0.220 08	9.932 76	56	3	1.4
		21		28				4	1.9
5	9.712 89	21	9.780 20	29	0.219 80	9.932 69	55		
6	9.713 10	21	9.780 49	28	0.219 51	9.932 61	54	5	2.4
7	9.713 31	21	9.780 77	29	0.219 23	9.932 53	53	6	2.9
8	9.713 52	21	9.781 06	29	0.218 94	9.932 46	52	7	3.4
9	9.713 73	21	9.78 35	29	0.218 65	9.932 38	51	8	3.9
		20		28				9	4.4
10	9.713 93		9.781 63	29	0.218 37	9.932 30	50		
11	9.714 14	4	9.781 92	28	0.218 08	9.932 23	49	10	4.8
12	9.714 35	21	9.782 20	29	0.217 80	9.932 15	48	20	9.7
13	9.714 56	21	9.782 49	28	0.217 51	9.932 07	47	30	14.5
14	9.714 77	21	9.782 77	28	0.217 23	9.932 00	46	40	19.3
		21		29				50	24.2
15	9.714 98	21	9.783 06	28	0.216 94	9.931 92	45		
16	9.715 19	20	9.783 34	29	0.216 66	9.931 84	44		21
17	9.715 39	21	9.783 63	28	0.216 37	9.931 77	43	1	0.4
18	9.715 60	21	9.783 91	28	0.216 09	9.931 69	42	2	0.7
19	9.715 81	21	9.784 19	29	0.215 81	9.931 61	41	3	1.0
		21		29				4	1.4
20	9.716 02	20	9.784 48	28	0.215 52	9.931 54	40		
21	9.716 22	21	9.784 76	29	0.215 24	9.931 46	39	5	1.8
22	9.716 43	21	9.785 05	28	0.214 95	9.931 38	38	6	2.1
23	9.716 64	21	9.785 33	29	0.214 67	9.931 31	37	7	2.4
24	9.716 85	21	9.785 62	29	0.214 38	9.931 23	36	8	2.8
		20		28				9	3.2
25	9.717 05	21	9.785 90	28	0.214 10	9.931 15	35		
26	9.717 26	21	9.786 18	29	0.213 82	9.931 08	34	10	3.5
27	9.717 47	20	9.786 47	28	0.213 53	9.931 00	33	20	7.0
28	9.717 67	21	9.786 75	29	0.213 25	9.930 92	32	30	10.5
29	9.717 88	21	9.787 04	29	0.212 96	9.930 84	31	40	14.0
		21		28				50	17.5
30	9.718 09	20	9.787 32	28	0.212 68	9.930 77	30		
31	9.718 29	21	9.787 60	29	0.212 40	9.930 69	29		8
32	9.718 50	20	9.787 89	28	0.212 11	9.930 61	28	1	0.1
33	9.718 70	21	9.788 17	28	0.211 83	9.930 53	27	2	0.3
34	9.718 91	21	9.788 45	28	0.211 55	9.930 46	26	3	0.4
		20		29				4	0.5
35	9.719 11	21	9.788 74	28	0.211 26	9.930 38	25		
36	9.719 32	20	9.789 02	28	0.210 98	9.930 30	24	5	0.7
37	9.719 52	21	9.789 30	29	0.210 70	9.930 22	23	6	0.8
38	9.719 73	21	9.789 59	28	0.210 41	9.930 14	22	7	0.9
39	9.719 94	21	9.789 87	28	0.210 13	9.930 07	21	8	1.1
		20		28				9	1.2
40	9.720 14	20	9.790 15	28	0.209 85	9.929 99	20		
41	9.720 34	21	9.790 43	29	0.209 57	9.929 91	19	10	1.3
42	9.720 55	20	9.790 72	28	0.209 28	9.929 83	18	20	2.7
43	9.720 75	21	9.791 00	28	0.209 00	9.929 76	17	30	4.0
44	9.720 96	21	9.791 28	28	0.208 72	9.929 68	16	40	5.3
		20		28				50	6.7
45	9.721 16	21	9.791 56	29	0.208 44	9.929 60	15		5.8
46	9.721 37	20	9.791 85	28	0.208 15	9.929 52	14		
47	9.721 57	20	9.792 13	28	0.207 87	9.929 44	13		
48	9.721 77	21	9.792 41	28	0.207 59	9.929 36	12		
49	9.721 98	21	9.792 69	28	0.207 31	9.929 29	11		
		20		28				8	8
50	9.722 18	20	9.792 97	29	0.207 03	9.929 21	10	0	30
51	9.722 38	21	9.793 26	28	0.206 74	9.929 13	9	1	1.9
52	9.722 59	20	9.793 54	28	0.206 46	9.929 05	8	2	5.6
53	9.722 79	20	9.793 82	28	0.206 18	9.928 97	7	3	9.4
54	9.722 99	20	9.794 10	28	0.205 90	9.928 89	6	4	13.1
		21		28				5	16.9
55	9.723 20	20	9.794 38	28	0.205 62	9.928 81	5	6	20.6
56	9.723 40	20	9.794 66	29	0.205 34	9.928 74	4	7	24.4
57	9.723 60	21	9.794 95	28	0.205 05	9.928 66	3	8	28.1
58	9.723 81	20	9.795 23	28	0.204 77	9.928 58	2		27.2
59	9.724 01	20	9.795 51	28	0.204 49	9.928 50	1		
60	9.724 21		9.795 79		0.204 21	9.928 42	0		
'	L. Cos.	a.	L. cot.	d.	L. Tan.	L. Sin.	d.	'	P.P.

121° (301)

(238) 58

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS —Contd

32 212°)

(327) 147°

	L. Sin.	d.	L. Tan.	d.	L. cot.	L. cos.	d.		P.P.
0	9-724 21		9-795 79		0.204 21	9-928 42		60	29 28 27
1	9-724 41	20	9-796 07	28	0-203 93	9-928 34	8	59	1 0-5 0-5 0-4
2	9.724 61	20	9-796 35	28	0-203 65	9.928 26	8	58	2 1-0 0-9 0-9
3	9.724 82	21	9-796 63	28	0-203 37	9-928 18	8	57	3 1-4 1-4 1-4
4	9-725 02	20	9-796 91	28	0-203 09	9.928 10	8	56	4 1-9 1-9 1-8
		20		28			7		
5	9-725 22		9.797 19		0-202 81	9.928 03	8	55	5 2-4 2-3 2-2
6	9-725 42	20	9-797 47	28	0-202 53	9.927 98	8	54	6 2-9 2-8 2-7
7	9-725 62	20	9.797 76	28	0-202 24	9-927 87	8	53	7 3-4 3-3 3-2
8	9.725 82	20	9-798 04	28	0-201 96	9-927 79	8	52	8 3-9 3-7 3-6
9	9.726 02	20	9-798 32	28	0.201 68	9.927 71	8	51	9 4-4 4-2 4-0
		20		28			8		
10	9-726 22		9-798 60		0-201 40	9-927 63	8	50	10 4-8 4-7 4-5
11	9-726 43	21	9-798 88	28	0.201 12	9-927 55	8	49	20 9-7 9-3 9-0
12	9-726 63	20	9-799 16	28	0-200 84	9.927 47	8	48	30 14-5 14-0 13-5
13	9-726 83	20	9-799 44	28	0.200 56	9.927 39	8	47	40 19-3 18-7 18-0
14	9-727 03	20	9-799 72	28	0.200 28	9.927 3 1	8	46	50 24-2 23-3 22-5
		20		28			8		
15	9-727 23		9-800 00		0.200 00	9-927 23	8	45	" 21 20 19
16	9-727 43	20	9-800 28	28	0.199 72	9.927 15	8	44	1 0-4 0-3 0-3
17	9.727 63	20	9-800 56	28	0-199 44	9.927 07	8	43	2 0-7 0-7 0-6
18	9.727 83	20	9-800 84	28	0.199 16	9-926 99	8	42	3 1-0 1-0 1-0
19	9.728 03	20	9-801 12	28	0.198 88	9.926 91	8	41	4 1-4 1-3 1-3
		20		28			8		
20	9.728 23		9-801 40		0-198 60	9.926 83	8	40	5 1-8 1-7 1-6
21	9.728 43	20	9-801 68	28	0.198 32	9.926 73	8	39	6 2-1 2-0 1-9
22	9-728 63	20	9-801 95	27	0-198 08	9-926 67	8	38	7 2-4 2-3 2-2
23	9-728 83	20	9-802 23	28	0-197 77	9.926 59	8	37	8 2-8 2-7 2-5
24	9-729 02	19	9-802 51	28	0.197 49	9.926 51	8	36	9 3-2 3-0 2-8
		20		28			8		
25	9-729 22		9.802 79		0-197 21	9-926 43	8	35	10 3-5 3-3 3-2
26	9-729 42	3	9-803 07	28	0-196 93	9-926 35	8	34	20 7-0 6-7 6-3
27	9-729 62	20	9-803 35	28	0.196 65	9.926 27	8	33	30 10-5 10-0 9-5
28	9.729 82	20	9.803 63	28	0-196 37	9.926 19	8	32	40 14-0 13-3 12-7
29	9-730 02	20	9-803 9 1	28	0-196 09	9.926 11	8	31	50 17-5 16-7 15-8
		20		28			8		
30	9-730 22		9-804 19		0.195 81	9.926 03	8	30	" 9 8 7
31	9-730 41	19	9-804 47	28	0-195 53	9-925 95	8	29	1 0-2 0-1 0-1
32	9-730 61	20	9-804 74	27	0-195 26	9.925 87	8	28	2 0-3 0-3 0-2
33	9-730 81	20	9-805 02	28	0-194 98	9-925 79	8	27	3 0-4 0-4 0-4
34	9-731 01	20	9-805 30	28	0-194 70	9.925 71	8	26	4 0-6 0-5 0-5
		20		28			8		
35	9-731 21		9-805 58		0-194 42	9.925 63	8	25	5 0-8 0-7 0-6
36	9-731 40	19	9-805 86	28	0.194 14	9-925 55	8	24	6 0-9 0-8 0-7
37	9-731 60	20	9-806 14	28	0-193 86	9-925 46	9	23	7 1-0 0-9 0-8
38	9.731 80	20	9-806 42	28	0.193 58	9.925 38	8	22	8 1-2 1-1 0-9
39	9.732 00	20	9.806 69	27	0.193 31	9.925 30	8	21	9 1-4 1-2 1-0
		19		28			8		
40	9.732 19		9-806 97		0.193 03	9.925 22	8	20	10 1-5 1-3 1-2
41	9.732 39	20	9-807 25	28	0.192 75	9.925 14	8	19	20 3-0 2-7 2-3
42	9-732 59	20	9.807 53	28	0.192 47	9.925 06	8	18	30 4-5 4-0 3-5
43	9.732 78	19	9-807 81	28	0.192 19	9.924 98	8	17	40 6-0 5-3 4-7
44	9.732 98	20	9.808 08	27	0-191 92	9.924 90	8	16	50 7-5 6-7 5-8
		20		28			8		
45	9-733 18		9-808 36		0.191 64	9.924 82	9	15	
46	9-733 37	19	9-808 64	28	0.191 36	9.924 73	8	14	
47	9-733 57	20	9-808 92	28	0.191 08	9.924 65	8	13	
48	9-733 77	20	9-809 19	27	0.190 81	9.924 57	8	12	
49	9-733 96	19	9.809 47	28	0.190 53	9.924 49	8	11	8 8 7
		20		28			8		29 2 8 28
50	9.734 16		9-809 75		0.190 25	9.924 41	8	10	0 1-8 1-8 2-0
51	9.734 35	19	9.810 03	28	0.189 97	9-924 33	8	9	1 5-4 5-2 6-0
52	9-734 55	20	9-810 30	27	0-189 70	9.924 25	8	8	2 9-1 8-8 10-0
53	9-734 74	19	9-810 58	28	0.189 42	9-924 16	9	7	3 12-7 12-2 14-0
54	9-734 94	20	9.810 86	28	0.189 14	9-924 08	8	6	4 16-3 15-8 18-0
		19		27			8	5	5 19-9 19-2 22-0
55	9-735 13		9-811 13		0-188 87	9-924 00	8	4	6 23-6 22-8 26-0
56	9-735 33	20	9-811 41	28	0-188 59	9-923 92	8	3	7 27-2 26-2 —
57	9-735 52	19	9-811 69	28	0-188 31	9-923 84	8	2	
58	9-735 72	20	9-811 96	27	0-188 04	9-923 76	8	1	
59	9-735 91	19	9.812 24	28	0-187 76	9-923 67	9		
		20		28			8		
60	9-736 11		9.812 52		0.187 48	9-923 59		0	
	L. Cos.	d.	L. cot.	d.	L. Tan.	L. Sin.	d.		P.P.

122 (302)

(237) 57

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*

33° (213)

(326°) 146°

'	L. Sin.	1.	L. Tan.	.d.	L. Cot.	L. cos.	1.	'	P.P.
0	9.736 11	19	9.812 52	27	0.187 48	9.923 59	8	60	28 27
1	9.736 30	20	9.812 79	27	0.187 21	9.923 51	8	59	1 0.5 0.4
2	9.736 50	19	9.813 07	28	0.186 93	9.923 43	8	58	2 0.9 0.9
3	9.736 69	20	9.813 35	28	0.186 65	9.923 35	9	57	3 1.4 1.4
4	9.736 89	19	9.813 62	27	0.186 38	9.923 26	9	56	4 1.9 1.8
5	9.737 08	19	9.813 90	28	0.186 10	9.923 18	8	55	5 2.3 2.2
6	9.737 27	20	9.814 18	28	0.185 82	9.923 10	8	54	6 2.8 2.7
7	9.737 47	19	9.814 45	27	0.185 55	9.923 02	8	53	7 3.3 3.2
8	9.737 66	19	9.814 73	28	0.185 27	9.922 93	9	52	8 3.7 3.6
9	9.737 85	20	9.815 00	27	0.185 00	9.922 85	8	51	9 4.2 4.0
10	9.738 05	19	9.815 28	28	0.184 72	9.922 77	8	50	10 4.7 4.5
11	9.738 24	19	9.815 56	28	0.184 44	9.922 69	8	49	20 9.3 9.0
12	9.738 43	20	9.815 83	27	0.184 17	9.922 60	9	48	30 14.0 13.5
13	9.738 63	19	9.816 11	28	0.183 89	9.922 52	8	47	40 18.7 18.0
14	9.738 82	19	9.816 38	27	0.183 62	9.922 44	8	46	50 23.3 22.5
15	9.739 01	20	9.816 66	28	0.183 34	9.922 35	9	45	" 20 19 18
16	9.739 21	19	9.816 93	27	0.183 07	9.922 27	8	44	1 0.3 0.3
17	9.739 40	19	9.817 21	28	0.182 79	9.922 19	8	43	2 0.7 0.6
18	9.739 59	19	9.817 48	27	0.182 52	9.922 11	8	42	3 1.0 0.9
19	9.739 78	19	9.817 76	28	0.182 24	9.922 02	9	41	4 1.3 1.2
20	9.739 97	20	9.818 03	27	0.181 97	9.921 94	8	40	5 1.7 1.6
21	9.740 17	19	9.818 31	28	0.181 69	9.921 86	8	39	6 2.0 1.9
22	9.740 36	19	9.818 58	27	0.181 42	9.921 77	9	38	7 2.3 2.2
23	9.740 55	19	9.818 86	28	0.181 14	9.921 69	8	37	8 2.7 2.5
24	9.740 74	20	9.819 13	27	0.180 87	9.921 61	8	36	9 3.0 2.8
25	9.740 93	19	9.819 41	28	0.180 59	9.921 52	9	35	10 3.3 3.2
26	9.741 13	19	9.819 68	27	0.180 32	9.921 44	8	34	20 6.7 6.3
27	9.741 32	19	9.819 96	28	0.180 04	9.921 36	8	33	30 10.0 9.5
28	9.741 51	19	9.820 23	27	0.179 77	9.921 27	9	32	40 13.3 12.7
29	9.741 70	20	9.820 51	28	0.179 49	9.921 19	8	31	50 16.7 15.8
30	9.741 89	19	9.820 78	27	0.179 22	9.921 11	8	30	" 9 8
31	9.742 08	19	9.821 06	28	0.178 94	9.921 02	9	29	1 0.2 0.1
32	9.742 27	19	9.821 33	27	0.178 67	9.920 94	8	28	2 0.3 0.3
33	9.742 46	19	9.821 61	28	0.178 39	9.920 86	8	27	3 0.4 0.4
34	9.742 65	20	9.821 88	27	0.178 12	9.920 77	9	26	4 0.6 0.5
35	9.742 84	19	9.822 15	28	0.177 85	9.920 69	8	25	5 0.8 0.7
36	9.743 03	19	9.822 43	27	0.177 57	9.920 60	9	24	6 0.9 0.8
37	9.743 22	19	9.822 70	28	0.177 30	9.920 52	8	23	7 1.0 0.9
38	9.743 41	19	9.822 98	27	0.177 02	9.920 44	8	22	8 1.2 1.1
39	9.743 60	20	9.823 25	28	0.176 75	9.920 35	9	21	9 1.4 1.2
40	9.743 79	19	9.823 52	27	0.176 48	9.920 27	8	20	10 1.5 1.3
41	9.743 98	19	9.823 80	28	0.176 20	9.920 18	9	19	20 3.0 2.7
42	9.744 17	19	9.824 07	27	0.175 93	9.920 10	8	18	30 4.5 4.0
43	9.744 36	19	9.824 35	28	0.175 65	9.920 02	8	17	40 6.0 5.3
44	9.744 55	20	9.824 62	27	0.175 38	9.919 93	9	16	50 7.5 6.7
45	9.744 74	19	9.824 89	28	0.175 11	9.919 85	8	15	" 9 8
46	9.744 93	19	9.825 17	27	0.174 83	9.919 76	9	14	1 0.2 0.1
47	9.745 12	19	9.825 44	28	0.174 56	9.919 68	8	13	2 0.3 0.3
48	9.745 31	19	9.825 71	27	0.174 29	9.919 59	9	12	3 0.4 0.4
49	9.745 49	20	9.825 99	28	0.174 01	9.919 51	8	11	4 0.6 0.5
50	9.745 68	19	9.826 26	27	0.173 74	9.919 42	9	10	5 0.8 0.7
51	9.745 87	19	9.826 53	28	0.173 47	9.919 34	8	9	6 0.9 0.8
52	9.746 06	19	9.826 81	27	0.173 19	9.919 25	8	8	7 1.0 0.9
53	9.746 25	19	9.827 08	28	0.172 92	9.919 17	9	7	8 1.2 1.1
54	9.746 44	20	9.827 35	27	0.172 65	9.919 08	8	6	9 1.4 1.2
55	9.746 62	19	9.827 62	28	0.172 38	9.919 00	9	5	10 1.5 1.3
56	9.746 81	19	9.827 90	27	0.172 10	9.918 91	8	4	20 3.0 2.7
57	9.747 00	19	9.828 17	28	0.171 83	9.918 83	8	3	30 4.5 4.0
58	9.747 19	19	9.828 44	27	0.171 56	9.918 74	9	2	40 6.0 5.3
59	9.747 37	20	9.828 71	28	0.171 29	9.918 66	8	1	50 7.5 6.7
60	9.747 56	19	9.828 99	27	0.171 01	9.918 57	9	0	" 9 8
'	L. cos.	a.	L. cot.	c.d.	L. Tan.	L. Sin.	d.	'	P.P.

123° (303)

(236°) 56°

(Continued)

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*

34 (214)

(325) 145°

'	L. Sin.	d.	L. Tan	c.d	L. Cot.	L. Cos.	d.	'	P.P.
0	9.747 56	19	9.828 99	27	0.171 01	9.918 57	8	60	" 28 27 26
1	9.747 75	19	9.829 26	27	0.170 74	9.918 49	9	59	1 0.5 0.4 0.4
2	9.747 94	18	9.829 53	27	0.170 47	9.918 40	9	58	2 0.9 0.9 0.9
3	9.748 12	19	9.829 80	27	0.170 20	9.918 32	8	57	3 1.4 1.4 1.3
4	9.748 31	19	9.830 08	28	0.169 92	9.918 23	9	56	4 1.9 1.8 1.7
5	9.748 50	19	9.830 35	27	0.169 65	9.918 15	8	55	5 2.3 2.2 2.2
6	9.748 68	18	9.830 62	27	0.169 38	9.918 06	9	54	6 2.8 2.7 2.6
7	9.748 87	19	9.830 89	27	0.169 11	9.917 98	8	53	7 3.3 3.2 3.0
8	9.749 06	19	9.831 17	28	0.168 83	9.917 89	9	52	8 3.7 3.6 3.5
9	9.749 24	18	9.831 44	27	0.168 56	9.917 81	8	51	9 4.2 4.0 3.9
10	9.749 43	19	9.831 71	27	0.168 29	9.917 72	9	50	10 4.7 4.5 4.3
11	9.749 61	18	9.831 98	27	0.168 02	9.917 63	8	49	20 9.3 9.0 8.7
12	9.749 80	19	9.832 25	27	0.167 75	9.917 55	9	48	30 14.0 13.5 13.0
13	9.749 99	19	9.832 52	27	0.167 48	9.917 46	8	47	40 18.7 18.0 17.3
14	9.750 17	18	9.832 80	28	0.167 20	9.917 38	9	46	50 23.3 22.5 21.7
15	9.750 36	19	9.833 07	27	0.166 93	9.917 29	8	45	" 19 18
16	9.750 54	18	9.833 34	27	0.166 66	9.917 20	9	44	1 0.3 0.3
17	9.750 73	19	9.833 61	27	0.166 39	9.917 12	8	43	2 0.6 0.6
18	9.750 91	18	9.833 88	27	0.166 12	9.917 03	9	42	3 1.0 0.9
19	9.751 10	19	9.834 15	27	0.165 83	9.916 95	8	41	4 1.3 1.2
20	9.751 28	18	9.834 42	28	0.165 58	9.916 86	9	40	5 1.6 1.5
21	9.751 47	19	9.834 70	27	0.165 30	9.916 77	8	39	6 1.9 1.8
22	9.751 65	18	9.834 97	27	0.165 03	9.916 69	9	38	7 2.2 2.1
23	9.751 84	19	9.835 24	27	0.164 76	9.916 60	8	37	8 2.5 2.4
24	9.752 02	18	9.835 51	27	0.164 49	9.916 51	9	36	9 2.8 2.7
25	9.752 21	19	9.835 78	27	0.164 22	9.916 43	8	35	10 3.2 3.0
26	9.752 39	18	9.836 08	27	0.163 95	9.916 34	9	34	20 6.3 6.0
27	9.752 58	19	9.836 32	27	0.163 68	9.916 25	8	33	30 9.5 9.0
28	9.752 76	18	9.836 59	27	0.163 41	9.916 17	9	32	40 12.7 12.0
29	9.752 94	19	9.836 86	27	0.163 14	9.916 08	8	31	50 15.8 15.0
30	9.753 13	18	9.837 13	27	0.162 87	9.915 99	9	30	" 9 8
31	9.753 31	19	9.837 40	28	0.162 60	9.915 91	8	29	1 0.2 0.1
32	9.753 50	18	9.837 68	27	0.162 32	9.915 82	9	28	2 0.3 0.3
33	9.753 68	19	9.837 95	27	0.162 08	9.915 73	8	27	3 0.4 0.4
34	9.753 86	18	9.838 22	27	0.161 78	9.915 65	9	26	4 0.6 0.5
35	9.754 05	19	9.838 49	27	0.161 51	9.915 56	8	25	5 0.8 0.7
36	9.754 23	18	9.838 76	27	0.161 24	9.915 47	9	24	6 0.9 0.8
37	9.754 41	19	9.839 03	27	0.160 97	9.915 38	8	23	7 1.0 0.9
38	9.754 59	18	9.839 30	27	0.160 70	9.915 30	9	22	8 1.2 1.1
39	9.754 78	19	9.839 57	27	0.160 43	9.915 21	8	21	9 1.4 1.2
40	9.754 96	18	9.839 84	27	0.160 16	9.915 12	9	20	10 1.5 1.3
41	9.755 14	19	9.840 11	27	0.159 89	9.915 04	8	19	20 3.0 2.7
42	9.755 33	18	9.840 38	27	0.159 62	9.914 95	9	18	30 4.5 4.0
43	9.755 51	19	9.840 65	27	0.159 35	9.914 86	8	17	40 6.0 5.3
44	9.755 69	18	9.840 92	27	0.159 08	9.914 77	9	16	50 7.5 6.7
45	9.755 87	19	9.841 19	27	0.158 81	9.914 69	8	15	
46	9.756 08	18	9.841 46	27	0.158 54	9.914 60	9	14	
47	9.756 24	19	9.841 73	27	0.158 27	9.914 51	8	13	
48	9.756 42	18	9.842 00	27	0.158 00	9.914 42	9	12	9 8 a
49	9.756 60	19	9.842 27	27	0.157 73	9.914 33	8	11	28 2 8 27
50	9.756 78	18	9.842 54	27	0.157 46	9.914 25	9	10	0 1.6 1.8 1.7
51	9.756 96	19	9.842 80	26	0.157 20	9.914 16	8	9	1 4.7 5.2 5.1
52	9.757 14	18	9.843 07	27	0.156 93	9.914 07	9	8	2 7.8 8.8 8.4
53	9.757 33	19	9.843 34	27	0.156 66	9.913 98	8	7	3 10.9 12.2 11.8
54	9.757 51	18	9.843 61	27	0.156 39	9.913 89	9	6	4 14.0 15.8 15.2
55	9.757 69	19	9.843 88	27	0.156 12	9.913 81	8	5	5 17.1 19.2 18.6
56	9.757 87	18	9.844 15	27	0.155 85	9.913 72	9	4	6 20.2 22.8 21.9
57	9.758 08	19	9.844 42	27	0.155 58	9.913 63	8	3	7 23.3 26.2 25.3
58	9.758 23	18	9.844 69	27	0.155 31	9.913 54	9	2	8 26.4
59	9.758 41	19	9.844 96	27	0.155 04	9.913 45	8	1	9
60	9.758 59	18	9.845 23	27	0.154 77	9.913 36	9	0	
'	L. Cos.	d.	L. cot.	c.d	L. Tan.	L. Sin.	d.	'	P.P.

124° (304°)

(235°) 55°

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*

35° (215)

(324) 144

'	L. Sin.	d.	L. Tan.	.d.	L. cot.	L. cos.	d.	'	P.P.			
0	9.758 59	18	9.845 23	27	0.154 77	9.913 36	8	60				
1	9.758 77	18	9.845 50	26	0.154 50	9.913 28	9	59	"	27	26	18
2	9.758 95	18	9.845 76	26	0.154 24	9.913 19	9	58	1	0.4	0.4	0.3
3	9.759 13	18	9.846 03	27	0.153 97	9.913 10	9	57	2	0.9	0.9	0.6
4	9.759 31	18	9.846 30	27	0.153 70	9.913 01	9	56	3	1.4	1.3	0.9
5	9.759 49	18	9.846 57	27	0.153 43	9.912 92	9	55	4	1.8	1.7	1.2
6	9.759 67	18	9.846 84	27	0.153 16	9.912 83	9	54	5	2.2	2.2	1.5
7	9.759 85	18	9.847 11	27	0.152 89	9.912 74	9	53	6	2.7	2.6	1.8
8	9.760 03	18	9.847 38	27	0.152 62	9.912 66	8	52	7	3.2	3.0	2.1
9	9.760 21	18	9.847 64	26	0.152 36	9.912 57	9	51	8	3.6	3.5	2.4
10	9.760 39	18	9.847 91	27	0.152 09	9.912 48	9	50	9	4.0	3.9	2.7
11	9.760 57	18	9.848 18	27	0.151 82	9.912 39	9	49	10	4.5	4.3	3.0
12	9.760 75	18	9.848 45	27	0.151 55	9.912 30	9	48	20	9.0	8.7	6.0
13	9.760 93	18	9.848 72	27	0.151 28	9.912 21	9	47	30	13.5	13.0	9.0
14	9.761 11	18	9.848 99	27	0.151 01	9.912 12	9	46	40	18.0	17.3	12.0
15	9.761 29	18	9.849 25	26	0.150 75	9.912 03	9	45	50	22.5	21.7	15.0
16	9.761 46	17	9.849 52	27	0.150 48	9.911 94	9	44	"	17	10	9
17	9.761 64	18	9.849 79	27	0.150 21	9.911 85	9	43	1	0.3	0.2	0.1
18	9.761 82	18	9.850 06	27	0.149 94	9.911 76	9	42	2	0.6	0.3	0.3
19	9.762 00	18	9.850 33	27	0.149 67	9.911 67	9	41	3	0.8	0.5	0.4
20	9.762 18	18	9.850 59	26	0.149 41	9.911 58	9	40	4	1.1	0.7	0.5
21	9.762 36	18	9.850 86	27	0.149 14	9.911 49	9	39	5	1.4	0.8	0.7
22	9.762 53	17	9.851 13	27	0.148 87	9.911 41	8	38	6	1.7	1.0	0.8
23	9.762 71	18	9.851 40	27	0.148 60	9.911 32	9	37	7	2.0	1.2	0.9
24	9.762 89	18	9.851 66	26	0.148 34	9.911 23	9	36	8	2.3	1.3	1.1
25	9.763 07	18	9.851 93	27	0.148 07	9.911 14	9	35	9	2.6	1.5	1.2
26	9.763 24	17	9.852 20	27	0.147 80	9.911 05	9	34	10	2.8	1.7	1.3
27	9.763 42	18	9.852 47	27	0.147 53	9.910 96	9	33	20	5.7	3.3	2.7
28	9.763 60	18	9.852 73	26	0.147 27	9.910 87	9	32	30	8.5	5.0	4.0
29	9.763 78	18	9.853 00	27	0.147 00	9.910 78	9	31	40	11.3	6.7	5.3
30	9.763 95	17	9.853 27	27	0.146 73	9.910 69	9	30	50	14.2	8.3	6.7
31	9.764 13	18	9.853 54	27	0.146 46	9.910 60	9	29				
32	9.764 31	18	9.853 80	26	0.146 20	9.910 51	9	28				
33	9.764 48	17	9.854 07	27	0.145 93	9.910 42	9	27				
34	9.764 66	18	9.854 34	27	0.145 66	9.910 33	9	26				
35	9.764 84	18	9.854 60	26	0.145 40	9.910 23	10	25			10	10
36	9.765 01	17	9.854 87	27	0.145 13	9.910 14	9	24			27	26
37	9.765 19	18	9.855 14	27	0.144 86	9.910 05	9	23	0			
38	9.765 37	18	9.855 40	26	0.144 60	9.909 96	9	22	1	1.4	1.3	
39	9.765 54	17	9.855 67	27	0.144 33	9.909 87	9	21	2	4.1	3.9	
40	9.765 72	18	9.855 94	27	0.144 06	9.909 78	9	20	3	6.8	6.5	
41	9.765 90	18	9.856 20	26	0.143 80	9.909 69	9	19	4	9.4	9.1	
42	9.766 07	17	9.856 47	27	0.143 53	9.909 60	9	18	5	12.2	11.7	
43	9.766 25	18	9.856 74	27	0.143 26	9.909 51	9	17	6	14.8	14.3	
44	9.766 42	17	9.857 00	26	0.143 00	9.909 42	9	16	7	17.6	16.9	
45	9.766 60	18	9.857 27	27	0.142 73	9.909 33	9	15	8	20.2	19.5	
46	9.766 77	17	9.857 54	27	0.142 46	9.909 24	9	14	9	22.9	22.1	
47	9.766 95	18	9.857 80	26	0.142 20	9.909 15	9	13	10	25.6	24.7	
48	9.767 12	17	9.858 07	27	0.141 93	9.909 06	9	12			9	9
49	9.767 30	18	9.858 34	27	0.141 66	9.908 96	10	11			27	26
50	9.767 47	17	9.858 60	26	0.141 40	9.908 87	9	10	0			
51	9.767 65	18	9.858 87	27	0.141 13	9.908 78	9	9	1	1.5	1.4	
52	9.767 82	17	9.859 13	26	0.140 87	9.908 69	9	8	2	4.5	4.3	
53	9.768 00	18	9.859 40	27	0.140 60	9.908 60	9	7	3	7.5	7.2	
54	9.768 17	17	9.859 67	27	0.140 33	9.908 51	9	6	4	10.5	10.1	
55	9.768 35	18	9.859 93	26	0.140 07	9.908 42	9	5	5	13.5	13.0	
56	9.768 52	17	9.860 20	27	0.139 80	9.908 32	10	4	6	16.5	15.9	
57	9.768 70	18	9.860 46	26	0.139 54	9.908 23	9	3	7	19.5	18.8	
58	9.768 87	17	9.860 73	27	0.139 27	9.908 14	9	2	8	22.5	21.7	
59	9.769 04	18	9.861 00	27	0.139 00	9.908 05	9	1	9	25.5	24.6	
60	9.769 22	18	9.861 26	26	0.138 74	9.907 96	9	0				
'	L. cos.	d.	L. Cot.	.d.	L. Tan.	L. Sin.	1.	'	P.P.			

125° (305)

(234) 54

(Continued)

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*

36 (216)

(323) 143

'	L. Sin.	d.	L. Tan.	3.d	L. Cot.	L. cos.	d.	'	P.P.
0	9.769 22	17	9.861 26	27	0.138 74	9.907 Y6	60		
1	9.769 39	18	9.861 53	26	0.138 47	9.907 87	59	"	27 26
2	9.769 57	17	9.861 79	27	0.138 21	9.907 77	58	1	0.4 0.4
3	9.769 74	17	9.862 06	27	0.137 94	9.907 68	57	2	0.9 0.9
4	9.769 91	17	9.862 32	26	0.137 68	9.907 59	56	3	1.4 1.3
		18		27			55	4	1.8 1.7
5	9.770 09	17	9.862 59	26	0.137 41	9.907 50	54	5	2.2 2.2
6	9.770 26	17	9.862 85	27	0.137 15	9.907 41	53	6	2.7 2.6
7	9.770 43	18	9.863 12	26	0.136 88	9.907 31	52	7	3.2 3.0
8	9.770 61	17	9.863 38	27	0.136 62	9.907 22	51	8	3.6 3.5
9	9.770 78	17	9.863 65	27	0.136 35	9.907 13	50	9	4.0 3.9
10	9.770 95	17	9.863 92	26	0.136 08	9.907 04	49	10	4.5 4.3
11	9.771 12	18	9.864 18	27	0.135 82	9.906 94	48	20	9.0 8.7
12	9.771 30	17	9.864 4s	26	0.135 55	9.906 85	47	30	13.5 13.0
13	9.771 47	17	9.864 71	27	0.135 29	9.906 76	46	40	18.0 17.3
14	9.771 64	17	9.864 98	26	0.135 02	9.906 67	45	50	22.5 21.7
		18		27			44	"	18 17 16
15	9.771 81	17	9.865 24	26	0.134 76	9.906 57	43	1	0.3 0.3 0.3
16	9.771 99	17	9.865 51	26	0.134 49	9.909 48	42	2	0.6 0.6 0.5
17	9.772 16	17	9.865 77	26	0.134 23	9.906 39	41	3	0.9 0.8 0.8
18	9.772 33	17	9.866 03	27	0.133 97	9.906 30	40	4	1.2 1.1 1.1
19	9.772 50	18	9.866 30	26	0.133 70	9.906 20	39	5	1.5 1.4 1.3
		17		27			38	6	1.8 1.7 1.6
20	9.772 68	17	9.866 56	26	0.133 44	9.906 11	37	7	2.1 2.0 1.9
21	9.772 85	17	9.866 83	26	0.133 17	9.906 02	36	8	2.4 2.3 2.1
22	9.773 02	17	9.867 09	27	0.132 91	9.905 Y2	35	9	2.7 2.6 2.4
23	9.773 19	17	9.867 36	26	0.132 64	9.905 83	34	10	3.0 2.8 2.7
24	9.773 36	17	9.867 62	27	0.132 38	9.905 74	33	20	6.0 5.7 5.3
		18		26			32	30	9.0 8.5 8.0
25	9.773 53	17	9.867 89	26	0.132 11	9.905 65	31	40	12.0 11.3 10.7
26	9.773 70	17	9.868 15	27	0.131 85	9.905 55	30	50	15.0 14.2 13.3
27	9.773 87	18	9.868 42	26	0.131 58	9.905 46	29	"	10 9
28	9.774 05	17	9.868 68	27	0.131 32	9.905 37	28	1	0.2 0.2 0.3
29	9.774 22	17	9.868 94	26	0.131 06	9.905 27	27	2	0.3 0.3 0.4
		18		27			26	3	0.5 0.4 0.6
30	9.774 39	17	9.869 21	26	0.130 79	9.905 18	25	4	0.7 0.6
31	9.774 56	17	9.869 47	27	0.130 53	9.905 09	24	5	0.8 0.8
32	9.774 73	17	9.869 74	26	0.130 26	9.904 99	23	6	1.0 0.9
33	9.774 90	17	9.870 00	27	0.130 00	9.904 90	22	7	1.2 1.0
34	9.775 07	17	9.870 27	26	0.129 73	9.904 80	21	8	1.5 1.4
		18		27			20	9	1.7 1.5
35	9.775 24	17	9.870 53	26	0.129 47	9.904 71	19	10	3.3 3.0
36	9.775 41	17	9.870 79	27	0.129 21	9.904 62	18	20	5.0 4.5
37	9.775 58	17	9.871 06	26	0.128 94	9.904 52	17	30	6.7 6.0
38	9.775 75	17	9.871 32	26	0.128 68	9.904 43	16	40	8.3 7.5
39	9.775 92	17	9.871 58	27	0.128 42	9.904 34	15	50	
		18		26			14		
40	9.776 09	17	9.871 85	26	0.128 15	9.904 24	13		
41	9.776 26	17	9.872 11	27	0.127 89	9.904 15	12		
42	9.776 43	17	9.872 38	26	0.127 62	9.904 05	11		
43	9.776 60	17	9.872 64	26	0.127 38	9.903 96	10		
44	9.776 77	17	9.872 90	27	0.127 10	9.903 86	9		
		18		26			8		
45	9.776 94	17	9.873 17	26	0.126 83	9.903 77	7		
46	9.777 11	17	9.873 43	26	0.126 57	9.903 68	6		
47	9.777 28	16	9.873 69	27	0.126 31	9.903 58	5		
48	9.777 44	17	9.873 96	26	0.126 04	9.904 49	4		
49	9.777 61	17	9.874 22	26	0.125 78	9.903 39	3		
		18		27			2		
50	9.777 78	17	9.874 48	26	0.125 52	9.903 30	1		
51	9.777 95	17	9.874 75	27	0.125 25	9.903 20	0		
52	9.778 12	17	9.875 01	26	0.124 99	9.903 11			
53	9.778 29	17	9.875 27	26	0.124 73	9.903 01			
54	9.778 46	16	9.875 54	27	0.124 46	9.902 92			
		17		26					
55	9.778 62	17	9.875 80	26	0.124 20	9.902 X2			
56	9.778 79	17	9.876 06	27	0.123 94	9.902 73			
57	9.778 96	17	9.876 33	26	0.123 67	9.902 63			
58	9.779 13	17	9.876 59	26	0.123 41	9.902 54			
59	9.779 30	16	9.876 85	26	0.123 15	9.902 44			
60	9.759 46		9.877 11	26	0.122 89	9.902 35			
'	L. cos.	3.	L. Cot.	c.d.	L. Tan.	L. Sin.	d.	'	P.P.

126° (306°)

(233) 53°

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — Contd

37 (217)

(322" 142"

'	L. Sin.	ci.	L. Tan.	c.d.	L. Cot.	L. Cos.	d.	'	P.P.
0	9.779 46	17	9.877 11	27	0.122 89	9.902 35	10	60	
1	9.779 63	17	9.877 38	26	0.122 62	9.902 25	9	59	" 27 26
2	9.779 80	17	9.877 64	26	0.122 36	9.902 16	10	58	1 0.4 0.4
3	9.779 97	16	9.877 90	27	0.122 10	9.902 06	9	57	2 0.9 0.9
4	9.780 13	17	9.878 17	26	0.121 83	9.901 97	10	56	3 1.4 1.3
									4 1.8 1.7
5	9.780 30	17	9.878 43	26	0.121 57	9.901 87	9	55	
6	9.780 47	16	9.878 69	26	0.121 31	9.901 78	10	54	5 2.2 2.2
7	9.780 63	17	9.878 95	27	0.121 05	9.901 68	9	53	6 2.7 2.6
8	9.780 80	17	9.879 22	26	0.120 78	9.901 59	10	52	7 3.2 3.0
9	9.780 97	16	9.879 48	26	0.120 52	9.901 49	10	51	8 3.6 3.5
									9 4.0 3.9
10	9.781 13	17	9.879 74	26	0.120 26	9.901 39	9	50	
11	9.781 30	17	9.880 00	27	0.120 00	9.901 30	10	49	10 4.5 4.3
12	9.781 47	16	9.880 27	26	0.119 73	9.901 20	9	48	20 9.0 8.7
13	9.781 63	17	9.880 53	26	0.119 47	9.901 11	10	47	30 13.5 13.0
14	9.781 80	17	9.880 79	26	0.119 21	9.901 01	10	46	40 18.0 17.3
									50 22.5 21.7
15	9.781 97	16	9.881 05	26	0.118 95	9.900 91	9	45	
16	9.782 13	17	9.881 31	27	0.118 69	9.900 82	10	44	" 17 16
17	9.782 30	16	9.881 58	26	0.118 42	9.900 72	9	43	1 0.3 0.3
18	9.782 46	17	9.881 84	26	0.118 16	9.900 63	10	42	2 0.6 0.5
19	9.782 63	17	9.882 10	26	0.117 90	9.900 53	10	41	3 0.8 0.8
									4 1.1 1.1
20	9.782 80	16	9.882 36	26	0.117 64	9.900 43	9	40	
21	9.782 96	17	9.882 62	27	0.117 38	9.900 34	10	39	5 1.4 1.3
22	9.783 13	16	9.882 89	26	0.117 11	9.900 24	9	38	6 1.7 1.6
23	9.783 29	17	9.883 15	26	0.116 85	9.900 14	10	37	7 2.0 1.9
24	9.783 46	16	9.883 41	26	0.116 59	9.900 05	9	36	8 2.3 2.1
									9 2.6 2.4
25	9.783 62	17	9.883 67	26	0.116 33	9.899 95	10	35	
26	9.783 79	16	9.883 93	27	0.116 07	9.899 85	9	34	10 2.8 2.7
27	9.783 95	17	9.884 20	26	0.115 80	9.899 76	10	33	20 5.7 5.3
28	9.784 12	16	9.884 46	26	0.115 54	9.899 66	9	32	30 8.5 8.0
29	9.784 28	17	9.884 72	26	0.115 28	9.899 56	10	31	40 11.3 10.7
									50 14.2 13.3
30	9.784 45	16	9.884 98	26	0.115 02	9.899 47	9	30	
31	9.784 61	17	9.885 24	27	0.114 76	9.899 37	10	29	" 10 9
32	9.784 78	16	9.885 50	26	0.114 50	9.899 27	9	28	1 0.2 0.2
33	9.784 94	17	9.885 77	26	0.114 23	9.899 18	10	27	2 0.3 0.3
34	9.785 10	16	9.886 03	26	0.113 97	9.899 08	9	26	3 0.5 0.4
									4 0.7 0.6
35	9.785 27	16	9.886 29	26	0.113 71	9.898 98	10	25	
36	9.785 43	17	9.886 55	26	0.113 45	9.898 88	9	24	5 0.8 0.8
37	9.785 60	16	9.886 81	26	0.113 19	9.898 79	10	23	6 1.0 0.9
38	9.785 76	17	9.887 07	26	0.112 93	9.898 69	9	22	7 1.2 1.0
39	9.785 92	16	9.887 33	26	0.112 67	9.898 59	10	21	8 1.3 1.2
									9 1.5 1.4
40	9.786 09	16	9.887 59	26	0.112 41	9.898 49	10	20	
41	9.786 25	17	9.887 86	27	0.112 14	9.898 40	9	19	10 1.7 1.5
42	9.786 42	16	9.888 12	26	0.111 88	9.898 30	10	18	20 3.3 3.0
43	9.786 58	17	9.888 38	26	0.111 62	9.898 20	9	17	30 5.0 4.5
44	9.786 74	16	9.888 64	26	0.111 36	9.898 10	10	16	40 6.7 6.0
									50 8.3 7.5
45	9.786 91	16	9.888 90	26	0.111 10	9.898 01	9	15	
46	9.787 07	17	9.889 16	26	0.110 84	9.897 91	10	14	
47	9.787 23	16	9.889 42	26	0.110 58	9.897 81	9	13	
48	9.787 39	17	9.889 68	26	0.110 32	9.897 71	10	12	10 10
49	9.787 56	16	9.889 94	26	0.110 06	9.897 61	9	11	27 26
50	9.787 72	16	9.890 20	26	0.109 80	9.897 52	10	10	0 1.4 1.3
51	9.787 88	17	9.890 46	27	0.109 54	9.897 42	9	9	1 4.1 3.9
52	9.788 05	16	9.890 73	26	0.109 27	9.897 32	10	8	2 6.8 6.5
53	9.788 21	17	9.890 99	26	0.109 01	9.897 22	9	7	3 9.4 9.1
54	9.788 37	16	9.891 25	26	0.108 75	9.897 12	10	6	4 12.2 11.7
									5 14.8 14.3
55	9.788 53	16	9.891 51	26	0.108 49	9.897 02	9	5	6 17.6 16.9
56	9.788 69	17	9.891 77	26	0.108 23	9.896 93	10	4	7 20.2 19.5
57	9.788 86	16	9.892 03	26	0.107 97	9.896 83	9	3	8 22.9 22.1
58	9.789 02	17	9.892 29	26	0.107 71	9.896 73	10	2	9 25.6 24.7
59	9.789 18	16	9.892 55	26	0.107 45	9.896 63	9	1	
60	9.789 34	16	9.892 81	26	0.107 19	9.896 53	10	0	
'	L. cos.	d.	L. Cot.	c.d.	L. Tan.	L. Sin.	a.	'	P.P.

127° (307°)

(232" 52"

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*

38° (218°)

(321) 141°

'	L. Sin.	d.	L. Tan.	c.d.	L. Cot.	L. Cos.	d.	P.P.			
0	9.789 34	16	9.892 81	26	0.107 19	9.896 53	10	60	26	25	
1	9.789 50	17	9.893 07	26	0.106 93	9.896 43	10	59	1	0.4	0.4
2	9.789 67	16	9.893 33	26	0.106 67	9.896 33	10	58	2	0.9	0.8
3	9.789 83	16	9.893 59	26	0.106 41	9.896 24	10	57	3	1.3	1.2
4	9.789 99	16	9.893 85	26	0.106 15	9.896 14	10	56	4	1.7	1.7
5	9.790 15	16	9.894 11	26	0.105 89	9.896 04	10	55	5	2.2	2.1
6	9.790 31	16	9.894 37	26	0.105 63	9.895 94	10	54	6	2.6	2.5
7	9.790 47	16	9.894 63	26	0.105 37	9.895 84	10	53	7	3.0	2.9
8	9.790 63	16	9.894 89	26	0.105 11	9.895 74	10	52	8	3.5	3.3
9	9.790 79	16	9.895 15	26	0.104 85	9.895 64	10	51	9	3.9	3.8
10	9.790 95	16	9.895 41	26	0.104 59	9.895 54	10	50	10	4.3	4.2
11	9.791 11	17	9.895 67	26	0.104 33	9.895 44	10	49	20	8.7	8.3
12	9.791 28	16	9.895 93	26	0.104 07	9.895 34	10	48	30	13.0	12.5
13	9.791 44	16	9.896 19	26	0.103 81	9.895 24	10	47	40	17.3	16.7
14	9.791 60	16	9.896 45	26	0.103 55	9.895 14	10	46	50	21.7	20.8
15	9.791 76	16	9.896 71	26	0.103 29	9.895 04	10	45	"	17	16
16	9.791 92	16	9.896 97	26	0.103 03	9.894 95	10	44	1	0.3	0.3
17	9.792 08	16	9.897 23	26	0.102 77	9.894 85	10	43	2	0.6	0.5
18	9.792 24	16	9.897 49	26	0.102 51	9.894 75	10	42	3	0.8	0.8
19	9.792 40	16	9.897 75	26	0.102 25	9.894 65	10	41	4	1.1	1.1
20	9.792 56	16	9.898 01	26	0.101 99	9.894 55	10	40	5	1.4	1.3
21	9.792 72	16	8.898 27	26	0.101 73	9.894 45	10	39	6	1.7	1.6
22	9.792 88	16	9.898 53	26	0.101 47	9.894 35	10	38	7	2.0	1.9
23	9.793 04	15	9.898 79	26	0.101 21	9.894 25	10	37	8	2.3	2.1
24	9.793 19	16	9.899 05	26	0.100 95	9.894 15	10	36	9	2.6	2.4
25	9.793 35	16	9.899 31	26	0.100 69	9.894 05	10	35	10	2.8	2.7
26	9.793 51	16	9.899 57	26	0.100 43	9.893 95	10	34	20	5.7	5.3
27	9.793 67	16	9.899 83	26	0.100 17	9.893 85	10	33	30	8.5	8.0
28	9.793 83	16	9.900 09	26	0.099 91	9.893 75	10	32	40	11.3	10.7
29	9.793 99	16	9.900 35	26	0.099 65	9.893 64	11	31	50	14.2	13.3
30	9.794 15	16	9.900 61	25	0.099 39	9.893 54	10	30	"	11	10
31	9.794 31	16	9.900 86	26	0.099 14	9.893 44	10	29	1	0.2	0.2
32	9.794 47	16	9.901 12	26	0.098 88	9.893 34	10	28	2	0.4	0.3
33	9.794 63	15	9.901 38	26	0.098 62	9.893 24	10	27	3	0.6	0.5
34	9.794 78	16	9.901 64	26	0.098 36	9.893 14	10	26	4	0.7	0.6
35	9.794 94	16	9.901 90	26	0.098 10	9.893 04	10	25	5	0.9	0.8
36	9.795 10	16	9.902 16	26	0.097 84	9.892 94	10	24	6	1.1	1.0
37	9.795 26	16	9.902 42	26	0.097 58	9.892 84	10	23	7	1.3	1.2
38	9.795 42	16	9.902 68	26	0.097 32	9.892 74	10	22	8	1.5	1.3
39	9.795 58	15	9.902 94	26	0.097 06	9.892 64	10	21	9	1.6	1.5
40	9.795 73	16	9.903 20	26	0.096 80	9.892 54	10	20	10	1.8	1.7
41	9.795 89	16	9.903 46	25	0.096 54	9.892 44	11	9	20	3.7	3.3
42	9.796 05	16	9.903 71	26	0.096 29	9.892 33	10	8	30	5.5	5.0
43	9.796 21	15	9.903 97	26	0.096 03	9.892 23	10	7	40	7.3	6.7
44	9.796 36	16	9.904 23	26	0.095 77	9.892 13	10	6	50	9.2	8.3
45	9.796 52	16	9.904 49	26	0.095 51	9.892 03	10	5		10	10
46	9.796 68	16	9.904 75	26	0.095 25	9.891 93	10	4		26	25
47	9.796 84	15	9.905 01	26	0.094 99	9.891 83	10	3			2-i;
48	9.796 99	16	9.905 27	26	0.094 73	9.891 73	10	2			
49	9.797 15	16	9.905 53	26	0.094 47	9.891 62	11	1	0		
50	9.797 31	15	9.905 78	25	0.094 22	9.891 52	10	1	1	1.3	1.2
51	9.797 46	16	9.906 04	26	0.093 96	9.891 42	10	2	2	3.9	3.8
52	9.797 62	16	9.906 30	26	0.093 70	9.891 32	10	3	3	6.5	6.2
53	9.797 78	15	9.906 56	26	0.093 44	9.891 22	10	4	4	9.1	8.8
54	9.797 93	16	9.906 82	26	0.093 18	9.891 12	10	5	5	11.7	11.2
55	9.798 09	16	9.907 08	26	0.092 92	9.891 01	10	6	6	14.3	13.8
56	9.798 25	15	9.907 34	25	0.092 66	9.890 91	10	7	7	16.9	16.2
57	9.798 40	16	9.907 59	26	0.092 41	9.890 81	10	8	8	19.5	18.8
58	9.798 56	16	9.907 85	26	0.092 15	9.890 71	10	9	9	22.1	21.2
59	9.798 72	15	9.908 11	26	0.091 89	9.890 60	11	10	10	24.7	23.8
60	9.798 87		Y-908 37	26	0.091 63	9.890 50	10	0			
'	L. Cos.	d.	L. Cot.	c.d.	L. Tan.	L. Sin.	d.	P.P.			

128° (308°)

(231) 51

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS —Contd

19° (219)

(320) 140°

'	L. Sin.	d.	L. Tan.	c.d.	L. cot.	L. Cos.	d.	'	P.P.	
0	9.798 87	16	9.908 37	26	0.091 63	9.890 50	10	10	"	26 25
1	9.799 03	15	9.908 63	26	0.091 37	9.890 40	10	19	1	0.4 0.4
2	9.799 18	16	9.908 89	25	0.091 11	9.890 30	10	18	2	0.9 0.8
3	9.799 34	16	9.909 14	26	0.090 86	9.890 20	10	17	3	1.3 1.2
4	9.799 50	15	9.909 40	26	0.090 60	9.890 09	11	16	4	1.7 1.7
5	9.799 65	16	9.909 66	26	0.090 34	9.889 99	10	15	5	2.2 2.1
6	9.799 81	15	9.909 92	26	0.090 08	9.889 89	10	14	6	2.6 2.5
7	9.799 96	16	9.910 18	25	0.089 82	9.889 78	10	13	7	3.0 2.9
8	9.800 12	15	9.910 43	26	0.089 57	9.889 68	10	12	8	3.5 3.3
9	9.800 27	16	9.910 69	26	0.089 31	9.889 58	10	11	9	3.9 3.8
10	9.800 43	15	9.910 95	26	0.089 05	9.889 48	10	10	10	4.3 4.2
11	9.800 58	16	9.911 21	26	0.088 79	9.889 37	11	19	20	8.7 8.3
12	9.800 74	15	9.911 47	25	0.088 53	9.889 27	10	18	30	13.0 12.5
13	9.800 89	16	9.911 72	26	0.088 28	9.889 17	10	17	40	17.3 16.7
14	9.801 05	15	9.911 98	26	0.088 02	9.889 06	11	16	50	21.7 20.8
15	9.801 20	16	9.912 24	26	0.087 76	9.888 96	10	15	"	16 15
16	9.801 36	15	9.912 50	26	0.087 50	9.888 86	10	14	1	0.3 0.2
17	9.801 51	16	9.912 76	26	0.087 24	9.888 75	11	13	2	0.5 0.5
18	9.801 66	15	9.913 01	25	0.086 99	9.888 65	10	12	3	0.8 0.8
19	9.801 82	16	9.913 27	26	0.086 73	9.888 55	10	11	4	1.1 1.0
20	9.801 97	15	9.913 53	26	0.086 47	9.888 44	11	10	5	1.3 1.2
21	9.802 13	16	9.913 79	26	0.086 21	9.888 34	10	19	6	1.6 1.5
22	9.802 28	15	9.914 04	25	0.085 96	9.888 24	10	18	7	1.9 1.8
23	9.802 44	16	9.914 30	26	0.085 70	9.888 13	11	17	8	2.1 2.0
24	9.802 59	15	9.914 56	26	0.085 44	9.888 03	10	16	9	2.4 2.2
25	9.802 74	16	9.914 82	25	0.085 18	9.887 93	10	15	10	2.7 2.5
26	9.802 90	15	9.915 07	26	0.084 93	9.887 82	11	14	20	5.3 5.0
27	9.803 05	16	9.915 33	26	0.084 67	9.887 72	10	13	30	8.0 7.5
28	9.803 20	15	9.915 59	26	0.084 41	9.887 61	11	12	40	10.7 10.0
29	9.803 36	16	9.915 85	26	0.084 15	9.887 51	10	11	50	13.3 12.5
30	9.803 51	15	9.916 10	25	0.083 90	9.887 41	10	10	"	11 10
31	9.803 66	16	9.916 36	26	0.083 64	9.887 30	11	19	1	0.2 0.2
32	9.803 82	15	9.916 62	26	0.083 38	9.887 20	10	18	2	0.4 0.3
33	9.803 97	16	9.916 88	26	0.083 12	9.887 09	11	17	3	0.6 0.5
34	9.804 12	15	9.917 13	25	0.082 87	9.886 99	10	16	4	0.7 0.7
35	9.804 28	16	9.917 39	26	0.082 61	9.886 88	11	15	5	0.9 0.8
36	9.804 43	15	9.917 65	26	0.082 35	9.886 78	10	14	6	1.1 1.0
37	9.804 58	16	9.917 91	26	0.082 09	9.886 68	10	13	7	1.3 1.2
38	9.804 73	15	9.918 16	25	0.081 84	9.886 57	11	12	8	1.5 1.3
39	9.804 89	16	9.918 42	26	0.081 58	9.886 47	10	11	9	1.6 1.5
40	9.805 04	15	9.918 68	26	0.081 32	9.886 36	11	10	10	1.8 1.7
41	9.805 19	16	9.918 93	25	0.081 07	9.886 26	10	19	20	3.7 3.3
42	9.805 34	15	9.919 19	26	0.080 81	9.886 15	11	18	39	5.5 5.0
43	9.805 50	16	9.919 45	26	0.080 55	9.886 05	10	17	40	7.3 6.7
44	9.805 65	15	9.919 71	26	0.080 29	9.885 94	11	16	50	9.2 8.3
45	9.805 80	16	9.919 96	25	0.080 04	9.885 84	10	15	"	11 11
46	9.805 95	15	9.920 22	26	0.079 78	9.885 73	11	14	26	25
47	9.806 10	16	9.920 48	26	0.079 52	9.885 63	10	13	"	"
48	9.806 25	15	9.920 73	25	0.079 27	9.885 52	11	12	0	1.2 1.1
49	9.806 41	16	9.920 99	26	0.079 01	9.885 42	10	11	1	3.5 3.4
50	9.806 56	15	9.921 25	26	0.078 75	9.885 31	11	10	2	5.9 5.7
51	9.806 71	16	9.921 50	25	0.078 50	9.885 21	10	19	3	8.3 7.9
52	9.806 86	15	9.921 76	26	0.078 24	9.885 10	11	18	4	10.6 10.2
53	9.807 01	16	9.922 02	26	0.077 98	9.884 99	10	17	5	13.0 12.5
54	9.807 16	15	9.922 27	25	0.077 73	9.884 89	11	16	6	15.4 14.8
55	9.807 31	16	9.922 53	26	0.077 47	9.884 78	10	15	7	17.7 17.1
56	9.807 46	15	9.922 79	26	0.077 21	9.884 68	11	14	8	20.1 19.3
57	9.807 62	16	9.923 04	25	0.076 96	9.884 57	10	13	9	22.5 21.6
58	9.807 77	15	9.923 30	26	0.076 70	9.884 47	11	12	10	24.8 23.9
59	9.807 92	16	9.923 56	26	0.076 44	9.884 36	10	11	11	"
60	9.808 07	15	9.923 81	25	0.076 19	9.884 25	11	10	a	"
'	L. Cos.	d.	L. Cot.	c.d.	L. Tan.	L. Sin.	d.	'	P.P.	

129° (309°)

(230) 50°

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*

40° (220°)

(319°) 139°

'	L. Sin.	d.	L. Tan.	c.d.	L. Cot.	L. Cos.	d.	'	P.P.	
0	9.808 07		9.923 81		0.076 19	9.884 23		60	"	26 25
1	9.808 22	15	9.924 07	26	0.075 93	9.884 15	10	59	1	0.4 0.4
2	9.808 37	15	9.924 33	26	0.075 67	9.884 04	10	58	2	0.9 0.8
3	9.808 52	15	9.924 58	25	0.075 42	9.883 94	10	57	3	1.3 1.2
4	9.808 67	15	9.924 84	26	0.075 16	9.883 83	11	56	4	1.7 1.7
		15		26			11			
5	9.808 82		9.925 10		0.074 90	9.883 72		55	5	2.2 2.1
6	9.808 97	15	9.925 35	25	0.074 65	9.883 62	10	54	6	2.6 2.5
7	9.809 12	15	9.925 61	26	0.074 39	9.883 51	11	53	7	3.0 2.9
8	9.809 27	15	9.925 87	26	0.074 13	9.883 40	11	52	8	3.5 3.3
9	9.809 42	15	9.926 12	25	0.073 88	9.883 30	10	51	9	3.9 3.8
		15		26			11			
10	9.809 57		9.926 38		0.073 62	9.883 19		50	10	4.3 4.2
11	9.809 72	15	9.926 63	25	0.073 37	9.883 08	11	49	20	8.7 8.3
12	9.809 87	15	9.926 89	26	0.073 11	9.882 98	10	48	30	13.0 12.5
13	9.810 02	15	9.927 15	26	0.072 85	9.882 87	11	47	40	17.3 16.7
14	9.810 17	15	9.927 40	25	0.072 60	9.882 76	11	46	50	21.7 20.8
		15		26			10			
15	9.810 32		9.927 66		0.072 34	9.882 66		45	"	15 14
16	9.810 47	15	9.927 92	26	0.072 08	9.882 55	11	44	1	0.2 0.2
17	9.810 61	14	9.928 17	25	0.071 83	9.882 44	11	43	2	0.5 0.5
18	9.810 76	15	9.928 43	26	0.071 57	9.882 34	10	42	3	0.8 0.7
19	9.810 91	15	9.928 68	25	0.071 32	9.882 23	11	41	4	1.0 0.9
		15		26			11			
20	9.811 06		9.928 94		0.071 06	9.882 12		40	5	1.2 1.2
21	9.811 21	15	9.929 20	26	0.070 80	9.882 01	11	39	6	1.5 1.4
22	9.811 36	15	9.929 45	25	0.070 55	9.881 91	10	38	7	1.8 1.6
23	9.811 51	15	9.929 71	26	0.070 29	9.881 80	11	37	8	2.0 1.9
24	9.811 66	15	9.929 96	25	0.070 04	9.881 69	11	36	9	2.2 2.1
		14		26			11			
25	9.811 x0		9.930 22		0.069 78	9.881 58		35	10	2.5 2.3
26	9.811 95	15	9.930 48	26	0.069 52	9.881 48	10	34	20	5.0 4.7
27	9.812 10	15	9.930 73	25	0.069 27	9.881 37	11	33	30	7.5 7.0
28	9.812 25	15	9.930 99	26	0.069 01	9.881 26	11	32	40	10.0 9.3
29	9.812 40	15	9.931 24	25	0.068 76	9.881 15	11	31	50	12.5 11.7
		14		26			10			
30	9.812 54		9.931 so		0.068 50	9.881 05		30	"	11 10
31	9.812 69	15	9.931 75	25	0.068 25	9.880 94	11	29	1	0.2 0.2
32	9.812 84	15	9.932 01	26	0.067 99	9.880 83	11	28	2	0.4 0.3
33	9.812 99	15	9.932 27	26	0.067 73	9.880 72	11	27	3	0.6 0.5
34	9.813 14	15	9.932 52	25	0.067 48	9.880 61	11	26	4	0.7 0.7
		14		26			10			
35	9.813 28		9.932 78		0.067 22	9.880 51		25	5	0.9 0.8
36	9.813 43	15	9.933 03	25	0.066 97	9.880 40	11	24	6	1.1 1.0
37	9.813 58	15	9.933 29	26	0.066 71	9.880 29	11	23	7	1.3 1.2
38	9.813 72	14	9.933 54	25	0.066 46	9.880 18	11	22	8	1.5 1.3
39	9.813 87	15	9.933 80	26	0.066 20	9.880 07	11	21	9	1.6 1.5
		15		26			11			
40	9.814 02		9.934 04		0.065 94	9.879 96		20	10	1.8 1.7
41	9.814 17	15	9.934 31	25	0.065 69	9.879 85	11	19	20	3.7 3.3
42	9.814 31	14	9.934 57	26	0.065 43	9.879 75	10	18	30	5.5 5.0
43	9.814 46	15	9.934 82	25	0.065 18	9.879 64	11	17	40	7.3 6.7
44	Y.814 61	15	9.935 08	26	0.064 92	9.879 53	11	16	50	9.2 8.3
		14		25			11			
45	9.814 75		9.935 33		0.064 67	9.879 42		15		
46	9.814 90	15	9.935 59	26	0.064 41	9.879 31	11	14		
47	9.815 05	15	9.935 84	25	0.064 16	9.879 20	11	13	11	10 10
48	9.815 19	14	9.936 10	26	0.063 90	9.879 09	11	12	26	26 25
49	9.815 34	15	9.936 36	26	0.063 64	9.878 98	11	11		
		15		25			11			
50	9.815 49		9.936 61		0.063 39	9.878 87		10	0	1.2 1.2
51	9.815 63	14	9.936 87	26	0.063 13	9.878 77	10	9	1	3.5 3.8
52	9.815 78	15	9.937 12	25	0.062 88	9.878 66	11	8	2	5.9 6.2
53	9.815 92	14	9.937 38	26	0.062 67	9.878 55	11	7	3	8.3 8.8
54	9.816 07	15	9.937 63	25	0.062 37	9.878 44	11	6	4	10.6 11.2
		15		26			11		5	13.0 13.8
55	9.816 22		9.937 89		0.062 11	9.878 33		5	6	15.4 16.2
56	9.816 36	14	9.938 14	25	0.061 86	9.878 22	11	4	7	17.7 18.8
57	9.816 51	15	9.938 40	26	0.061 60	9.878 11	11	3	8	20.1 21.2
58	9.816 65	14	9.938 65	25	0.061 35	9.878 00	11	2	9	22.5 23.8
59	9.816 80	15	9.938 91	26	0.061 09	9.877 89	11	1	10	
		14		25			11		11	
60	9.816 94		9.939 16		0.060 84	9.877 78		(		
'	L. Cos.	d.	L. Cot.	c.d.	L. Tan.	L. Sin.	il.	'	P.	P.

130° (310°)

(229°) 49°

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS --- Contd

41° (221°)										(318°) 138°									
'	L. Sin.	d.	L. Tan.	c.d	L. cot.	L. cos.	d.	'	P.P.		'	P.P.		'	P.P.		'	P.P.	
0	9.816 94		9.939 16	26	0.060 84	9.877 78		60		26	25		25						
1	9.817 09	15	9.939 42	25	0.060 58	9.877 67	11	59	1	0.4	0.4								
2	9.817 23	14	9.939 67	26	0.060 33	9.877 56	11	58	2	0.9	0.8								
3	9.817 38	15	9.939 93	26	0.060 07	9.877 45	11	57	3	1.3	1.2								
4	9.817 52	14	9.940 1 a	25	0.059 82	9.877 34	11	56	4	1.7	1.7								
		15		26			11												
5	9.817 67		9.940 44	25	0.059 56	9.877 23		55	5	2.2	2.1								
6	9.817 81	14	9.940 69	26	0.059 31	9.877 12	11	54	6	2.6	2.5								
7	9.817 96	15	9.940 95	25	0.059 05	9.877 01	11	53	7	3.0	2.9								
8	9.818 10	14	9.941 20	26	0.058 80	9.876 90	11	52	8	3.5	3.3								
9	9.818 25	15	9.941 46	26	0.058 54	9.876 79	11	51	9	3.9	3.8								
		14		25			11												
10	9.818 39		9.941 71	26	0.058 29	9.876 68		50	10	4.3	4.2								
11	9.818 54	15	9.941 97	25	0.058 03	9.876 57	11	49	20	8.7	8.3								
12	9.818 68	14	9.942 22	26	0.057 78	9.876 46	11	48	30	13.0	12.5								
13	9.818 82	14	9.942 48	25	0.057 52	9.876 35	11	47	40	17.3	16.7								
14	9.818 97	15	9.942 73	26	0.057 27	9.876 24	11	46	50	21.7	20.8								
		14		25			11												
15	9.819 11		9.942 99	25	0.057 01	9.876 13		45		15	14								
16	9.819 26	15	9.943 24	26	0.056 76	9.876 01	12	44	1	0.2	0.2								
17	9.819 40	14	9.943 50	26	0.056 50	9.875 90	11	43	2	0.5	0.5								
18	9.819 55	15	9.943 75	25	0.056 25	9.875 79	11	42	3	0.8	0.7								
19	9.819 60	14	9.944 01	26	0.055 99	9.875 68	11	41	4	1.0	0.9								
		14		25			11												
20	9.819 83		9.944 26	26	0.055 74	9.875 57		40	5	1.2	1.2								
21	9.819 98	15	9.944 52	25	0.055 48	9.875 46	11	39	6	1.5	1.4								
22	9.820 12	14	9.944 77	26	0.055 23	9.875 35	11	38	7	1.8	1.6								
23	9.820 26	14	9.945 03	26	0.054 97	9.875 24	11	37	8	2.0	1.9								
24	9.820 41	15	9.945 28	25	0.054 72	9.875 13	11	36	9	2.2	2.1								
		14		26			12												
25	9.820 5 5		9.945 54	25	0.054 46	9.875 01		35	10	2.5	2.3								
26	9.820 69	14	9.945 79	26	0.054 21	9.874 90	11	34	20	5.0	4.7								
27	9.820 84	15	9.946 04	25	0.053 96	9.874 79	11	33	30	7.5	7.0								
28	9.820 98	14	9.946 30	26	0.053 70	9.874 68	11	32	40	10.0	9.3								
29	9.821 12	14	9.946 55	25	0.053 45	9.874 57	11	31	50	12.5	11.7								
		14		26			11												
30	9.821 26		9.946 81	25	0.053 19	9.874 46		30		12	11								
31	9.821 41	15	9.947 06	26	0.052 94	9.874 34	12	29	1	0.2	0.2								
32	9.821 55	14	9.947 32	26	0.052 68	9.874 23	11	28	2	0.4	0.4								
33	9.821 69	14	9.947 57	25	0.052 43	9.874 12	11	27	3	0.6	0.6								
34	9.821 84	15	9.947 83	26	0.052 17	9.874 01	11	26	4	0.8	0.7								
		14		25			11												
35	9.821 98		9.948 08	26	0.051 92	9.873 90		25	5	1.0	0.9								
36	9.822 12	14	9.948 34	26	0.051 66	9.873 78	12	24	6	1.2	1.1								
37	9.822 26	14	9.948 59	25	0.051 41	9.873 67	11	23	7	1.4	1.3								
38	9.822 40	14	9.948 84	25	0.051 16	9.873 56	11	22	8	1.6	1.5								
39	9.822 55	15	9.949 10	26	0.050 90	9.873 45	11	21	9	1.8	1.6								
		14		25			11												
40	9.822 69		9.949 35	26	0.050 65	9.873 34		20	10	2.0	1.8								
41	9.822 83	14	9.949 61	26	0.050 39	9.873 22	12	19	20	4.0	3.7								
42	9.822 97	14	9.949 86	25	0.050 14	9.873 11	11	18	30	6.0	5.5								
43	9.823 11	14	9.950 12	26	0.049 88	9.873 00	11	17	40	8.0	7.3								
44	9.823 26	15	9.950 37	25	0.049 63	9.872 88	12	16	50	10.0	9.2								
		14		25			11												
45	9.823 40		9.950 62	26	0.049 38	9.872 77		15	12	12	11								
46	9.823 54	14	9.950 88	26	0.049 12	9.872 66	11	14	26	25	25								
47	9.823 68	14	9.951 13	25	0.048 87	9.872 55	11	13											
48	9.823 82	14	9.951 39	26	0.048 61	9.872 43	12	12											
49	9.823 96	14	9.951 64	25	0.048 36	9.872 32	11	11											
		14		26			11												
50	9.824 10		9.951 90	26	0.048 10	9.872 21		10											
51	9.824 24	14	9.952 15	25	0.047 85	9.872 09	12	9	4	7.6	7.3								
52	9.824 39	15	9.952 40	25	0.047 60	9.871 98	11	8	5	9.8	10.2								
53	9.824 53	14	9.952 66	26	0.047 34	9.871 87	11	7	6	11.9	12.5								
54	9.824 67	14	9.952 91	25	0.047 09	9.871 75	12	6	7	14.1	14.8								
		114		26			11		8	16.2	17.1								
55	9.824 81		9.953 17	26	0.046 83	9.871 64		5	9	18.4	19.3								
56	9.824 95	1	9.953 42	25	0.046 58	9.871 53	11	4	0	20.6	21.6								
57	9.825 09	11d	9.953 68	26	0.046 32	8.871 41	12	3	1	22.8	23.9								
58	9.825 23	114	9.953 93	25	0.046 07	9.871 30	11	2	2	24.9	---								
59	9.825 37	14	9.954 18	25	0.045 82	9.871 19	11	1											
60	9.825 51	14	9.954 44	26	0.045 56	9.871 07	12	0											
'	L. cos.	1.	L. cot.	c.d	L. Tan.	L. Sin.	d.	'	P.P.		'	P.P.		'	P.P.		'	P.P.	

131° (311°)

(228 48°

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*

42" (222")

(317°) 137°

'	L. Sin.	d.	L. Tan.	c.d.	L. Cot.	L. Cos.	d.	'	P.P.
0	9.825 51		9.954 44	25	0.045 56	9.871 07		60	" 26 25
1	9.825 65	14	9.954 69	26	0.045 31	9.870 96	11	59	1 0.4 0.4
2	9.825 79	14	9.954 95	25	0.045 05	9.870 85	12	58	2 0.9 0.8
3	9.825 93	14	9.955 20	25	0.044 80	9.870 73	12	57	3 1.3 1.2
4	9.826 07	14	9.955 45	25	0.044 55	9.870 62	11	56	4 1.7 1.7
		14		26			12		
5	9.826 21	14	9.955 71	25	0.044 29	9.870 50	11	55	5 2.2 2.1
6	9.826 35	14	9.955 96	26	0.044 04	9.870 39	11	54	6 2.6 2.5
7	9.826 49	14	9.956 22	25	0.043 78	9.870 28	12	53	7 3.0 2.9
8	9.826 63	14	9.956 47	25	0.043 53	9.870 16	12	52	8 3.5 3.3
9	9.826 77	14	9.956 72	25	0.043 28	9.870 05	11	51	9 3.9 3.8
		14		26			12		
10	9.826 91	14	9.956 98	25	0.043 02	9.869 93	11	50	10 4.3 4.2
11	9.827 05	14	9.957 23	25	0.042 77	9.869 82	11	49	20 8.7 8.3
12	9.827 19	14	9.957 48	26	0.042 5 2	9.869 70	12	48	30 13.0 12.5
13	9.827 33	14	9.957 74	25	0.042 26	9.869 59	11	47	40 17.3 16.7
14	9.827 47	14	9.957 99	25	0.042 01	9.869 47	12	46	50 21.7 20.8
		14		26			11		
15	9.827 61	14	9.958 25	25	0.041 75	9.869 35	12	45	" 14 12
16	9.827 75	13	9.958 50	25	0.041 50	9.869 24	12	44	1 0.2 0.2
17	9.827 88	14	9.958 75	26	0.041 25	9.869 13	11	43	2 0.5 0.4
18	9.828 02	14	9.959 01	25	0.040 99	9.869 02	12	42	3 0.7 0.6
19	9.828 16	14	9.959 26	25	0.040 74	9.868 90	12	41	4 0.9 0.9
		14		26			11		
20	9.828 30	14	9.959 52	25	0.040 48	9.868 79	12	40	5 1.2 1.1
21	9.828 44	14	9.959 77	25	0.040 23	9.868 67	12	39	6 1.4 1.3
22	9.828 58	14	9.960 02	26	0.039 98	9.868 55	12	38	7 1.6 1.5
23	9.828 72	14	9.960 28	25	0.039 72	9.868 44	11	37	8 1.9 1.7
24	9.828 85	13	9.960 63	25	0.039 47	9.868 32	12	36	9 2.1 2.0
		14		25			11		
25	9.828 99	14	9.960 78	26	0.039 22	9.868 21	12	35	10 2.3 2.2
26	9.829 13	14	9.961 04	25	0.038 96	9.868 09	12	34	20 4.7 4.3
27	9.829 27	14	9.961 29	25	0.038 71	9.867 98	11	33	30 7.0 6.5
28	9.829 41	14	9.961 55	26	0.038 45	9.867 86	12	32	40 9.3 8.7
29	9.829 55	14	9.961 80	25	0.038 20	9.867 75	11	31	50 11.7 10.8
		13		25			12		
30	9.829 68	14	9.962 05	26	0.037 95	9.867 63	11	30	" 12 11
31	9.829 82	14	9.962 31	25	0.037 69	9.867 52	12	29	1 0.2 0.2
32	9.829 96	14	9.962 56	25	0.037 44	9.867 40	12	28	2 0.4 0.4
33	9.830 10	14	9.962 81	25	0.037 19	9.867 28	12	27	3 0.6 0.6
34	9.830 23	13	9.963 07	26	0.036 93	9.867 17	11	26	4 0.8 0.7
		14		25			12		
35	9.830 37	14	9.963 32	25	0.036 68	9.867 05	11	25	5 1.0 0.9
36	9.830 51	14	9.963 57	25	0.036 43	9.866 94	12	24	6 1.2 1.1
37	9.830 65	14	9.963 83	26	0.036 17	9.866 82	12	23	7 1.4 1.3
38	9.830 78	13	9.964 08	25	0.035 92	9.866 70	12	22	8 1.6 1.5
39	9.830 92	14	9.964 33	25	0.035 67	9.866 59	11	21	9 1.8 1.6
		14		26			12		
40	9.831 06	14	9.964 59	25	0.035 41	9.866 47	12	20	10 2.0 1.8
41	9.831 20	13	9.964 84	26	0.035 16	9.866 35	11	19	20 4.0 3.7
42	9.831 33	14	9.965 10	25	0.034 90	9.866 24	12	18	30 6.0 5.5
43	9.831 47	14	9.965 35	25	0.034 65	9.866 12	12	17	40 8.0 7.3
44	9.831 61	14	9.965 60	25	0.034 40	9.866 00	12	16	50 10.0 9.2
		13		26			11		
45	9.831 74	14	9.965 86	25	0.034 14	9.865 89	12	15	
46	9.831 88	14	9.966 11	25	0.033 89	9.865 77	12	14	12 11 11
47	9.832 02	14	9.966 36	25	0.033 64	9.865 65	12	13	26 26 25
48	9.832 15	13	9.966 62	26	0.033 38	9.865 54	11	12	
49	9.832 29	14	9.966 87	25	0.033 13	9.865 42	12	11	
		13		25			12		
50	9.832 42	14	9.967 12	26	0.032 88	9.865 30	12	10	0 1.1 1.1
51	9.832 56	14	9.967 38	25	0.032 62	9.865 18	12	9	1 3.2 3.4
52	9.832 70	14	9.967 63	25	0.032 37	9.865 07	11	8	2 5.4 5.7
53	9.832 83	13	9.967 88	25	0.032 12	9.864 96	12	7	3 7.6 7.9
54	9.832 97	14	9.968 14	26	0.031 86	9.864 83	12	6	4 9.8 10.2
		13		25			12	5	5 11.9 12.5
55	9.833 10	14	9.968 39	25	0.031 61	9.864 72	11	4	6 14.1 14.8
56	9.833 24	14	9.968 64	25	0.031 36	9.864 60	12	3	7 16.2 17.1
57	9.833 38	14	9.968 90	26	0.031 10	9.864 48	12	2	8 18.4 19.3
58	9.833 51	13	9.969 15	25	0.030 85	9.864 36	12	1	9 20.6 21.6
59	9.833 65	14	9.969 40	25	0.030 60	9.864 25	11	0	10 22.8 23.9
		13		26			12		11 24.9 —
60	9.833 78		9.969 66		0.030 34	9.864 13			
'	L. cos.	d.	L. cot.	cd	L. Tan.	L. Sin.	d.	'	P.P.

132° (312)

(227°) 47

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*

43° (223°)

(316) 136

	L. Sin.	d.	L. Tan.	d.	L. Cot.	L. Cos.	d.		P.P.
0	9.833 78	14	9.969 66	25	0.030 34	9.864 13	12	60	" 26 25
1	9.833 92	13	9.969 91	25	0.030 09	9.864 01	12	59	1 0.4 0.4
2	9.834 05	14	9.970 16	26	0.029 84	9.863 89	12	58	2 0.9 0.8
3	9.834 19	13	9.970 42	25	0.029 58	9.863 77	11	57	3 1.3 1.2
4	9.834 32	14	9.970 67	25	0.029 33	9.863 66	12	56	4 1.7 1.7
5	9.834 46	13	9.970 92	26	0.029 08	9.863 54	12	55	5 2.2 2.1
6	9.834 59	14	9.971 18	25	0.028 82	9.863 42	12	54	6 2.6 2.5
7	9.834 73	13	9.971 43	25	0.028 57	9.863 30	12	53	7 3.0 2.9
8	9.834 86	14	9.971 68	25	0.028 32	9.863 18	12	52	8 3.5 3.3
9	9.835 00	13	9.971 93	26	0.028 07	9.863 06	11	51	9 3.9 3.8
10	9.835 13	14	9.972 19	25	0.027 81	9.862 95	12	50	10 4.3 4.2
11	9.835 27	13	9.972 44	25	0.027 56	9.862 83	12	49	20 8.7 8.3
12	9.835 40	14	9.972 69	26	0.027 31	9.862 71	12	48	30 13.0 12.5
13	9.835 54	13	9.972 95	25	0.027 05	9.862 59	12	47	40 17.3 16.7
14	9.835 67	14	9.973 20	25	0.026 80	9.862 47	12	46	50 21.7 20.8
15	9.835 81	13	9.973 45	26	0.026 55	9.862 35	12	45	" 14 13
16	9.835 94	14	9.973 71	25	0.026 29	9.862 23	12	44	1 0.2 0.2
17	9.836 08	13	9.973 96	25	0.026 04	9.862 11	12	43	2 0.5 0.4
18	9.836 21	14	9.974 21	26	0.025 79	9.862 00	11	42	3 0.7 0.6
19	9.836 34	13	9.974 47	25	0.025 53	9.861 88	12	41	4 0.9 0.9
20	9.836 48	14	9.974 72	25	0.025 28	9.861 76	12	40	5 1.2 1.1
21	9.836 61	13	9.974 97	26	0.025 03	9.861 64	12	39	6 1.4 1.3
22	9.836 74	14	9.975 23	25	0.024 77	9.861 52	12	38	7 1.6 1.5
23	9.836 88	13	9.975 48	25	0.024 52	9.861 40	12	37	8 1.9 1.7
24	9.837 01	14	9.975 73	25	0.024 27	9.861 28	12	36	9 2.1 2.0
25	9.837 15	13	9.975 98	26	0.024 02	9.861 16	12	35	10 2.3 2.2
26	9.837 28	14	9.976 24	25	0.023 76	9.861 04	12	34	20 4.7 4.3
27	9.837 41	13	9.976 49	25	0.023 51	9.860 92	12	33	30 7.0 6.5
28	9.837 58	14	9.976 74	26	0.023 26	9.860 80	12	32	40 9.3 8.7
29	9.837 68	13	9.977 00	25	0.023 00	9.860 68	12	31	50 11.7 10.8
30	9.837 81	14	9.977 25	25	0.022 75	9.860 56	12	30	" 12 11
31	9.837 95	13	9.977 50	26	0.022 50	9.860 44	12	29	1 0.2 0.2
32	9.838 08	14	9.977 76	25	0.022 24	9.860 32	12	28	2 0.4 0.4
33	9.838 21	13	9.978 01	25	0.021 99	9.860 20	12	27	3 0.6 0.6
34	9.838 34	14	9.978 26	25	0.021 74	9.860 08	12	26	4 0.8 0.7
35	9.838 48	13	9.978 51	26	0.021 49	9.859 96	12	25	5 1.0 0.9
36	9.838 61	14	9.978 77	25	0.021 23	9.859 84	12	24	6 1.2 1.1
37	9.838 74	13	9.979 02	25	0.020 98	9.859 72	12	23	7 1.4 1.3
38	9.838 87	14	9.979 27	26	0.020 73	9.859 60	12	22	8 1.6 1.5
39	9.839 01	13	9.979 53	25	0.020 47	9.859 48	12	21	9 1.8 1.6
40	9.839 14	14	9.979 78	25	0.020 22	9.859 36	12	20	10 2.0 1.8
41	9.839 27	13	9.980 03	26	0.019 97	9.859 24	12	19	20 4.0 3.7
42	9.839 40	14	9.980 29	25	0.019 71	9.859 12	12	18	30 6.0 5.5
43	9.839 54	13	9.980 54	25	0.019 46	9.859 00	12	17	40 8.0 7.3
44	9.839 67	14	9.980 79	25	0.019 21	9.858 88	12	16	50 10.0 9.2
45	9.839 80	13	9.981 04	26	0.018 96	9.858 76	12	15	
46	9.839 93	14	9.981 30	25	0.018 70	9.858 64	12	14	13 13 12
47	9.840 06	13	9.981 55	25	0.018 45	9.858 51	13	13	26 25 25
48	9.840 20	14	9.981 80	26	0.018 20	9.858 39	12	12	
49	9.840 33	13	9.982 06	25	0.017 94	9.858 27	12	11	0 1.0 0.9 1.1
50	9.840 46	14	9.982 31	25	0.017 69	9.858 15	12	10	1 3.0 2.9 3.1
51	9.840 59	13	9.982 56	25	0.017 44	9.858 03	12	9	2 5.0 4.8 5.2
52	9.840 72	14	9.982 81	26	0.017 19	9.857 91	12	8	3 7.0 6.7 7.3
53	9.840 85	13	9.983 07	25	0.016 93	9.857 79	12	7	4 9.0 8.7 9.4
54	9.840 98	14	9.983 32	25	0.016 68	9.857 66	13	6	5 11.0 10.6 11.5
55	9.841 12	13	9.983 57	26	0.016 43	9.857 54	12	5	6 13.0 12.5 13.5
56	9.841 25	14	9.983 83	25	0.016 17	9.857 42	12	4	7 15.0 14.4 15.6
57	9.841 38	13	9.984 08	25	0.015 92	9.857 30	12	3	8 17.0 16.3 17.7
58	9.841 51	14	9.984 33	25	0.015 67	9.857 18	12	2	9 19.0 18.3 19.8
59	9.841 64	13	9.984 58	25	0.015 42	9.857 06	12	1	10 21.0 20.2 21.9
60	9.841 77	14	9.984 84	26	0.015 16	9.856 93	13	0	11 23.0 22.1 23.9
	L. Cos.	d.	L. Cot.	d.	L. Tan.	L. Sin.	d.		P.P.

133° (313)

(226°) 46°

TABLE 6 LOGARITHMS OF TRIGONOMETRIC FUNCTIONS — *Contd*

44° (224°)

(315) 135

	L. Sin.	d.	L. Tan.	c.d.	L. cot.	L. cos.	d.		P.P.
0	9.841 77	13	9.984 84	25	0.015 16	9.856 93	12	60	" 26 25
1	9.841 90	13	9.985 09	25	0.014 91	9.856 81	12	59	1 0.4 0.4
2	9.842 03	13	9.985 34	26	0.014 66	9.856 69	12	58	2 0.9 0.8
3	9.842 16	13	9.985 60	25	0.014 40	9.856 57	12	57	3 1.3 1.2
4	9.842 29	13	9.985 85	25	0.014 15	9.856 45	12	56	4 1.7 1.7
		13		25			13		
5	9.842 42	13	9.986 10	25	0.013 90	9.856 32	12	55	5 2.2 2.1
6	9.842 55	14	9.986 35	26	0.013 65	9.856 20	12	54	6 2.6 2.5
7	9.842 69	13	9.986 61	25	0.013 39	9.856 08	12	53	7 3.0 2.9
8	9.842 82	13	9.986 86	25	0.013 14	9.855 96	12	52	8 3.5 3.3
9	9.842 95	13	9.987 11	25	0.012 89	9.855 83	13	51	9 3.9 3.8
		13		26			12		
10	9.843 08	13	9.987 37	25	0.012 63	9.855 71	12	50	10 4.3 4.2
11	9.843 21	13	9.987 62	25	0.012 38	9.855 59	12	49	20 8.7 8.3
12	9.843 34	13	9.987 87	25	0.012 13	9.855 47	12	48	30 13.0 12.5
13	9.843 47	13	9.988 12	26	0.011 88	9.855 34	13	47	40 17.3 16.7
14	9.843 60	13	9.988 38	26	0.011 62	9.855 22	12	46	50 21.7 20.8
		13		25			12		
15	9.843 73	12	9.988 63	25	0.011 37	9.855 10	13	45	" 14 13 12
16	9.843 85	13	9.988 88	25	0.011 12	9.854 97	12	44	1 0.2 0.2
17	9.843 98	13	9.989 13	26	0.010 87	9.854 85	12	43	2 0.5 0.4
18	9.844 11	13	9.989 39	25	0.010 61	9.854 73	12	42	3 0.7 0.6
19	9.844 24	13	9.989 64	25	0.010 36	9.854 60	13	41	4 0.9 0.8
		13		25			12		
20	9.844 37	13	9.989 89	26	0.010 11	9.854 48	12	40	5 1.2 1.1
21	9.844 50	13	9.990 15	25	0.009 85	9.854 36	13	39	6 1.4 1.3
22	9.844 63	13	9.990 40	25	0.009 60	9.854 23	12	38	7 1.6 1.5
23	9.844 76	13	9.990 65	25	0.009 35	9.854 11	12	37	8 1.9 1.7
24	9.844 89	13	9.990 90	25	0.009 10	9.853 99	12	36	9 2.1 2.0
		13		26			13		
25	9.845 02	13	9.991 16	25	0.008 84	9.853 86	12	35	10 2.3 2.2
26	9.845 15	13	9.991 41	25	0.008 59	9.853 74	13	34	20 4.7 4.3
27	9.845 28	12	9.991 66	25	0.008 34	9.853 61	12	33	30 7.0 6.5
28	9.845 40	13	9.991 91	26	0.008 09	9.853 49	12	32	40 9.3 8.7
29	9.845 53	13	9.992 17	26	0.007 83	9.853 37	12	31	50 11.7 10.8
		13		25			13		
30	9.845 66	13	9.992 42	25	0.007 58	9.853 24	12	30	
31	9.845 79	13	9.992 67	26	0.007 33	9.853 12	13	29	13 13
32	9.845 92	13	9.992 93	25	0.007 07	9.852 99	12	28	26 25
33	9.846 05	13	9.993 18	25	0.006 82	9.852 87	12	27	
34	9.846 18	13	9.993 43	25	0.006 57	9.852 74	13	26	0 1.0 0.9
		12		25			12		
35	9.846 30	13	9.993 68	26	0.006 32	9.852 62	12	25	1 2.0 2.9
36	9.846 43	13	9.993 94	25	0.006 06	9.852 50	13	24	2 5.0 4.8
37	9.846 56	13	9.994 19	25	0.005 81	9.852 37	12	23	3 7.0 6.7
38	9.846 69	13	9.994 44	4:	0.005 56	9.852 25	12	22	4 9.0 8.7
39	9.846 82	13	9.994 69	26	0.005 31	9.852 12	13	21	5 11.0 10.6
		12		25			12		
40	9.846 94	13	9.994 95	25	0.005 05	9.852 00	13	20	6 13.0 12.5
41	9.847 07	13	9.995 20	25	0.004 80	9.851 87	12	19	7 15.0 14.4
42	9.847 20	13	9.995 45	25	0.004 55	9.851 75	13	18	8 17.0 16.3
43	9.847 33	12	9.995 70	26	0.004 30	9.851 62	12	17	9 19.0 18.3
44	9.847 45	13	9.995 96	25	0.004 04	9.851 50	13	16	10 21.0 20.2
		13		25			12		
45	9.847 58	13	9.996 21	25	0.003 79	9.851 37	13	15	11 23.0 22.1
46	9.847 71	13	9.996	26	0.003 54	9.851 25	12	14	12 25.0 24.1
47	9.847 84	12	9.996 32	a:	0.003 28	9.851 12	13	13	
48	9.847 96	13	9.996 97		0.003 03	9.851 00	12	12	12 12 12
49	9.848 09	13	9.997 22	25	0.002 78	9.850 87	13	11	0 1.1 1.1
		13		25			13		
50	9.848 22	13	9.997 47	26	0.002 53	9.850 74	12	10	1 3.2 3.1
51	9.848 35	12	9.997 73	25	0.002 27	9.850 62	13	9	2 5.4 5.2
52	9.848 47	13	9.997 98	25	0.002 02	9.850 49	12	8	3 7.6 7.3
53	9.848 60	13	9.998 23	25	0.001 77	9.850 37	13	7	4 9.8 9.4
54	9.848 73	12	9.998 48	26	0.001 52	9.850 24	12	6	5 11.9 11.5
		13		25			13		
55	9.848 85	13	9.998 74	25	0.001 26	9.850 12	12	5	6 14.1 13.5
56	9.848 98	13	9.998 99	25	0.001 01	9.849 99	13	4	7 16.2 15.6
57	9.849 11	12	9.999 24	25	0.000 76	9.849 86	12	3	8 18.4 17.7
58	9.849 23	13	9.999 49	26	0.000 51	9.849 74	13	2	9 20.6 19.8
59	9.849 36	13	9.999 75	25	0.000 25	9.849 61	12	1	10 22.8 21.9
		13		25			13		
60	9.849 49		0.000 00		0.000 00	9.849 49	12	0	11 24.9 23.9
	L. cos.	d.	L. cot.	c.d.	L. Tan.	L. Sin.	d.		P.P.

134 (314)

(225) 45

NATURAL TRIGONOMETRIC FUNCTIONS
(Tables 7A and 7B)

Values of the trigonometric functions of angles for each minute from 0-360

For degrees indicated at the top of the page use the column headings at the top.
For degrees indicated at the bottom use the column indications at the bottom.

With degrees at the left of each block (top or bottom), use the minute column at the left and with degrees at the right of each block use the minute column at the right.

If natural trigonometric function tables are used for angle measures greater than 90 and less than **360°**, appropriate signs for the functions must be supplied in accordance with the quadrant in which the angle measure belongs.

TABLE 7A NATURAL FUNCTIONS

0° (180°)

(359°) 179

1 (181°)

(358°) 178°

'	Sin.	Tan.	cot.	Cos.	'
0	·000 00	·000 00	—	1·000 0	60
1	·000 29	·000 29	3 437·7	1·000 0	59
2	·000 58	·000 58	1 718·9	1·000 0	58
3	·000 87	·000 87	1 145·9	1·000 0	
4	·001 16	·001 16	859·44	1·000 0	: a
5	·001 45	·001 45	687·55	1·000 0	55
6	·001 75	·001 75	572·96	1·000 0	54
7	·002 04	·002 04	491·11	1·000 0	53
8	·002 33	·002 33	429·72	1·000 0	52
9	·002 62	·002 62	381·97	1·000 0	51
11	·002 91	·002 91	343·77	1·000 0	50
12	·003 03 49 20	·003 20	312·52	·999 99	49
		·003 49	286·48	·999 99	48
13		·003 78	264·44	·999 99	47
14	·003 004 78 07	·004 07	245·55	·999 99	46
15					
16	·004 004 65 36	·004 36	229·18	·999 99	45
		·004 65	214·86	·999 99	44
		·004 95	202·22	·999 99	43
17		·005 24	190·98	·999 99	42
18	·004 005 16 34 33	·005 53	180·93	·999 98	41
19					
	·005 82	·005 82	171·89	·999 98	40
20	·006 11	·006 11	163·70	·999 98	39
21	·006 40	·006 40	156·26	·999 98	38
22	·006 69	·006 69	149·47	·999 98	37
23	·006 98	·006 98	143·24	·999 98	36
24					
25		·007 27	137·51	·999 97	35
26	·007 007 27 56	·007 56	132·22	·999 97	34
27		·007 85	127·32	·999 97	33
28	·007 008 85 14	·008 15	122·77	·999 97	32
29	·008 44	·008 44	118·54	·999 96	31
30					
31	·008 73	·008 73	114·59	·999 96	30
32		·009 02	110·89	·999 96	29
33	·009 009 02 31	·009 31	107·43	·999 96	28
34	·009 009 60 89	·009 60	104·17	·999 95	27
		·009 89	101·11	·999 95	26
35	·010 18	·010 18	98·218	·999 95	25
36		·010 47	95·489	·999 95	24
37	·010 010 47 76	·010 76	92·908	·999 94	23
38		·011 05	90·463	·999 94	22
39	·011 011 05 34	·011 35	88·144	·999 94	21
40					
41	·011 011 64 93	·011 93	85·940	·999 93	20
42		·012 22	83·844	·999 93	19
43	·012 012 22 51	·012 51	81·847	·999 93	18
44	·012 80	·012 80	79·943	·999 92	17
			78·126	·999 92	16
45		·013 09	76·390	·999 91	15
46	·013 013 09 38	·013 38	74·729	·999 91	14
47		·013 67	73·139	·999 91	13
48	·013 013 67 06	·013 96	71·615	·999 90	12
49	·014 25	·014 25	70·153	·999 90	11
50					
51	·014 54	·014 55	68·750	·999 89	10
52	·014 83	·014 84	67·402	·999 89	9
53	·015 13	·015 13	66 105	·999 89	8
54	·015 015 42 71	·015 42	64·858	·999 88	7
		·015 71	63·657	·999 88	6
55		·016 00	62·499	·999 87	5
56	·016 016 00 29	·016 29	61·383	·999 87	4
57		·016 58	60·306	·999 86	3
58	·016 016 58 87	·016 87	59·266	·999 86	2
59	·017 16	·017 16	58·261	·999 85	1
60	·017 45	·017 46	57·290	·999 85	0
'	cos.	Cot.	Tan.	Sin.	'

90° (270°)

(209°) — 89

91° (271°)

(268°) 88°

'	Sin.	Tan.	Cot.	Cos.	'
0	·017 45	·017 46	57·290	·999 85	60
1		·017 73	56·351	·999 84	59
2	·017 018 74 03	·018 04	55·442	·999 84	58
3	·018 018 02 32	·018 33	54·561	·999 83	57
4		·018 62	53·709	·999 83	56
5					
6	·018 019 20 91	·018 91	52·882	·999 82	55
7		·019 20	52·081	·999 82	54
8	·019 019 49 78	·019 49	51·303	·999 81	53
9	·020 07	·020 78	50·549	·999 80	52
10		·020 07	49·816	·999 80	51
11	·020 020 36 65	·020 36	49·104	·999 79	50
12		·020 66	48·312	·999 79	49
13	·020 021 04 23	·020 95	47·740	·999 78	48
14	·021 52	·021 24	47·085	·999 77	47
		·021 53	46·449	·999 77	46
15					
16	·022 021 81 11	·021 82	45·829	·999 76	45
		·022 11	45·226	·999 76	44
		·022 40	44·639	·999 75	43
17		·022 69	44·066	·999 74	42
18	·022 022 02 40 08	·022 98	43·508	·999 74	41
19					
20					
21	·023 023 56 27	·023 28	42·964	·999 73	40
22		·023 57	42·433	·999 72	39
23	·023 024 85 14	·023 86	41·916	·999 72	38
24	·024 43	·024 15	41·411	·999 71	37
		·024 44	40·917	·999 70	36
25					
26	·024 025 72 01	·024 73	40·436	·999 69	35
27		·025 02	39·965	·999 69	34
28	·025 60	·025 31	39·506	·999 68	33
29	·025 89	·025 60	39·057	·999 67	32
30		·025 89	38·618	·999 66	31
31	·026 026 47 18	·026 19	38·188	·999 66	30
32		·026 48	37·769	·999 65	29
33	·027 026 76 05	·026 77	37·358	·999 64	28
34	·027 34	·027 06	36·956	·999 63	27
		·027 35	36·563	·999 63	26
35	·027 63	·027 64	36·178	·999 62	25
36	·027 92	·027 93	35·801	·999 61	24
37	·028 21	·028 22	35·431	·999 60	23
38	·028 50	·028 51	35·070	·999 59	22
39	·028 79	·028 81	34·715	·999 59	21
40					
41	·029 08	·029 10	34·368	·999 58	20
42	·029 38	·029 39	34·027	·999 57	19
43	·029 67	·029 68	33·694	·999 56	18
44	·029 96	·029 97	33·366	·999 55	17
45	·030 25	·030 26	33·045	·999 54	16
46					
47	·030 54	·030 55	32·730	·999 53	15
48	·030 83	·030 84	32·421	·999 52	14
49	·031 12	·031 14	32·118	·999 52	13
50	·031 41	·031 43	31·821	·999 51	12
51	·031 70	·031 72	31·528	·999 50	11
52					
53	·031 99	·032 01	31·242	·999 49	10
54	·032 28	·032 30	30·960	·999 48	9
55	·032 57	·032 59	30·683	·999 47	8
56	·032 86	·032 88	30·412	·999 46	7
57	·033 1 6	·033 17	30·145	·999 45	6
58					
59	·033 45	·033 46	29·882	·999 44	5
60	·033 74	·033 76	29·624	·999 43	4
	·034 03	·034 05	29·371	·999 42	3
	·034 32	·034 34	29·122	·999 41	2
	·034 61	·034 63	28·877	·999 40	1
60	·034 90	·034 92	28·636	·999 39	0
'	cos.	cot.	Tan.	Sin.	'

TABLE 7A NATURAL FUNCTIONS—Contd

2° (182°)

(357°) 177°

3 (183)

(356°) 176

	Sin.	Tan.	Cot.	Cos.	'
0	·034 90	·034 92	28.636	·999 39	60
1	·035 19	·035 21	28.399	·999 38	59
2	·035 48	·035 50	28.166	·999 37	58
3	·035 77	·035 79	27.937	·999 36	57
4	·036 06	·036 09	27.712	·999 35	56
5	·036 35	·036 38	27.490	·999 34	55
6	·036 64	·036 67	27.271	·999 33	54
7	·036 93	·036 96	27.057	·999 32	53
8	·037 23	·037 25	26.845	·999 31	52
9	·037 52	·037 54	26.637	·999 30	51
10	·037 81	·037 83	26.432	·999 29	50
11	·038 10	·038 12	26.230	·999 27	49
12	·038 39	·038 42	26.031	·999 26	48
13	·038 68	·038 71	25.835	·999 25	47
14	·038 97	·039 00	25.642	·999 24	46
15	·039 26	·039 29	25.452	·999 23	45
16	·039 55	·039 58	25.264	·999 22	44
17	·039 84	·039 87	25.080	·999 21	43
18	·040 13	·040 16	24.898	·999 19	42
19	·040 42	·040 46	24.719	·999 18	41
20	·040 71	·040 75	24.542	·999 17	40
21	·041 00	·041 04	24.368	·999 16	39
22	·041 29	·041 33	24.196	·999 15	38
23	·041 59	·041 62	24.026	·999 13	37
24	·041 88	·041 91	23.859	·999 12	36
25	·042 17	·042 20	23.695	·999 11	35
26	·042 46	·042 50	23.532	·999 10	34
27	·042 75	·042 79	23.372	·999 09	33
28	·043 04	·043 08	23.214	·999 07	32
29	·043 33	·043 37	23.058	·999 06	31
30	·043 62	·043 66	22.904	·999 05	30
31	·043 91	·043 95	22.752	·999 04	29
32	·044 20	·044 24	22.602	·999 02	28
33	·044 49	·044 54	22.454	·999 01	27
34	·044 78	·044 83	22.308	·999 00	26
35	·045 07	·045 12	22.164	·998 98	25
36	·045 36	·045 41	22.022	·998 97	24
37	·045 65	·045 70	21.881	·998 96	23
38	·045 94	·045 99	21.743	·998 94	22
39	·046 23	·046 28	21.606	·998 93	21
40	·046 53	·046 58	21.470	·998 92	20
41	·046 82	·046 87	21.337	·998 90	19
42	·047 11	·047 16	21.205	·998 89	18
43	·047 40	·047 45	21.075	·998 88	17
44	·047 69	·047 74	20.946	·998 86	16
45	·047 98	·048 03	20.819	·998 85	15
46	·048 27	·048 33	20.693	·998 83	14
47	·048 56	·048 62	20.569	·998 82	13
48	·048 85	·048 91	20.446	·998 81	12
49	·049 14	·049 20	20.325	·998 79	11
50	·049 43	·049 49	20.206	·998 76	10
51	·049 72	·049 78	20.087	·998 76	9
52	·050 01	·050 07	19.970	·998 75	8
53	·050 30	·050 37	19.885	·998 73	7
54	·050 59	·050 66	19.740	·998 72	6
55	·050 88	·050 95	19.627	·998 70	5
56	·051 17	·051 24	19.516	·998 69	4
57	·051 46	·051 53	19.405	·998 67	3
58	·051 75	·051 82	19.296	·998 66	2
59	·052 05	·052 12	19.188	·998 64	1
60	·052 34	·052 41	19.081	·998 63	0
	Cos.	cot.	Tan.	Sin.	'

92° (272°)

(267°) 87°

93° (273°)

(266°) 86°

	Sin.	Tan.	Cot.	Cos.	'
0	·052 34	·052 41	19.081	·998 63	60
1	·052 63	·052 70	18.976	·998 61	59
2	·052 92	·052 99	18.871	·998 60	58
3	·053 21	·053 28	18.768	·998 58	57
4	·053 50	·053 57	18.666	·998 57	56
5	·053 79	·053 87	18.564	·998 55	55
6	·054 08	·054 16	18.464	·998 54	54
7	·054 37	·054 45	18.366	·998 52	53
8	·054 66	·054 74	18.268	·998 51	52
9	·054 95	·055 03	18.171	·998 49	51
10	·055 24	·055 33	18.075	·998 47	50
11	·055 53	·055 62	17.980	·998 46	49
12	·055 82	·055 91	17.886	·998 44	48
13	·056 11	·056 20	17.793	·998 42	47
14	·056 40	·056 49	17.702	·998 41	46
15	·056 69	·056 78	17.611	·998 39	45
16	·056 98	·057 08	17.521	·998 38	44
17	·057 27	·057 37	17.431	·998 36	43
18	·057 56	·057 66	17.343	·998 34	42
19	·057 85	·057 95	17.256	·998 33	41
20	·058 14	·058 24	17.169	·998 31	40
21	·058 44	·058 54	17.084	·998 29	39
22	·058 73	·058 83	16.999	·998 27	38
23	·059 02	·059 12	16.915	·998 26	37
24	·059 31	·059 41	16.832	·998 24	36
25	·059 60	·059 70	16.750	·998 22	35
26	·059 89	·059 99	16.668	·998 21	34
27	·060 18	·060 29	16.587	·998 19	33
28	·060 47	·060 58	16.507	·998 17	32
29	·060 76	·060 87	16.428	·998 15	31
30	·061 05	·061 16	16.350	·998 13	30
31	·061 34	·061 45	16.272	·998 12	29
32	·061 63	·061 75	16.195	·998 10	28
33	·061 92	·062 04	16.119	·998 08	27
34	·062 21	·062 33	16.043	·998 06	26
35	·062 50	·062 62	15.969	·998 04	25
36	·062 79	·062 91	15.895	·998 03	24
37	·063 08	·063 21	15.821	·998 01	23
38	·063 37	·063 50	15.748	·997 99	22
39	·063 66	·063 79	15.676	·997 97	21
40	·063 95	·064 08	15.605	·997 95	20
41	·064 24	·064 38	15.534	·997 93	19
42	·064 53	·064 67	15.464	·997 92	18
43	·064 82	·064 96	15.394	·997 90	17
44	·065 11	·065 25	15.325	·997 88	16
45	·065 40	·065 54	15.257	·997 86	15
46	·065 69	·065 84	15.189	·997 84	14
47	·065 98	·066 13	15.122	·997 82	13
48	·066 27	·066 42	15.056	·997 80	12
49	·066 56	·066 71	14.990	·997 78	11
50	·066 85	·067 00	14.924	·997 76	10
51	·067 14	·067 30	14.860	·997 74	9
52	·067 43	·067 59	14.795	·997 72	8
53	·067 73	·067 88	14.732	·997 70	7
54	·068 02	·068 17	14.669	·997 68	6
55	·068 31	·068 47	14.606	·997 66	5
56	·068 60	·068 76	14.544	·997 64	4
57	·068 89	·069 05	14.482	·997 62	3
58	·069 18	·069 34	14.421	·997 60	2
59	·069 47	·069 63	14.361	·997 58	1
60	·069 76	·069 93	14.301	·997 56	0
	Cos.	Cot.	Tan.	Sin.	'

(Continued)

TABLE 7A. NATURAL FUNCTIONS — *Contd*

4° (184°)

(355°) 175

5° (185°)

(354°) 174°

'	Sin.	Tan.	Cot.	Cos.	'
0	·069 76	·069 93	14·301	·997 56	60
1	·070 05	·070 22	14·241	·997 54	59
2	·070 34	·070 51	14·182	·997 52	58
3	·070 63	·070 80	14·124	·997 50	57
4	·070 92	·071 10	14·065	·997 48	56
5	·071 21	·071 39	14·008	·997 46	55
6	·071 50	·071 68	13·951	·997 44	54
7	·071 79	·071 97	13·894	·997 42	53
8	·072 08	·072 27	13·838	·997 40	52
9	·072 37	·072 56	13·782	·997 38	51
10	·072 66	·072 85	13·727	·997 36	50
11	·072 95	·073 14	13·672	·997 34	49
12	·073 24	·073 44	13·617	·997 31	48
13	·073 53	·073 73	13·563	·997 29	47
14	·073 82	·074 02	13·510	·997 27	46
15	·074 11	·074 31	13·457	·997 25	45
16	·074 40	·074 61	13·404	·997 23	44
17	·074 69	·074 90	13·352	·997 21	43
18	·074 98	·075 19	13·300	·997 19	42
19	·075 27	·075 48	13·248	·997 16	41
20	·075 56	·075 78	13·197	·997 14	40
21	·075 85	·076 07	13·146	·997 12	39
22	·076 14	·076 38	13·096	·997 10	38
23	·076 43	·076 65	13·046	·997 08	37
24	·076 72	·076 95	12·996	·997 05	36
25	·077 01	·077 24	12·947	·997 03	35
26	·077 30	·077 53	12·898	·997 01	34
27	·077 59	·077 82	12·850	·996 99	33
28	·077 88	·078 12	12·801	·996 96	32
29	·078 17	·078 41	12·754	·996 94	31
30	·078 46	·078 70	12·706	·996 92	30
	·078 75	·078 99	12·659	·996 89	29
	·079 04	·079 29	12·612	·996 87	28
	·079 33	·079 58	12·566	·996 85	27
	·079 62	·079 87	12·520	·996 83	26
35	·079 91	·080 17	12·474	·996 80	25
36	·080 20	·080 46	12·429	·996 78	24
37	·080 49	·080 75	12·384	·996 76	23
38	·080 78	·081 04	12·339	·996 73	22
39	·081 07	·081 34	12·295	·996 71	21
40	·081 36	·081 63	12·251	·996 68	20
41	·081 65	·081 92	12·207	·996 66	19
42	·081 94	·082 21	12·163	·996 64	18
43	·082 23	·082 51	12·120	·996 61	17
44	·082 52	·082 80	12·077	·996 59	16
45	·082 81	·083 09	12·035	·996 57	15
46	·083 10	·083 39	11·992	·996 54	14
47	·083 39	·083 68	11·950	·996 52	13
48	·083 68	·083 97	11·909	·996 49	12
49	·083 97	·084 27	11·867	·996 47	11
50	·084 26	·084 56	11·826	·996 44	10
51	·084 55	·084 85	11·785	·996 42	9
52	·084 84	·085 14	11·745	·996 39	8
53	·085 13	·085 44	11·705	·996 37	7
54	·085 42	·085 73	11·664	·996 35	6
55	·085 71	·086 02	11·625	·996 32	5
56	·086 00	·086 32	11·585	·996 30	4
57	·086 29	·086 61	11·546	·996 27	3
58	·086 58	·086 90	11·507	·996 25	2
59	·086 87	·087 20	11·468	·996 22	1
60	·087 16	·087 49	11·430	·996 19	0
	cos.	Cot.	Tan.	Sin.	

'	Sin.	Tan.	Cot.	Cos.	'
0	·087 16	·087 49	11·430	·996 19	60
1	·087 45	·087 78	11·392	·996 17	59
2	·087 74	·088 07	11·354	·996 14	58
3	·088 03	·088 37	11·316	·996 12	57
4	·088 31	·088 66	11·279	·996 09	56
5	·088 60	·088 95	11·242	·996 07	55
6	·088 89	·089 25	11·205	·996 04	54
7	·089 18	·089 54	11·168	·996 02	53
8	·089 47	·089 83	11·132	·995 99	52
9	·089 76	·090 13	11·095	·995 96	51
10	·090 05	·090 42	11·059	·995 94	50
11	·090 34	·090 71	11·024	·995 91	49
12	·090 63	·091 01	10·988	·995 88	48
13	·090 92	·091 30	10·953	·995 86	47
14	·091 21	·091 59	10·918	·995 83	46
15	·091 50	·091 89	10·883	·995 80	45
16	·091 79	·092 18	10·848	·995 78	44
17	·092 08	·092 47	10·814	·995 75	43
18	·092 37	·092 77	10·780	·995 72	42
19	·092 66	·093 06	10·746	·995 70	41
20	·092 95	·093 35	10·712	·995 67	40
21	·093 24	·093 65	10·678	·995 64	39
22	·093 53	·093 94	10·645	·995 62	38
23	·093 82	·094 23	10·612	·995 59	37
24	·094 11	·094 53	10·579	·995 56	36
25	·094 40	·094 82	10·546	·995 53	35
26	·094 69	·095 11	10·514	·995 51	34
27	·094 98	·095 41	10·481	·995 48	33
28	·095 27	·095 70	10·449	·995 45	32
29	·095 56	·096 00	10·417	·995 42	31
30	·095 85	·096 29	10·385	·995 40	30
31	·096 14	·096 58	10·354	·995 37	29
32	·096 42	·096 88	10·322	·995 34	28
33	·096 71	·097 17	10·291	·995 31	27
34	·097 00	·097 46	10·260	·995 28	26
35	·097 29	·097 76	10·229	·995 26	25
36	·097 58	·098 05	10·199	·995 23	24
37	·097 87	·098 34	10·168	·995 20	23
38	·098 16	·098 64	10·138	·995 17	22
39	·098 45	·098 93	10·108	·995 14	21
40	·098 74	·099 23	10·078	·995 11	20
41	·099 03	·099 52	10·048	·995 08	19
42	·099 32	·099 81	10·019	·995 06	18
43	·099 61	·100 11	9·989 3	·995 03	17
44	·099 90	·100 40	9·960 1	·995 00	16
45	·100 19	·100 69	9·931 0	·994 97	15
46	·100 48	·100 99	9·902 1	·994 94	14
47	·100 77	·101 28	9·873 4	·994 91	13
48	·101 06	·101 58	9·844 8	·994 88	12
49	·101 35	·101 87	9·816 4	·994 85	11
50	·101 64	·102 16	9·788 2	·994 82	10
51	·101 92	·102 46	9·760 1	·994 79	9
52	·102 21	·102 75	9·732 2	·994 76	8
53	·102 50	·103 05	9·704 4	·994 73	7
54	·102 79	·103 34	9·676 8	·994 70	6
55	·103 08	·103 63	9·649 3	·994 67	5
56	·103 37	·103 93	9·622 0	·994 64	4
57	·103 66	·104 22	9·594 9	·994 61	3
58	·103 95	·104 52	9·567 9	·994 58	2
59	·104 24	·104 81	9·541 1	·994 55	1
60	·104 53	·105 10	9·514 4	·994 52	0
	Cos.	Cot.	Tan.	Sin.	

94° (274°)

(265°) 85°

95° (275°)

(264°) 84°

TABLE 7A NATURAL FUNCTIONS -- *Contd*

6° (186°)

(353°) 173°

7° (187°)

(352°) 172°

'	Sin.	Tan.	Cot.	Cos.	'
0	·104 53	·105 10	9·514 4	·994 52	60
1		·105 40	9·487 8	·994 49	59
2	·104·105 12 11	·105 69	9·461 4	·994 46	58
3		·105 99	9·435 2	·994 43	57
4	·105·105 40 09	·106 28	9·409 0	·994 40	5 6
5	·105 97	·106 57	9·383 1	·994 37	55
6	·106 26	·106 87	9·357 2	·994 34	54
7	·106 55	·107 16	9·331 5	·994 31	5 3
8	·106 84	·107 46	9·306 0	·994 28	52
9	·107 13	·107 75	9·280 6	·994 24	51
10	·107 42	·108 05	9·255 3	·994 21	50
11	·107 71	·108 34	9·230 2	·994 18	49
12	·108 00	·108 63	9·205 2	·994 15	48
13	·108 29	·108 93	9·180 3	·994 12	47
14	·108 58	·109 22	9·155 5	·994 09	46
15	·108 87	·109 52	9·130 9	·994 06	45
16	·109 16	·109 81	9·106 5	·994 02	44
17	·109 45	·110 11	9·082 1	·993 99	43
18	·109 73	·110 40	9·057 9	·993 96	42
19	·110 02	·110 70	9·033 8	·993 93	41
20	·110 31	·110 99	9·009 8	·993 90	40
21	·110 60	·111 28	8·986 0	·993 86	39
22	·110 89	·111 58	8·962 3	·993 83	38
23	·111 18	·111 87	8·938 7	·993 80	37
24	·111 47	·112 17	8·915 2	·993 77	36
25	·111 76	·112 46	8·891 9	·993 74	35
26	·112 05	·112 76	8·868 6	·993 70	34
27	·112 34	·113 05	8·845 5	·993 67	33
28	·112 63	·113 35	8·822 5	·993 64	32
29	·112 91	·113 64	8·799 6	·993 60	31
30	·113 20	·113 94	8·776 9	·993 57	30
31	·113 49	·114 23	8·754 2	·993 54	29
32	·113 78	·114 52	8·731 7	·993 51	28
33	·114 07	·114 82	8·709 3	·993 47	27
34	·114 36	·115 11	8·687 0	·993 44	26
35	·114 65	·115 41	8·664 8	·993 41	25
36	·114 94	·115 70	8·642 7	·993 37	24
37	·115 23	·116 00	8·620 8	·993 34	23
38	·115 52	·116 29	8·598 9	·993 31	22
39	·115 80	·116 59	8·577 2	·993 27	21
40	·116 09	·116 88	8·555 5	·993 24	20
41	·116 38	·117 18	8·534 0	·993 20	19
42	·116 67	·117 47	8·512 6	·993 17	18
43	·116 96	·117 77	8·491 3	·993 14	17
44	·117 25	·118 06	8·470 1	·993 10	16
45	·117 54	·118 36	8·449 0	·993 07	15
46		·118 65	8·428 0	·993 03	14
47	·118·117 03 12	·118 95	8·407 1	·993 00	13
48	·118 40	·119 24	8·386 3	·992 97	12
49	·118 69	·119 54	8·365 6	·992 93	11
50	·118 98	·119 83	8·345 0	·992 90	10
51	·119 27	·120 13	8·324 5	·992 86	9
52	·119 56	·120 42	8·304 1	·992 83	8
53	·119 85	·120 72	8·283 8	·992 79	7
54	·120 14	·121 01	8·263 6	·992 76	6
55	·120 43	·121 31	8·243 4	·992 72	5
56	·120 71	·121 60	8·223 4	·992 69	4
57	·121 00	·121 90	8·203 5	·992 65	3
58	·121 29	·122 19	8·183 7	·992 62	2
59	·121 58	·122 49	8·164 0	·992 58	1
60	·121 87	·122 78	8·144 3	·992 55	0
'	cos.	cot.	Tan.	Sin.	'

96° (276°)

(263°) 83°

'	Sin.	Tan.	Cot.	Cos.	'
0	·121 87	·122 78	8·144 3	·992 55	60
1	·122 16	·123 08	8·124 8		59
2	·122 45	·123 38	8·105 4	·992 48	58
3	·122 74	·123 67	8·086 0	·992 44	57
4	·123 02	·123 97	8·066 7	·992 40	56
5	·123 31	·124 26	8·047 6	·992 37	55
	·123 60	·124 56	8·028 5	·992 33	54
4	·123 89	·124 85	8·009 5	·992 30	53
8	·124 18	·125 15	7·990 6	·992 26	52
9	·124 47	·125 44	7·971 8	·992 22	51
10	·124 76	·125 74	7·953 0	·992 19	49 50
11	·125 04	·126 03	7·934 4	·992 15	
12	·125 33	·126 33	7·915 8	·992 11	48
13	·125 62	·126 62	7·897 3	·992 08	47
14	·125 91	·126 92	7·878 9	·992 04	46
15	·126 20	·127 22	7·860 6	·992 00	45
16	·126 49	·127 51	7·842 4	·991 97	44
17	·126 78	·127 81	7·824 3	·991 93	43
18	·127 06	·128 10	7·806 2	·991 89	42
19	·127 35	·128 40	7·788 2	·991 86	41
20	·127 64	·128 69	7·770 4	·991 82	40
21	·127 93	·128 99	7·752 5	·991 78	39
22	·128 22	·129 29	7·734 8	·991 75	38
23	·128 51	·129 58	7·717 1	·991 71	37
24	·128 80	·129 88	7·699 6	·991 67	36
25	·129 08	·130 17	7·682 1	·991 63	
26	·129 37	·130 47	7·664 7	·991 60	35
27	·129 66	·130 76	7·647 3	·991 56	34 33
28	·129 95	·131 06	7·630 1	·991 52	32
29	·130 24	·131 36	7·612 9	·991 48	31
30	·130 53	·131 65	7·595 8	·991 44	30
31	·130 81	·131 95	7·578 7	·991 41	29
32	·131 10	·132 24	7·561 8	·991 37	28
33	·131 39	·132 54	7·544 9	·991 33	27
34	·131 68	·132 84	7·528 1	·991 29	26
35	·131 97	·133 13	7·511 3	·991 25	25
36	·132 26	·133 43	7·494 7	·991 22	24
37	·132 54	·133 72	7·478 1	·991 18	23
38	·132 83	·134 02	7·461 5	·991 14	22
39	·133 12	·134 32	7·445 1	·991 10	21
40	·133 41	·134 61	7·428 7	·991 06	20
41	·133 70	·134 91	7·412 4	·991 02	19
42	·133 99	·135 21	7·396 2	·990 98	18
43	·134 27	·135 50	7·380 0	·990 94	17
44	·134 56	·135 80	7·353 9	·990 91	1 6
45	·134 85	·136 09	7·347 9	·990 87	15
46	·135 14	·136 39	7·331 9	·990 83	14
47	·135 43	·136 69	7·316 0	·990 79	13
48	·135 72	·136 98	7·300 2	·990 75	1 2
19	·136 00	·137 28	7·284 4	·990 71	11
50	·136 29	·137 58	7·268 7	·990 67	10
51	·136 58	·137 87	7·253 1	·990 63	9
52	·136 87	·138 17	7·237 5	·990 59	8
53	·137 16	·138 46	7·222 0	·990 55	7
54	·137 44	·138 76	7·206 6	·990 51	6
55	·137 73	·139 06	7·191 2	·990 47	5
56	·138 02	·139 35	7·175 9	·990 43	4
57	·138 31	·139 65	7·160 7	·990 39	3
58	·138 60	·139 95	7·145 5	·990 35	2
59	·138 89	·140 24	7·130 4	·990 31	1
50	·139 17	·140 54	7·115 4	·990 27	0
'	Cos.	Cot.	Tan.	Sin.	'

1° (277°)

(262°) 82

(Continued)

TABLE 7A NATURAL FUNCTIONS — *Contd*

8° (188°)

(351) 171

9° (189°)

(350°) 170°

'	Sin.	Tan.	Cot.	cos.	'	'	Sin.	Tan.	Cot.	Cos.	'
0	·139 17	·140 54	7.115 4	·990 27	60	0	·156 43	·158 38	6.313 8	·987 69	60
1	·139 46	·140 84	7·100 4	·990 23	59	1	·156 72	·158 68	6·301 9	·987 64	59
2	·139 75	·141 13	7·085 5	·990 19	58	2	·157 01	·158 98	6·290 1	·987 60	58
3	·140 04	·141 43	7.070 6	·990 15	57	3	·157 30	·159 28	6.278 3	·987 55	57
4	·140 33	·141 73	7.055 a	·990 11	56	4	·157 58	·159 58	6.266 6	·987 51	56
5	·140 61	·142 02	7·041 0	·990 06	55	5	·157 87	·159 88	6·254 9	·987 46	55
6	·140 90	·142 32	7·026 4	·990 02	54	6	·158 16	·160 17	6·243	·987 41	54
7	·141 19	·142 62	7·011 7	·989 98	53	7	·158 45	·160 47	6·231 a	·987 37	53
8	·141 48	·142 91	6·997 2	·989 94	52	8	·158 73	·160 77	6.220 0	·987 32	52
9	·141 77	·143 21	6·982 7	·989 90	51	9	·159 02	·161 07	6.208 5	·987 28	51
10	·142 05	·143 51	6.968 2	·989 86	50	10	·159 31	·161 37	6.197 0	·987 23	50
11	·142 34	·143 81	6.953 8	·989 82	49	11	·159 59	·161 67	6·185	·987 18	49
12	·142 63	·144 10	6.939 5	·989 78	48	12	·159 88	·161 96	6·174 4	·987 14	48
13	·142 92	·144 40	6.925 2	·989 73	47	13	·160 17	·162 26	6.162 8	·987 09	47
14	·143 20	·144 70	6.911 0	·989 69	46	14	·160 46	·162 56	6.151 5	·987 04	46
15	·143 49	·144 99	6·896 9	·989 65	45	15	·160 74	·162 86	6·140 2	·987 00	45
16	·143 78	·145 29	6·882 8	·989 61	44	16	·161 03	·163 16	6.129 0	·986 95	44
17	·144 07	·145 59	6·868 7	·989 57	43	17	·161 32	·163 46	6.117 8	·986 90	43
18	·144 36	·145 88	6.854 8	·989 53	42	18	·161 60	·163 76	6.106 6	·986 86	42
19	·144 64	·146 18	6.840 8	·989 48	41	19	·161 89	·164 05	6.095 5	·986 81	41
20	·144 93	·146 48	6.826 9	·989 44	40	20	·162 18	·164 35	6.084 4	·986 76	40
21	·145 22	·146 78	6.813 1	·989 40	39	21	·162 46	·164 65	6·073 4	·986 71	39
22	·145 51	·147 07	6.799 4	·989 36	38	22	·162 75	·164 95	6·062 4	·986 67	38
23	·145 80	·147 37	6.785 6	·989 31	37	23	·163 04	·165 25	6.051 4	·986 62	37
24	·146 08	·147 67	6.772 0	·989 27	36	24	·163 33	·165 55	6·040 5	·986 57	36
25	·146 37	·147 96	6.758 4	·989 23	35	25	·163 61	·165 85	6.029 6	·986 52	35
26	·146 66	·148 26	6.744 8	·989 19	34	26	·163 90	·166 15	6·018 8	·986 48	34
27	·146 95	·148 56	6.731 3	·989 14	33	27	·164 19	·166 45	6·008 0	·986 43	33
28	·147 23	·148 86	6.717 9	·989 10	32	28	·164 47	·166 74	5·997 2	·986 38	32
29	·147 52	·149 15	6·704 5	·989 06	31	29	·164 76	·167 04	5.986 5	·986 33	31
30	·147 81	·149 45	6.691 2	·989 02	30	30	·165 05	·167 34	5.975 a	·986 29	30
31	·148 10	·149 75	6.677 9	·988 97	29	31	·165 33	·167 64	5.965 1	·986 24	29
32	·148 38	·150 05	6.664 6	·988 93	28	32	·165 62	·167 94	5.954 5	·986 19	28
33	·148 67	·150 34	6.651 4	·988 89	27	33	·165 91	·168 24	5.943 9	·986 14	27
34	·148 96	·150 64	6.638 3	·988 84	26	34	·166 20	·168 54	5.933 3	·986 09	26
35	·149 25	·150 94	6.625 2	·988 80	25	35	·166 48	·168 84	5.922 8	·986 04	25
36	·149 54	·151 24	6.612 2	·988 76	24	36	·166 77	·169 14	5.912 4	·986 00	24
37	·149 82	·151 53	6·599 2	·988 71	23	37	·167 06	·169 44	5·901 9	·985 95	23
38	·150 11	·151 83	6.586 3	·988 67	22	38	·167 34	·169 74	5.891 5	·985 90	22
39	·150 40	·152 13	6·573 4	·988 63	21	39	·167 63	·170 04	5.881 1	·985 85	21
40	·150 69	·152 43	6.560 6	·988 58	20	40	·167 92	·170 33	5·870 8	·985 80	20
41	·150 97	·152 72	6.547 8	·988 54	19	41	·168 20	·170 63	5·860 5	·985 75	19
42	·151 26	·153 02	6.535 0	·988 49	18	42	·168 49	·170 93	5.850 2	·985 70	18
43	·151 55	·153 32	6.522 3	·988 45	17	43	·168 78	·171 23	5·840 0	·985 65	17
44	·151 a4	·153 62	6.509 7	·988 41	16	44	·169 06	·171 53	5.829 8	·985 61	16
45	·152 12	·153 91	6.497 1	·988 36	15	45	·169 35	·171 83	5.819 7	·985 56	15
46	·152 41	·154 21	6.484 6	·988 32	14	46	·169 64	·172 13	5·809 5	·985 51	14
47	·152 70	·154 51	6.472 1	·988 27	13	47	·169 92	·172 43	5.799 4	·985 46	13
48	·152 99	·154 81	6.459 6	·988 23	12	48	·170 21	·172 73	5·789 4	·985 41	12
49	·153 27	·155 11	6.447 2	·988 18	11	49	·170 50	·173 03	5·779 4	·985 36	11
50	·153 56	·155 40	6.434 8	·988 14	10	50	·170 78	·173 33	5·769 4	·985 31	10
51	·153 85	·155 70	6·422 5	·988 09	9	51	·171 07	·173 63	5·759 4	·985 26	9
52	·154 14	·156 00	6·410 3	·988 05	8	52	·171 36	·173 93	5.749 5	·985 21	8
53	·154 42	·156 30	6.398 0	·988 00	7	53	·171 64	·174 23	5.739 6	·985 16	7
54	·154 71	·156 60	6.385 9	·987 96	6	54	·171 93	·174 53	5.729 7	·985 11	6
55	·155 00	·156 89	6.373 7	·987 91	5	55	·172 22	·174 83	5.719 9	·985 06	5
56	·155 29	·157 19	6.361 7	·987 87	4	56	·172 50	·175 13	5·710 1	·985 01	4
57	·155 57	·157 49	6.349 6	·987 82	3	57	·172 79	·175 43	5.700 4	·984 96	3
58	·155 86	·157 79	6.337 6	·987 78	2	58	·173 08	·175 73	5·690 6	·984 91	2
59	·156 15	·158 09	6.325 7	·987 73	1	59	·173 36	·176 03	5·680 9	·984 86	1
60	·156 43	·158 38	6.313 8	·987 69	0	60	·173 65	·176 33	5.671 3	·984 81	0
'	Cos.	Cot.	Tan.	Sin.	'	'	Cos.	Cot.	Tan.	Sin.	'

98° (278)

(261) 81°

99° (279)

(260) 80°

(Continued)

TABLE 7A NATURAL FUNCTIONS — Cont'd
(349) 169

10 (190°)

11 (191°)

(348) 168°

		Tan.	Cot.	Cos.	
0	·173 65	·176 33	5.671 3	·984 81	60
1	·173 93	·176 63	5.661 7	·984 76	59
2	·174 22	·176 93	5.652 1	·984 71	58
3	·174 51	·177 23	5.642 5	·984 66	57
4	·174 79	·177 53	5.632 9	·984 61	56
5	·175 08	·177 83	5.623 4	·984 55	55
6	·175 37	·178 13	5·614 0	·894 50	54
7	·175 65	·178 43	5·604 5	·984 45	53
8	·175 94	·178 73	5·595 1	·984 40	52
9	·176 23	·179 03	5·585 7	·984 35	51
10	·176 51	·179 33	5.576 4	·984 30	50
11	·176 80	·179 63	5·567 1	·984 25	49
12	·177 08	·179 93	5.557 8	·984 20	48
13	·177 37	·180 23	5.548 5	·984 14	47
14	·177 66	·180 53	5.539 3	·984 09	46
15	·177 94	·180 83	5.530 1	·984 04	45
16	·178 23	·181 13	5·520	·983 98 99 04	44
17	·178 52	·181 43	5·511 8	·983 93	43
18	·178 80	·181 73	5.502 6	·983 89	42
19	·179 09	·182 03	5.493 6	·983 83	41
20	·179 37	·182 33	5·484 5	·983 78	40
21	·179 66	·182 63	5·475 5	·983 73	39
22	·179 95	·182 93	5·466 5	·983 68	38
23	·180 23	·183 23	5.457 5	·983 62	37
24	·180 52	·183 53	5·448 6	·983 57	36
25	·180 81	·183 84	5.439 7	·983 52	35
26	·181 09	·184 14	5·430 8	·983 47	34
27	·181 38	·184 44	5·421 9	·983 41	33
28	·181 66	·184 74	5.413 1	·983 36	32
29	·181 95	·185 04	5·404 3	·983 31	31
30	·182 24	·185 34	5.395 5	·983 25	30
31	·182 52	·185 64	5·386 8	·983 20 15	29
32	·182 81	·185 94	5·378 1	·983 15	28
33	·183 09	·186 24	5·369 4	·983 10	27
34	·183 38	·186 54	5·360 7	·983 04	26
35	·183 67	·186 84	5.352 1	·982 99	25
36	·183 95	·187 14	5.343 5	·982 94	24
37	·184 24	·187 45	5.334 9	·982 88	23
38	·184 52	·187 75	5.326 3	·982 83	22
39	·184 81	·188 05	5.317 8	·982 77	21
40	·185 09	·188 35	5·309 3	·982 72	20
41	·185 38	·188 65	5·300 8	·982 67	19
42	·185 67	·188 95	5.292 4	·982 61	18
43	·185 95	·189 25	5·283 9	·982 56	17
44	·186 24	·189 55	5·275 5	·982 50	16
45	·186 52	·189 86	5.267 2	·982 45	15
46	·186 81	·190 16	5.258 8	·982 40	14
47	·187 10	·190 46	5·250 5	·982 34	13
48	·187 38	·190 76	5.242 2	·982 29	12
49	·187 67	·191 06	5.233 9	·982 23	11
50	·187 95	·191 36	5.225 7	·982 18	10
51	·188 24	·191 66	5.217 4	·982 12	9
52	·188 52	·191 97	5·209 2	·982 07	8
53	·188 81	·192 27	5·201 1	·982 01	7
54	·189 10	·192 57	5·192 9	·981 96	6
55	·189 38	·192 87	5.184 8	·981 90	5
56	·189 67	·193 17	5.176 7	·981 85	4
57	·189 95	·193 47	5.168 6	·981 79	3
58	·190 24	·193 78	5.160 6	·981 74	2
59	·190 52	·194 08	5·152 6	·981 68	1
60	·190 81	·194 38	5·144 6	·981 63	0
	Cos.	Cot.	Tan.	Sin.	

	Sin.	Tan.	Cot.	Cos.	
0	·190 81	·194 38	5·144 6	·981 63	60
1	·191 09	·194 68	5·136 6	·981 57	59
2	·191 38	·194 98	5·128 6	·981 52	58
3	·191 67	·195 29	5·120 7	·981 46	57
4	·191 95	·195 59	5.112 8	·981 40	56
5	·192 24	·195 89	5·104 9	·981 35	55
6	·192 52	·196 19	5.097 0	·981 29	54
7	·192 81	·196 49	5·089 2	·981 24	53
8	·193 09	·196 80	5·081 4	·891 18	52
9	·193 38	·197 10	5.073 6	·981 12	51
10	·193 66	·197 40	5·065 8	·981 07	50
11	·193 95	·197 70	5.058 1	·981 01	49
12	·194 23	·198 01	5·050 4	·980 96	48
13	·194 52	·198 31	5.042 7	·980 90	47
14	·194 81	·198 61	5·035 0	·980 84	46
15	·195 09	·198 91	5·027 3	·980 79	45
16	·195 38	·199 21	5·019 7	·980 73	44
17	·195 66	·199 52	5.012 1	·980 67	43
18	·195 95	·199 82	5·004 5	·980 61	42
19	·196 23	·200 12	4.996 9	·980 56	41
20	·196 52	·200 42	4.989 4	·980 50	40
21	·196 80	·200 73	4·981 9	·980 44	39
22	·197 09	·201 03	4.974 4	·980 39	38
23	·197 37	·201 33	4.966 9	·980 33	37
24	·197 66	·201 64	4.959 4	·980 27	36
25	·197 94	·201 94	4.952 0	·980 21	35
26	·198 23	·202 24	4.944 6	·980 16	34
27	·198 51	·202 54	4·937 2	·980 10	33
28	·198 80	·202 85	4.929 8	·980 04	32
29	·199 08	·203 15	4.922 5	·979 98	31
30	·199 37	·203 45	4·915 2	·979 92	30
31	·199 65	·203 76	4·907 8	·979 87	29
32	·199 94	·204 06	4·900 6	·979 81	28
33	·200 22	·204 36	4.893 3	·979 75	27
34	·200 51	·204 66	4.886 0	·979 69	26
35	·200 79	·204 97	4.878 8	·979 63	25
36	·201 08	·205 27	4·871 6	·979 58	24
37	·201 36	·205 57	4.864 4	·979 52	23
38	·201 65	·205 88	4.857 3	·979 46	22
39	·201 93	·206 18	4.850 1	·979 40	21
40	·202 22	·206 48	4.843 0	·979 34	20
41	·202 50	·206 79	4.835 9	·979 38	19
42	·202 79	·207 09	4.828 8	·979 22	18
43	·203 07	·207 39	4.821 8	·979 16	17
44	·203 36	·207 70	4.814 7	·979 10	16
45	·203 64	·208 00	4.807 7	·979 05	15
46	·203 93	·208 30	4·800 7	·978 99	14
47	·204 21	·208 61	4.793 7	·978 93	13
48	·204 50	·208 91	4.786 7	·978 87	12
49	·204 78	·209 21	4.779 8	·978 81	11
50	·205 07	·209 52	4.772 9	·978 75	10
51	·205 35	·209 82	4.765 9	·978 69	9
52	·205 63	·210 13	4.759 1	·978 63	8
53	·205 92	·210 43	4·752 2	·978 57	7
54	·206 20	·210 73	4.745 3	·978 51	6
55	·206 49	·211 04	4.738 5	·978 45	5
56	·206 77	·211 34	4.731 7	·978 39	4
57	·207 06	·211 64	4.724 9	·978 33	3
58	·207 34	·211 95	4.718 1	·978 27	2
59	·207 63	·212 25	4·711 4	·978 21	1
50	·207 91	·212 56	4.704 6	·978 15	0
	Cos.	Cot.	Tan.	Sin.	

100 (280)

(259) 79

101° (281°)

(258) 78°

TABLE 7A. NATURAL FUNCTIONS — *Contd*
(347°) 167 13° (193)

12° (192)

(346°) 166

	Sin.	Tan.	Cot.	Cos.	
0	·207 91	·212 56	4.704 6	·978 15	60
1	·208 20	·212 86	4.697 9	·978 09	59
2	·208 48	·213 16	4.691 2	·978 03	58
3	·208 77	·213 47	4.684 5	·977 97	57
4	·209 05	·213 77	4.677 9	·977 91	56
5	·209 33	·214 08	4.671 2	·977 84	55
6	·209 62	·214 38	4.664 6	·977 78	54
7	·209 90	·214 69	4.658 0	·977 72	53
8	·210 19	·214 99	4.651 4	·977 66	52
9	·210 47	·215 29	4.644 8	·977 60	51
10	·210 76	·215 60	4.638 2	·977 54	50
11	·211 04	·215 90	4.631 7	·977 48	49
12	·211 32	·216 21	4.625 2	·977 42	48
13	·211 61	·216 51	4.618 7	·977 35	47
14	·211 89	·216 82	4.612 2	·977 29	46
15	·212 18	·217 12	4.605 7	·977 23	45
16	·212 46	·217 43	4.599 3	·977 17	44
17	·212 75	·217 73	4.592 8	·977 11	43
18	·213 03	·218 04	4.586 4	·977 05	42
19	·213 31	·218 34	4.580 0	·976 98	41
20	·213 60	·218 64	4.573 6	·976 92	40
21	·213 88	·218 95	4.567 3	·976 86	39
22	·214 17	·219 25	4.560 9	·976 80	38
23	·214 45	·219 56	4.554 6	·976 73	37
24	·214 74	·219 86	4.548 3	·976 67	36
25	·215 02	·220 17	4.542 0	·976 61	35
26	·215 30	·220 47	4.535 7	·976 55	34
27	·215 59	·220 78	4.529 4	·976 48	33
28	·215 87	·221 08	4.523 2	·976 42	32
29	·216 16	·221 39	4.516 9	·976 36	31
30	·216 44	·221 69	4.510 7	·976 30	30
31	·216 72	·222 00	4.504 5	·976 23	29
32	·217 01	·222 31	4.498 3	·976 17	28
33	·217 29	·222 61	4.492 2	·976 11	27
34	·217 58	·222 92	4.486 0	·976 04	26
35	·217 86	·223 22	4.479 9	·975 98	25
36	·218 14	·223 53	4.473 7	·975 92	24
37	·218 43	·223 83	4.467 6	·975 85	23
38	·218 71	·224 14	4.461 5	·975 79	22
39	·218 99	·224 44	4.455 5	·975 73	21
40	·219 28	·224 75	4.449 4	·975 66	20
41	·219 56	·225 05	4.443 4	·975 60	19
42	·219 85	·225 36	4.437 3	·975 53	18
43	·220 13	·225 67	4.431 3	·975 47	17
44	·220 41	·225 97	4.425 3	·975 41	16
45	·220 70	·226 28	4.419 4	·975 34	15
46	·220 98	·226 58	4.413 4	·975 28	14
47	·221 26	·226 89	4.407 5	·975 21	13
48	·221 55	·227 19	4.401 5	·975 15	12
49	·221 83	·227 50	4.395 6	·975 08	11
50	·222 12	·227 81	4.389 7	·975 02	10
51	·222 40	·228 11	4.383 8	·974 96	9
52	·222 68	·228 42	4.377 9	·974 89	8
53	·222 97	·228 72	4.372 1	·974 83	7
54	·223 25	·229 03	4.366 2	·974 76	6
55	·223 53	·229 34	4.360 4	·974 70	5
56	·223 82	·229 64	4.354 6	·974 63	4
57	·224 10	·229 95	4.348 8	·974 57	3
58	·224 38	·230 26	4.343 0	·974 50	2
59	·224 67	·230 56	4.337 2	·974 44	1
60	·224 95	·230 87	4.331 5	·974 37	0
	Cos.	Cot.	Tan.	Sin.	

	Sin.	Tan.	cot.	Cos.	
0	·224 95	·230 87	4.331 5	·974 37	60
1	·225 25	·231 17	4.325 7	·974 30	59
2	·225 52	·231 48	4.320 0	·974 24	58
3	·226 20	·231 79	4.314 3	·974 17	57
4	·226 48	·232 09	4.308 6	·974 11	56
5	·226 77	·232 40	4.302 9	·974 04	55
6	·227 05	·232 71	4.297 2	·973 98	54
7	·227 34	·233 01	4.291 6	·973 91	53
8	·227 62	·233 32	4.285 9	·973 84	52
9	·227 91	·233 63	4.2803	·973 78	51
10	·228 20	·233 93	4.274 7	·973 71	50
11	·228 48	·234 24	4.269 1	·973 65	49
12	·228 77	·234 55	4.263 5	·973 58	48
13	·229 05	·235 16	4.258 0	·973 51	47
14	·229 34	·235 47	4.252 4	·973 45	46
15	·229 62	·235 78	4.246 8	·973 38	45
16	·229 91	·236 08	4.241 3	·973 31	44
17	·230 20	·236 39	4.235 8	·973 25	43
18	·230 48	·236 70	4.230 3	·973 18	42
19	·230 77	·237 00	4.224 8	·973 11	41
20	·231 05	·237 31	4.219 3	·973 04	40
21	·231 34	·237 62	4.213 9	·972 98	39
22	·231 62	·237 93	4.208 4	·972 91	38
23	·231 91	·238 23	4.203 0	·972 84	37
24	·232 20	·238 54	4.197 6	·972 78	36
25	·232 48	·238 85	4.192 2	·972 71	35
26	·232 77	·239 16	4.186 8	·972 64	34
27	·233 05	·239 46	4.181 4	·972 57	33
28	·233 34	·239 77	4.176 0	·972 51	32
29	·233 62	·240 08	4.170 6	·972 44	31
30	·233 91	·240 39	4.165 3	·972 37	30
31	·234 20	·240 69	4.160 0	·972 30	29
32	·234 48	·241 00	4.154 7	·872 23	28
33	·234 77	·241 31	4.149 3	·972 17	27
34	·235 05	·241 62	4.144 1	·972 10	26
35	·235 34	·241 93	4.138 8	·972 03	25
36	·235 62	·242 23	4.133 5	·971 96	24
37	·235 91	·242 54	4.128 2	·971 89	23
38	·236 20	·243 16	4.123 0	·971 82	22
39	·236 48	·243 47	4.117 8	·971 76	21
40	·236 77	·243 77	4.112 6	·971 69	20
41	·237 05	·244 08	4.107 4	·971 62	19
42	·237 34	·244 39	4.102 2	·971 55	18
43	·237 62	·244 70	4.097 0	·971 48	17
44	·237 91	·245 01	4.091 8	·971 41	16
45	·238 20	·245 32	4.086 7	·971 34	15
46	·238 48	·245 62	4.081 5	·971 27	14
47	·238 77	·246 24	4.076 4	·971 20	13
48	·239 05	·246 55	4.071 3	·971 13	12
49	·239 34	·247 17	4.066 2	·971 06	11
50	·239 62	·247 48	4.061 1	·971 00	10
51	·239 91	·248 09	4.056 0	·970 93	9
52	·240 20	·248 40	4.050 9	·970 86	8
53	·240 48	·248 71	4.045 8	·970 79	7
54	·240 77	·249 02	4.040 8	·970 72	6
55	·241 05	·249 33	4.035 8	·970 65	5
56	·241 34	·249 64	4.030 8	·970 58	4
57	·241 62	·250 00	4.025 7	·970 51	3
58	·241 91	·250 31	4.020 7	·970 44	2
59	·242 20	·250 62	4.015 8	·970 37	1
60	·242 48	·250 93	4.010 8	·970 30	0
	Cos.	Cot.	Tan	Sin.	

102° (282°)

(257°) 77°

103° (283°)

(2.56) 76°

(Continued)

TABLE 7A NATURAL FUNCTIONS- *Cont'd*

14° (194°)

(345°) 165°

15° (195°)

(344°) 164°

	Sin.	Tan.	Cot.	Cos.			Sin.	Tan.	Cot.	Cos.	
0	.241 92	.249 33	4.010 8	.970 30	60	0	.258 82	.267 95	3.732 1	.965 93	60
1	.242 20	.249 64	4.005 8	.970 23	59	1	.259 10	.268 26	3.727 7	.965 85	59
2	.242 49	.249 95	4.000 9	.970 15	58	2	.259 38	.268 57	3.723 4	.965 78	58
3	.242 77	.250 26	3.995 9	.970 08	57	3	.259 66	.268 88	3.719 1	.965 70	57
4	.243 05	.250 56	3.991 0	.970 01	56	4	.259 94	.269 20	3.734 8	.965 62	56
5						5	.260 22	.269 51	3.710 5	.965 55	55
6	.243 243 62 33	.250 87	3.986 1	.969 94	55	6	.260 50	.269 82	3.706 2	.965 47	54
7		.251 18	3.981 2	.969 87	54	7	.260 79	.270 13	3.701 9	.965 40	53
8	.243 90	.251 49	3.976 3	.969 80	53	8	.261 07	.270 44	3.697 6	.965 32	52
9	.244 244 46 18	.251 80	3.971 4	.969 73	52	9	.261 35	.270 76	3.693 3	.965 24	51
10		.252 11	3.966 5	.969 66	51						
11	.245 244 03 74	.252 42	3.961 7	.969 59	50	10	.261 63	.271 07	3.689 1	.965 17	50
12		.252 73	3.956 8	.969 52	49	11	.261 91	.271 38	3.684 8	.965 09	49
13	.245 245 31 59	.253 04	3.952 0	.969 45	48	12	.262 19	.271 69	3.680 6	.965 02	48
14	.245 87	.253 35	3.947 1	.969 37	47	13	.262 47	.272 01	3.676 4	.964 94	47
15		.253 66	3.942 3	.969 30	46	14	.262 75	.272 32	3.672 2	.964 86	46
16	.246 246 44 15	.253 97	3.937 5	.969 23	45	15	.263 03	.272 63	3.668 0	.964 79	45
17		.254 28	3.932 7	.969 16	44	16	.263 31	.272 94	3.663 8	.964 71	44
18	.246 72	.254 59	3.927 9	.969 09	43	17	.263 59	.273 26	3.659 6	.964 63	43
19	.247 00	.254 90	3.923 2	.969 02	42	18	.263 87	.273 57	3.655 4	.964 56	42
	.247 28	.255 21	3.918 4	.968 94	41	19	.264 15	.273 88	3.651 2	.964 48	41
20		.255 52	3.913 6	.968 87	40	20	.264 43	.274 19	3.647 0	.964 40	40
22	.247 247 56 04	.255 83	3.908 9	.968 80	39	21	.264 71	.274 51	3.642 9	.964 33	39
23	.248 248 41 13	.256 14	3.904 2	.968 73	38	22	.265 00	.274 82	3.638 7	.964 25	38
		.256 45	3.899 5	.968 66	37	23	.265 28	.275 13	3.634 6	.964 17	37
24	.248 69	.256 76	3.894 7	.968 58	36	24	.265 56	.275 45	3.630 5	.964 10	36
25	.248 97	.257 07	3.890 0	.968 51	35	25	.265 84	.275 76	3.626 4	.964 02	35
27	.249 25	.257 38	3.885 4	.968 44	34	26	.266 12	.276 07	3.622 2	.963 94	34
28	.249 249 02 54	.257 69	3.880 7	.968 37	33	27	.266 40	.276 38	3.618 1	.963 86	33
		.258 00	3.876 0	.968 29	32	28	.266 68	.276 70	3.614	.963 79	32
29	.250 10	.258 31	3.871 4	.968 22	31	29	.266 96	.277 01	3.610 8	.963 71	31
30	.250 38	.258 62	3.866 7	.968 15	30	30	.267 24	.277 32	3.605 9	.963 63	30
31	.250 66	.258 93	3.862 1	.968 07	29	31	.267 52	.277 64	3.601 8	.963 55	29
32		.259 24	3.857 5	.968 00	28	32	.267 80	.277 95	3.597 8	.963 47	28
33	.251 250 94 22	.259 55	3.852 8	.967 93	27	33	.268 08	.278 26	3.593 7	.963 40	27
34	.251 51	.259 86	3.848 2	.967 86	26	34	.268 36	.278 58	3.589 7	.963 32	26
35	.251 79	.260 17	3.843 6	.967 78	25	35	.268 64	.278 89	3.585 6	.963 24	25
36		.260 48	3.839 1	.967 71	24	36	.268 92	.279 21	3.581 6	.963 16	24
37	.252 252 07 35	.260 79	3.834 5	.967 64	23	37	.269 20	.279 52	3.577 6	.963 08	23
38	.252 63	.261 10	3.829 9	.967 56	22	38	.269 48	.279 83	3.573 6	.963 01	22
39	.252 91	.261 41	3.825 4	.967 49	21	39	.269 76	.280 15	3.569 6	.962 93	21
40	.253 20	.261 72	3.820 8	.967 42	20	40	.270 04	.280 46	3.565 6	.962 85	20
41	.253 48	.262 03	3.816 3	.967 34	19	41	.270 32	.280 77	3.561 6	.962 77	19
42	.253 76	.262 35	3.811 8	.967 27	18	42	.270 60	.281 09	3.557 6	.962 69	18
43	.254 04	.262 66	3.807 3	.967 19	17	43	.270 88	.281 40	3.553 6	.962 61	17
44	.254 32	.262 97	3.802 8	.967 12	16	44	.271 16	.281 72	3.549 7	.962 53	16
45	.254 60	.263 28	3.798 3	.967 05	15	45	.271 44	.282 03	3.545 7	.962 46	15
46	.254 88	.263 59	3.793 8	.966 97	14	46	.271 72	.282 34	3.541 8	.962 38	14
47	.255 16	.263 90	3.789 3	.966 90	13	47	.272 00	.282 66	3.537	.962 30	13
48	.255 45	.264 21	3.784 8	.966 82	12	48	.272 28	.282 97	3.533 8	.962 22	12
49	.255 73	.264 52	3.780 4	.966 75	11	49	.272 56	.283 29	3.530 0	.962 14	11
50	.256 01	.264 83	3.776 0	.966 67	10	50	.272 84	.283 60	3.526 1	.962 06	10
51	.256 29	.265 15	3.771 5	.966 60	9	51	.273 12	.283 91	3.522 2	.961 98	9
52	.256 57	.265 46	3.767 1	.966 53	8	52	.273 40	.284 23	3.518 3	.961 90	8
53	.256 85	.265 77	3.762 7	.966 45	7	53	.273 68	.284 54	3.514 4	.961 82	7
54	.257 13	.266 08	3.758 3	.966 38	6	54	.273 96	.284 86	3.510 5	.961 74	6
55	.257 41	.266 39	3.753 9	.966 30	5	55	.274 24	.285 17	3.506 7	.961 66	5
56	.257 69	.266 70	3.749 5	.966 23	4	56	.274 52	.285 49	3.502 8	.961 58	4
57	.257 98	.267 01	3.745 1	.966 15	3	57	.274 80	.285 80	3.498 9	.961 50	3
58	.258 26	.267 33	3.740 8	.966 08	2	58	.275 08	.286 12	3.495 1	.961 42	2
59	.258 54	.267 64	3.736 4	.966 00	1	59	.275 36	.286 43	3.491 2	.961 34	1
60	.258 82	.267 95	3.732 1	.965 93	0	60	.275 64	.286 75	3.487 4	.961 26	0
	cos.	Cot.	Tan.	Sin.			Cos.	Cot.	Tan.	Sin.	

04° (284°)

(255°) 7

105° (285°)

(254°) 74°

TABLE 7A NATURAL FUNCTIONS — *Contd*

16 (196°)

(343°) 163

17 (197°)

(342°) 162

'	Sin.	Tan.	Cot.	Cos.	'
0	·275 64	·286 75	3·487 4	·961 26	60
1		·287 06	3·483 6	·961 18	59
2	·275 276 92 20	·287 38	3·479 8	·961 10	58
3		·287 69	3·476 0	·961 02	57
4	·276 276 48 76	·288 01	3·472 2	·960 94	56
5	·277 04	·288 32	3·468 4	·960 86	55
6		·288 64	3·464 6	·960 78	54
7	·277 277 31 50	·288 9·5	3·460 8	·960 70	53
a	·277 87	·289 27	3·457 0	·960 62	52
9	·278 15	·289 58	3·453 3	·960 54	51
10	·278 43	·289 90	3·449 5	·960 46	50
11	·278 71	·290 21	3·445 a	·960 37	49
12	·278 99	·290 53	3·442 0	·960 29	48
13	·279 27	·290 84	3·438 3	·960 21	47
14	·279 55	·291 16	3·434 6	·960 13	46
15	·279 83	·291 47	3·430 8	·960 05	45
16	·280 280 39 11	·291 79	3·427 1	·959 97	44
17		·292 10	3·423 4	·959 89	43
18		·292 42	3·419 7	·959 81	42
19	·280 280 67 95	·292 74	3·416 0	·959 72	41
20	·281 23	·293 05	3·412 4	·959 64	40
21	·281 281 78 50	·293 37	3·408 7	·959 56	39
22		·293 68	3·405 0	·959 48	38
23		·294 00	3·401 4	·959 40	37
24	·282 282 06 34	·294 32	3·397 7	·959 31	36
25	·282 62	·294 63	3·394 1	·959 23	35
26		·294 95	3·390 4	·959 15	34
27	·283 283 90 18	·295 26	3·386 8	·959 07	33
28	·283 46	·295 58	3·383 2	·958 98	32
29	·283 74	·295 90	3·379 6	·958 90	31
30	·284 02	·296 21	3·375 9	·958 82	30
31		·296 53	3·372 3	·958 74	29
32	·284 284 20 57	·296 85	3·368 7	·958 65	28
a	·284 85	·297 16	3·365	·958 57	27
34	·285 13	·297 48	3·361 3	·958 49	26
35	·285 41	·297 80	3·358 0	·958 41	25
36		·298 11	3·354 4	·958 32	24
37	·285 285 60 97	·298 43	3·350 9	·958 24	23
38		·298 75	3·347 3	·958 16	22
39	·286 286 25 52	·299 06	3·343 a	·958 07	21
40	·286 80	·299 38	3·340 2	·957 99	20
a:	·287 287 08 36	·299 70	3·336 7	·957 91	19
43		·300 01	3·333 2	·957 82	18
44	·287 287 64 92	·300 33	3·329 7	·957 74	17
		·300 65	3·326 1	·957 66	16
45	·288 20	·300 97	3·322 6	·957 57	15
46	·288 47	·301 28	3·319 1	·957 49	14
47	·288 75	·301 60	3·315 6	·957 40	13
48	·289 03	·301 92	3·312 2	·957 32	12
49	·289 31	·302 24	3·308 7	·957 24	11
50	·289 59	·302 55	3·305 2	·957 15	10
51	·289 87	·302 87	3·301 7	·957 07	9
52	·290 15	·303 19	3·298 3	·956 98	8
53	·290 42	·303 51	3·294 a	·956 90	7
54	·290 70	·303 82	3·291 4	·956 81	6
55	·290 98	·304 14	3·287 9	·956 73	5
56		·304 46	3·284 5	·956 64	4
57	·291 291 26 54	·304 78	3·281 1	·956 56	3
58	·291 82	·305 09	3·277 7	·956 47	2
59	·292 09	·305 41	3·274 3	·956 39	1
60	·292 37	·305 73	3·270 9	·956 30	0
'	Cos.	Cot.	Tan.	Sin.	'

106° (286°)

(253°) 73°

107 (287°)

(252°) 72°

'	Sin.	Tan.	Cot.	Cos.	'
0	·292 37	73	3·270 9	·956 30	60
1	·292 65	05	3·267 5	·956 22	59
2	·292 93	·306 37	3·264 1	·956 13	58
3	·293 21	·306 69	3·260 7	·956 05	57
4	·293 48	·307 00	3·257 3	·955 96	56
5	·293 76	·307 32	3·253 9	·955 88	55
6	·294 04	·307 64	3·250 6	·955 79	54
7	·294 32	·307 96	3·247 2	·955 71	53
8	·294 60	·308 28	3·243 8	·955 62	52
9	·294 87	·308 60	3·240 5	·955 54	51
10	·295 15	·308 91	3·237 1	·955 45	50
11	·295 43	·309 23	3·233 8	·955 36	49
12	·295 71	·309 55	3·230 5	·955 28	48
13	·295 99	·309 87	3·227 2	·955 19	47
14	·296 26	·310 19	3·223 8	·955 11	46
15	·296 54	·310 51	3·220 5	·955 02	45
16	·296 82	·310 83	3·217 2	·954 93	44
17	·297 10	·311 15	3·213 9	·954 85	43
18	·297 37	·311 47	3·210 6	·954 76	42
19	·297 65	·311 78	3·207 3	·954 67	41
20	·297 93	·312 10	3·204 1	·954 59	40
21	·298 21	·312 42	3·200 8	·954 50	39
22	·298 49	·312 74	3·197 5	·954 41	38
23	·298 76	·313 06	3·194 3	·954 33	37
24	·299 04	·313 38	3·191 0	·954 24	36
25	·299 32	·313 70	3·187 a	·954 15	35
26	·299 60	·314 02	3·184 5	·954 07	34
27	·299 87	·314 34	3·181 3	·953 98	33
28	·300 15	·314 66	3·178 0	·953 89	32
29	·300 43	·314 98	3·174 8	·953 80	31
30	·300 71	·315 30	3·171 6	·953 72	30
31	·300 98	·315 62	3·168 4	·953 63	29
32	·301 26	·315 94	3·165 2	·953 54	28
33	·301 54	·316 26	3·162 0	·953 45	27
34	·301 82	·316 58	3·158 8	·953 37	26
35	·302 09	·316 90	3·155 6	·953 28	25
36	·302 37	·317 22	3·152 4	·953 19	24
37	·302 65	·317 54	3·149 2	·953 10	23
38	·302 92	·317 86	3·146 0	·953 01	22
39	·303 20	·318 18	3·142 9	·952 93	21
40	·303 48	·318 50	3·139 7	·952 84	20
41	·303 76	·318 82	3·136 6	·952 75	19
42	·304 03	·319 14	3·133 4	·952 66	18
43	·304 31	·319 46	3·130 3	·952 57	17
44	·304 59	·319 78	3·127 1	·952 48	16
45	·304 86	·320 10	3·124 0	·952 40	15
46	·305 14	·320 42	3·120 9	·952 31	14
47	·305 42	·320 74	3·117 8	·952 22	13
48	·305 70	·321 06	3·114 6	·952 13	12
49	·305 97	·321 39	3·111 5	·952 04	11
50	·306 25	·321 71	3·108 4	·951 95	10
51	·306 53	·322 03	3·105 3	·951 86	9
52	·306 80	·322 35	3·102 2	·951 77	8
53	·307 08	·322 67	3·099 1	·951 68	7
54	·307 36	·322 99	3·096 1	·951 59	6
55	·307 63	·323 31	3·093 0	·951 50	5
56	·307 91	·323 63	3·089 9	·951 42	4
57	·308 19	·323 96	3·086 8	·951 33	3
58	·308 46	·324 28	3·083 8	·951 24	2
59	·308 74	·324 60	3·080 7	·951 15	1
60	·309 02	·324 92	3·077 7	·951 06	0
'	Cos.	Cot.	Tan.	Sin.	'

TABLE 7A **NATURAL FUNCTIONS** — *Cont'd*
(341°) **161°** **19°** (199°)**18°** (198°)**(340°)** **160°**

'	Sin.	Tan.	Cot.	Cos.	'
1	·309 02	·324 92	3·077 7	·951 06	60
2	·309 29	·325 24	3·074 6	·950 97	59
3	·309 57	·325 56	3·071 6	·950 88	58
4	·309 85	·325 88	3·068 6	·950 79	57
5	·310 12	·326 21	3·065 5	·950 70	56
6	·310 40	·326 53	3·062 5	·950 61	55
7	·310 68	·326 85	3·059 5	·950 52	54
8	·310 95	·327 17	3·056 5	·950 43	53
9	·311 23	·327 49	3·053 5	·950 33	52
10	·311 51	·327 82	3·050 5	·950 24	51
11	·311 78	·328 14	3·047 5	·950 15	50
12	·312 06	·328 46	3·044 5	·950 06	49
13	·312 33	·328 78	3·041 5	·949 97	48
14	·312 59	·329 11	3·038 5	·949 88	47
15	·313 16	·329 43	3·035 6	·949 79	46
16	·313 44	·329 75	3·032 6	·949 70	45
17	·313 72	·330 07	3·029 6	·949 61	44
18	·313 99	·330 40	3·026 7	·949 52	43
19	·314 27	·330 72	3·023 7	·949 43	42
20	·314 54	·331 04	3·020 8	·949 33	41
21	·314 82	·331 36	3·017 8	·949 24	40
22	·315 10	·331 69	3·014 9	·949 15	39
23	·315 37	·332 01	3·012 0	·949 06	38
24	·315 63	·332 33	3·009 0	·948 97	37
25	·315 93	·332 66	3·006 1	·948 88	36
26	·316 20	·332 98	3·003 2	·948 78	35
27	·316 48	·333 30	3·000 3	·948 69	34
28	·316 75	·333 63	2·997 4	·948 60	33
29	·317 03	·333 95	2·994 5	·948 51	32
30	·317 30	·334 27	2·991 6	·948 42	31
31	·317 58	·334 60	2·988 7	·948 32	30
32	·317 86	·334 92	2·985 8	·948 23	29
33	·318 13	·335 24	2·982 9	·948 14	28
34	·318 41	·335 57	2·980 0	·948 05	27
35	·318 68	·335 89	2·977 2	·947 95	26
36	·318 96	·336 21	2·974 3	·947 86	25
37	·319 23	·336 54	2·971 4	·947 77	24
38	·319 51	·336 86	2·968 6	·947 68	23
39	·319 79	·337 18	2·965 7	·947 58	22
40	·320 06	·337 51	2·962 9	·947 49	21
41	·320 34	·337 83	2·960 0	·947 40	20
42	·320 61	·338 16	2·957 2	·947 30	19
43	·320 89	·338 48	2·954 4	·947 21	18
44	·321 16	·338 81	2·951 5	·947 12	17
45	·321 44	·339 13	2·948 7	·947 02	16
46	·321 71	·339 45	2·945 9	·946 93	15
47	·321 99	·339 78	2·943 1	·946 84	14
48	·322 27	·340 10	2·940 3	·946 74	13
49	·322 54	·340 43	2·937 5	·946 65	12
50	·322 82	·340 75	2·934 7	·946 56	11
51	·323 09	·341 08	2·931 9	·946 46	10
52	·323 37	·341 40	2·929 1	·946 37	9
53	·323 64	·341 73	2·926 3	·946 27	8
54	·323 92	·342 05	2·923 5	·946 18	7
55	·324 19	·342 38	2·920 8	·946 09	6
56	·324 47	·342 70	2·918 0	·945 99	5
57	·324 74	·343 03	2·915 2	·945 90	4
58	·325 02	·343 35	2·912 5	·945 80	3
59	·325 29	·343 68	2·909 7	·945 71	2
60	·325 57	·344 00	2·907 0	·945 61	1
					0
'	Cos.	cot.	Tan.	Sin.	'

108° (288°)(251°) **71°**

'	Sin.	Tan.	Cot.	Cos.	'
0	·325 57	·344 33	2·904 2	·945 52	60
1	·325 84	·344 65	2·901 5	·945 42	59
2	·326 12	·344 98	2·898 7	·945 33	58
3	·326 39	·345 30	2·896 0	·945 23	57
4	·326 67	·345 63	2·893 3	·945 14	56
5	·326 94	·345 96	2·890 5	·945 04	55
6	·327 22	·346 28	2·887 8	·944 95	54
7	·327 49	·346 61	2·885 1	·944 85	53
8	·327 77	·346 93	2·882 4	·944 76	52
9	·328 04	·347 26	2·879 7	·944 66	51
10	·328 32	·347 58	2·877 0	·944 57	50
11	·328 59	·347 91	2·874 3	·944 47	49
12	·328 87	·348 24	2·871 6	·944 38	48
13	·329 14	·348 56	2·868 9	·944 28	47
14	·329 42	·348 89	2·866 2	·944 18	46
15	·329 69	·349 22	2·863 6	·944 09	45
16	·329 97	·349 54	2·860 9	·943 99	44
17	·330 24	·349 87	2·858 2	·943 90	43
18	·330 51	·350 20	2·855 6	·943 80	42
19	·330 79	·350 52	2·852 9	·943 70	41
20	·331 06	·350 85	2·850 2	·943 61	40
21	·331 34	·351 18	2·847 6	·943 51	39
22	·331 61	·351 50	2·844 9	·943 42	38
23	·331 89	·351 83	2·842 3	·943 32	37
24	·332 16	·352 16	2·839 7	·943 22	36
25	·332 44	·352 48	2·837 0	·943 13	35
26	·332 71	·352 81	2·834 4	·943 03	34
27	·332 98	·353 14	2·831 8	·942 93	33
28	·333 26	·353 46	2·829 1	·942 84	32
29	·333 53	·353 79	2·826 5	·942 74	31
30	·333 81	·354 12	2·823 9	·942 64	30
31	·334 08	·354 45	2·821 3	·942 54	29
32	·334 36	·354 77	2·818 7	·942 45	28
33	·334 63	·355 10	2·816 1	·942 35	27
34	·334 90	·355 43	2·813 5	·942 25	26
35	·335 18	·355 76	2·810 9	·942 15	25
36	·335 45	·356 08	2·808 3	·942 06	24
37	·335 73	·356 41	2·805 7	·941 96	23
38	·336 00	·356 74	2·803 2	·941 86	22
39	·336 27	·357 07	2·800 6	·941 76	21
40	·336 55	·357 40	2·798 0	·941 67	20
41	·336 82	·357 72	2·795 5	·941 57	19
42	·337 10	·358 05	2·792 9	·941 47	18
43	·337 37	·358 38	2·790 3	·941 37	17
44	·337 64	·358 71	2·787 8	·941 27	16
45	·337 92	·359 04	2·785 2	·941 18	15
46	·338 19	·359 37	2·782 7	·941 08	14
47	·338 46	·359 69	2·780 1	·940 98	13
48	·338 74	·360 02	2·777 6	·940 88	12
49	·339 01	·360 35	2·775 1	·940 78	11
50	·339 29	·360 68	2·772 5	·940 68	10
51	·339 56	·361 01	2·770 0	·940 58	9
52	·339 83	·361 34	2·767 5	·940 49	8
53	·340 11	·361 67	2·765 0	·940 39	7
54	·340 38	·361 99	2·762 5	·940 29	6
55	·340 65	·362 32	2·760 0	·940 19	5
56	·340 93	·362 65	2·757 5	·940 09	4
57	·341 20	·362 98	2·755 0	·939 99	3
58	·341 47	·363 31	2·752 5	·939 89	2
59	·341 75	·363 64	2·750 0	·939 79	1
60	·342 02	·363 97	2·747 5	·939 69	0
'	cos.	cot.	Tan.	Sin.	'

109° (289°)**(250°)** **70°**

(Continued)

TABLE PA NATURAL FUNCTIONS — Contd

20° (200°)

(339°) 159°

21° (201°)

(338°) 158°

'	Sin.	Tan.	Cot.	Cos.	'
0	·342 02	·363 97	2.747 5	·939 69	60
1	·342 29	·364 30	2.745 0	·939 59	59
2	·342 57	·364 63	2.742 5	·939 49	58
3	·342 84	·364 96	2.740 0	·939 39	57
4	·343 11	·365 29	2.737 6	·939 29	56
5	·343 39	·365 62	2.735 1	·939 19	55
6	·343 66	·365 95	2.732 6	·939 09	54
7	·343 93	·366 28	2.730 2	·938 99	53
8	·344 21	·366 61	2.727 7	·938 89	52
9	·344 48	·366 94	2.725 3	·938 79	51
10	·344 7.5	·367 27	2.722 8	·938 69	50
11	·345 03	·367 60	2.720 4	·938 59	49
12	·345 30	·367 93	2.717 9	·938 49	48
13	·245 57	·368 26	2.715 5	·938 39	47
14	·345 84	·368 59	2.713 0	·938 29	46
15	·346 12	·368 92	2.710	·938 19	45
16	·346 39	·369 25	2.708 4	·938 09	44
17	·346 66	·369 58	2.705 8	·937 99	43
18	·346 94	·369 91	2.703 4	·937 89	42
19	·347 21	·370 24	2.700 9	·937 79	41
20	·347 48	·370 57	2.698 5	·937 69	40
21	·347 75	·370 90	2.696 1	·937 59	39
22	·348 03	·371 23	2.693 7	·937 48	38
23	·348 30	·371 57	2.691 3	·937 38	37
24	·348 57	·371 90	2.688 9	·937 28	36
25	·348 84	·372 23	2.686 5	·937 18	35
26	·349 12	·372 56	2.684 1	·937 08	34
27	·349 39	·372 89	2.681 8	·936 98	33
28	·349 66	·373 22	2.679 4	·936 88	32
29	·349 93	·373 55	2.677 0	·936 77	31
30	·350 21	·373 88	2.674 6	·936 67	30
31	·350 48	·374 22	2.672 3	·936 57	29
32	·350 75	·374 55	2.669 9	·936 47	28
33	·351 02	·374 88	2.667 5	·936 37	27
34	·351 30	·375 21	2.665 2	·936 26	26
35	·351 57	·375 54	2.662 8	·936 16	25
36	·351 84	·375 88	2.660 5	·936 06	24
37	·352 11	·376 21	2.658 1	·935 96	23
38	·352 39	·376 54	2.655 8	·935 85	22
39	·352 66	·376 87	2.653 4	·935 75	21
40	·352 93	·377 20	2.651 1	·935 65	20
41	·353 20	·377 54	2.648 8	·935 5.5	19
42	·353 47	·377 87	2.646 4	·935 44	18
43	·353 75	·378 20	2.644 1	·935 34	17
44	·354 02	·378 53	2.641 8	·935 24	16
45	·354 29	·378 87	2.639 5	·935 14	15
46	·354 56	·379 20	2.637 1	·935 03	14
47	·354 84	·379 53	2.634 8	·934 93	13
48	·355 11	·379 86	2.632 5	·934 83	12
49	·355 38	·380 20	2.630 2	·934 72	11
50	·355 65	·380 53	2.627 9	·934 62	10
51	·355 92	·380 86	2.625 6	·934 52	9
52	·356 19	·381 20	2.623 3	·934 41	8
53	·356 47	·381 53	2.621 0	·934 31	7
54	·356 74	·381 86	2.618 7	·934 20	6
55	·357 01	·382 20	2.616 5	·934 10	5
56	·357 28	·382 53	2.614 2	·934 00	4
57	·357 55	·382 86	2.611 9	·933 89	3
58	·357 82	·383 20	2.609 6	·933 79	2
59	·358 10	·383 53	2.607 4	·933 68	1
60	·358 37	·383 86	2.605 1	·933 58	0
'	Cos.	Cot.	Tan.	Sin.	'

'		Tan.	Cot.	cos.	'
0	·358 37	·383 86	2.605 1	·933 58	60
1	·358 64	·384 20	2.602 8	·933 48	59
2	·358 91	·384 53	2.600 6	·933 37	58
3	·359 18	·384 87	2.598 3	·933 27	57
4	·359 45	·385 20	2.596 1	·933 16	56
5	·359 73	·385 53	2.593 8	·933 06	55
6	·360 00	·385 87	2.591 6	·932 95	54
7	·360 27	·386 20	2.589 3	·932 85	53
8	·360 54	·386 54	2.587 1	·932 74	52
9	·360 81	·386 87	2.584 8	·932 64	51
10	·361 08	·387 21	2.582 6	·932 53	50
11	·361 3.5	·387 54	2.580 4	·932 43	49
12	·361 62	·387 87	2.578 2	·932 32	48
13	·361 90	·388 21	2.575 9	·932 22	47
14	·362 17	·388 54	2.573 7	·932 11	46
15	·362 44	·388 88	2.571 5	·932 01	45
16	·362 71	·389 21	2.569 3	·931 90	44
17	·362 98	·389 55	2.567 1	·931 80	43
18	·363 25	·389 88	2.564 9	·931 69	42
19	·363 52	·390 22	2.562 7	·931 59	41
20	·363 79	·390 55	2.560 5	·931 48	40
21	·364 06	·390 89	2.558 3	·931 37	39
22	·364 34	·391 22	2.556 1	·931 27	38
23	·364 61	·391 56	2.553 9	·931 16	37
24	·364 88	·391 90	2.551 7	·931 06	36
25	·365 15	·392 23	2.549 5	·930 95	35
26	·365 42	·392 57	2.547 3	·930 84	34
27	·365 69	·392 90	2.545 2	·930 74	33
28	·365 96	·393 24	2.543 0	·930 63	32
29	·366 23	·393 57	2.540 8	·930 52	31
30	·266 50	·393 91	2.538 6	·930 42	30
31	·366 77	·394 25	2.536 5	·930 31	29
32	·367 04	·394 58	2.534 3	·930 20	28
33	·367 31	·394 92	2.532 2	·930 10	27
34	·367 58	·395 26	2.530 0	·929 99	26
35	·367 85	·395 59	2.527 9	·929 88	25
36	·368 12	·395 93	2.525 7	·929 78	24
37	·368 39	·396 26	2.523 6	·929 67	23
38	·368 67	·396 60	2.521 4	·929 56	22
39	·368 94	·396 94	2.519 3	·929 45	21
40	·369 21	·397 27	2.517 2	·929 35	20
41	·369 48	·397 61	2.515 0	·929 24	19
42	·369 7.5	·397 95	2.512 9	·929 13	18
43	·370 02	·398 29	2.510 8	·929 02	17
44	·370 29	·398 62	2.508 6	·928 92	16
45	·370 56	·398 96	2.506 5	·928 81	15
46	·370 83	·399 30	2.504 4	·928 70	14
47	·371 10	·399 63	2.502 3	·928 59	13
48	·371 37	·399 97	2.500 2	·928 49	12
49	·371 64	·400 31	2.498 1	·928 38	11
50	·371 91	·400 65	2.496 0	·928 27	10
51	·372 18	·400 98	2.493 9	·928 16	9
52	·372 4.5	·401 32	2.491 8	·928 05	8
53	·372 72	·401 66	2.489 7	·927 94	7
54	·372 99	·402 00	2.487 6	·927 84	6
55	·373 26	·402 34	2.485 5	·927 73	5
56	·373 53	·402 67	2.483 4	·927 62	4
57	·373 80	·403 01	2.481 3	·927 51	3
58	·374 07	·403 35	2.479 2	·927 40	2
59	·374 34	·403 69	2.477 2	·927 29	1
60	·374 61	·404 03	2.475 1	·927 18	0
'	Cos.	Cot.	Tan.	Sin.	'

110° (290°)

(249°) 69°

111° (291°)

(248°) 68

(Continued)

TABLE 7A. NATURAL FUNCTIONS — *Contd*

22° (202°)

(337°) 157

23 (203)

(336°) 156

	Sin.	Tan.	Cot.	Cos.	'
0	.374 61	.404 03	2.475 1	.927 18	60
1	.374 88	.404 36	2.473 0	.927 07	59
2	.375 15	.404 70	2.470 9	.926 97	58
3	.375 42	.405 04	2.468 9	.926 86	57
4	.375 69	.405 38	2.466 8	.926 75	56
5	.375 95	.405 72	2.464 8	.926 64	55
6	.376 22	.406 06	2.462 7	.926 53	54
7	.376 49	.406 40	2.460 6	.926 42	53
8	.376 76	.406 74	2.458 6	.926 31	52
9	.377 03	.407 07	2.456 6	.926 20	51
10	.377 30	.407 41	2.454 5	.926 09	50
11	.377 57	.407 75	2.452 5	.925 98	49
12	.377 84	.408 09	2.450 4	.925 87	48
13	.378 11	.408 43	2.448 4	.925 76	47
14	.378 38	.408 77	2.446 4	.925 65	46
15	.378 65	.409 11	2.444 3	.925 54	45
16	.378 92	.409 45	2.442 3	.925 43	44
17	.379 19	.409 79	2.440 3	.925 32	43
18	.379 46	.410 13	2.438 3	.925 21	42
19	.379 73	.410 47	2.436 2	.925 10	41
20	.379 99	.410 81	2.434 2	.924 99	40
21	.380 26	.411 15	2.432 2	.924 88	39
22	.380 53	.411 49	2.430 2	.924 77	38
23	.380 80	.411 83	2.428 2	.924 66	37
24	.381 07	.412 17	2.426 2	.924 55	36
25	.381 34	.412 51	2.424 2	.924 44	35
26	.381 61	.412 85	2.422 2	.924 32	34
27	.381 88	.413 19	2.420 2	.924 21	33
28	.382 15	.413 53	2.418 2	.924 10	32
29	.382 41	.413 87	2.4162	.923 99	31
30	.382 68	.414 21	2.414 2	.923 88	30
31	.382 95	.414 55	2.412 2	.923 77	29
32	.383 22	.414 90	2.410 2	.923 66	28
33	.383 49	.415 24	2.408 3	.923 55	27
34	.383 76	.415 58	2.406 3	.923 43	26
35	.384 03	.415 92	2.404 3	.923 32	25
36	.384 30	.416 26	2.402 3	.923 20	24
37	.384 56	.416 60	2.400 4	.923 10	23
38	.384 83	.416 94	2.398 4	.922 99	22
39	.385 10	.417 28	2.396 4	.922 87	21
40	.385 37	.417 63	2.394 5	.922 76	20
41	.385 64	.417 97	2.392 5	.922 65	19
42	.385 91	.418 31	2.390 6	.922 54	18
43	.386 17	.418 65	2.388 6	.922 43	17
44	.386 44	.418 99	2.386 7	.922 33	16
45	.386 71	.419 33	2.3847	.922 20	15
46	.386 98	.419 68	2.382 8	.922 09	14
47	.387 25	.420 02	2.380 8	.921 98	13
48	.387 52	.420 36	2.378 9	.921 86	12
49	.387 78	.420 70	2.377 0	.921 75	11
50	.388 05	.421 05	2.375 0	.921 64	10
51	.388 32	.421 39	2.373 1	.921 52	9
52	.388 59	.421 73	2.371 2	.921 41	8
53	.388 86	.422 07	2.369 3	.921 30	7
54	.389 12	.422 42	2.367 3	.921 19	6
55	.389 39	.422 76	2.365 4	.921 07	5
56	.389 66	.423 10	2.363 5	.920 96	4
57	.389 93	.423 45	2.361 6	.920 85	3
58	.390 20	.423 79	2.359 7	.920 73	2
59	.390 46	.424 13	2.357 8	.920 62	1
60	.390 73	.424 47	2.355 9	.920 50	0
	Cos.	Cot.	Tan.	Sin.	'

112 (292)

(247°) 67°

	Sin	Tan.	Cot.	Cos.	'
0	.390 73	.424 47	2.355 9	.920 50	60
1	.391 00	.424 82	2.353 9	.920 39	59
2	.391 27	.425 16	2.352 0	.920 28	58
3	.391 53	.425 51	2.350 1	.920 16	57
4	.391 80	.425 85	2.348 3	.920 05	56
5	.392 07	.426 19	2.346 5	.919 94	55
6	.392 34	.426 53	2.344 6	.919 82	54
7	.392 60	.426 88	2.342 6	.919 71	53
8	.392 87	.427 22	2.340 7	.919 59	52
9	.393 14	.427 57	2.338 7	.919 48	51
10	.393 41	.427 91	2.336 9	.919 36	50
11	.393 67	.428 26	2.335 1	.919 25	49
12	.393 94	.428 60	2.333 2	.919 14	48
13	.394 21	.428 94	2.331 3	.919 02	47
14	.394 48	.429 29	2.329 4	.918 91	46
15	.394 74	.429 63	2.327 6	.918 79	45
16	.395 01	.429 98	2.325 7	.918 68	44
17	.395 28	.430 32	2.323 8	.918 56	43
18	.395 55	.430 67	2.322 0	.918 45	42
19	.395 81	.431 01	2.320 1	.918 33	41
20	.396 08	.431 36	2.318 3	.918 22	40
21	.396 35	.431 70	2.316 4	.918 10	39
22	.396 61	.432 05	2.314 6	.917 99	38
23	.396 88	.432 39	2.312 7	.917 87	37
24	.397 15	.432 74	2.310 9	.917 75	36
25	.397 41	.433 08	2.309 0	.917 64	35
26	.397 68	.433 43	2.307 2	.917 52	34
27	.397 94	.433 78	2.305 3	.917 40	33
28	.398 22	.434 12	2.303 5	.917 29	32
29	.398 48	.434 47	2.301 7	.917 18	31
30	.398 75	.434 81	2.299 8	.917 06	30
31	.399 02	.435 16	2.298 0	.916 94	29
32	.399 28	.435 50	2.296 2	.916 83	28
33	.399 55	.435 85	2.294 4	.916 71	27
34	.399 82	.436 20	2.292 5	.916 60	26
35	.400 08	.436 54	2.290 7	.916 48	25
36	.400 35	.436 89	2.288 9	.916 36	24
37	.400 62	.437 24	2.287 1	.916 25	23
38	.400 88	.437 58	2.285 3	.916 13	22
39	.401 15	.437 93	2.283 5	.916 01	21
40	.401 41	.438 28	2.281 7	.915 90	20
41	.401 68	.438 62	2.279 9	.915 78	19
42	.401 95	.438 97	2.278 1	.915 66	18
43	.402 21	.439 32	2.276 3	.915 55	17
44	.402 48	.439 66	2.274 5	.915 43	16
45	.402 75	.440 01	2.272 7	.915 31	15
46	.403 01	.440 36	2.270 9	.915 19	14
47	.403 28	.440 71	2.269 1	.915 08	13
48	.403 55	.441 05	2.267 3	.914 96	12
49	.403 81	.441 40	2.265 5	.914 84	11
50	.404 08	.441 75	2.263 7	.914 72	10
51	.404 34	.442 10	2.262 0	.914 61	9
52	.404 61	.442 44	2.260 2	.914 49	8
53	.404 88	.442 79	2.258 4	.914 37	7
54	.405 14	.443 14	2.256 6	.914 25	6
55	.405 41	.443 49	2.254 9	.914 14	5
56	.405 67	.443 84	2.253 1	.914 02	4
57	.405 94	.444 18	2.251 3	.913 90	3
58	.406 21	.444 53	2.249 6	.913 78	2
59	.406 47	.444 88	2.247 8	.913 66	1
60	.406 74	.445 23	2.246 0	.913 55	0
	Cos.	cot.	Tan.	Sin.	'

113° (293)

(246°) 66°

(Continued)

TABLE 7A NATURAL FUNCTIONS — Contd

24° (204°)

(335°) 155°

25° (205°)

(334°) 154°

'	Sin.	Tan.	Cot.	Cos.	'
0	·406 74	·445 23	2·246 0	·913 55	60
1	·407 00	·445 58	2·244 3	·913 43	59
2	·407 27	·445 93	2·242 5	·913 31	58
3	·407 53	·446 27	2·240 8	·913 19	57
4	·407 80	446 62	2·239 0	·913 07	56
5	·408 06	·446 97	2·237 3	·912 95	55
6	·408 33	·447 32	2·235 5	·912 83	54
7	·408 60	·447 67	2·233 8	·912 72	53
8	·408 86	448 02	2·232 0	·912 60	52
9	·409 13	448 37	2·230 3	·912 48	51
10	·409 39	·448 72	2·228 6	·912 36	50
11	·409 66	·449 07	2·226 8	·912 24	49
12	·409 92	·449 42	2·225 1	·912 12	48
13	·410 19	449 77	2·223 4	·912 00	47
14	·410 45	·450 12	2·221 6	·911 88	46
15	·410 72	·450 47	2·219 9	·911 76	45
16	·410 98	·450 82	2·218 2	·911 64	44
17	·411 25	·451 17	2·216 5	·911 52	43
18	·411 51	·451 52	2·214 8	·911 40	42
19	·411 78	·451 87	2·213 0	·911 28	41
20	·412 04	·452 22	2·211 3	·911 16	40
21	·412 31	·452 57	2·209 6	·911 04	39
22	·412 57	·452 92	2·207 9	·910 92	38
23	·412 84	·453 27	2·206 2	·910 80	37
24	·413 10	·453 62	2·204 5	·910 68	36
25	·413 37	·453 97	2·202 8	·910 56	35
26	·413 63	·454 32	2·201 1	·910 44	34
27	·413 90	·454 67	2·199 4	·910 32	33
28	·414 16	·455 02	2·197 7	·910 20	32
29	·414 43	·455 38	2·196 0	·910 08	31
30	·414 69	·455 73	2·194 3	·909 96	30
31	·414 96	·456 08	2·192 6	·909 84	29
32	·415 22	·456 43	2·190 9	·909 72	28
33	·415 49	·456 78	2·189 2	·909 60	27
34	·415 75	·457 13	2·187 6	·909 48	26
35	·416 02	·457 48	2·185 9	·909 36	25
36	·416 28	·457 84	2·184 2	·909 24	24
37	·416 55	·458 19	2·182 5	·909 11	23
38	·416 81	·458 54	2·180 8	·908 99	22
39	·417 07	·458 89	2·179 2	·908 87	21
40	·417 34	·459 24	2·177 5	·908 75	20
41	·417 60	·459 60	2·175 8	·908 63	19
42	·417 87	·459 95	2·174 2	·908 51	18
43	·418 13	·460 30	2·172 5	·908 39	17
44	·418 40	·460 65	2·170 8	·908 26	16
45	·418 66	·461 01	2·169 2	·908 14	15
46	·418 92	·461 36	2·167 5	·908 02	14
47	·419 19	·461 71	2·165 9	·907 90	13
48	·419 45	·462 06	2·164 2	·907 78	12
49	·419 72	·462 42	2·162 5	·907 66	11
50	·419 98	·462 77	2·160 9	·907 53	10
51	·420 24	·463 12	2·159 2	·907 41	9
52	·420 51	·463 48	2·157 6	·907 29	8
53	·420 77	·463 83	2·156 0	·907 17	7
54	·421 04	·464 18	2·154 3	·907 04	6
55	·421 30	·464 54	2·152 7	·906 92	5
56	·421 56	·464 89	2·151 0	·906 80	4
57	·421 83	·465 25	2·149 4	·906 68	3
58	·422 09	·465 60	2·147 8	·906 55	2
59	·422 35	·465 95	2·146 1	·906 43	1
60	·422 62	·466 31	2·144 5	·906 31	0
'	Cos.	Cot.	Tan..	Sin.	'

114° (294°)

(245°) 65°

115° (295°)

(244°) 64°

'	Sin.	Tan.	Cot.	Cos.	'
0	·422 62	·466 31	2·144 5	·906 31	60
1	·422 88	·466 66	2·142	·906 18	59
2	·423 15	·467 02	2·141 3	·906 06	58
3	·423 41	·467 37	2·139 6	·905 94	57
4	·423 67	·467 72	2·138 0	·905 82	56
5	·423 94	·468 08	2·136 4	·905 69	55
6	·424 20	·468 43	2·134 8	·905 57	54
7	·424 46	·468 79	2·133 2	·905 45	53
8	·424 73	·469 34	2·131 5	·905 32	52
9	·424 99	·469 50	2·129 9	·905 20	51
10	·425 25	·469 85	2·128 3	·905 07	50
11	·425 52	·470 21	2·126 7	·904 95	49
12	·425 78	·470 56	2·125 1	·904 83	48
13	·426 04	·470 92	2·123 5	·904 70	47
14	·426 31	·471 28	2·121 9	·904 58	46
15	·426 57	·471 63	2·120 3	·904 46	45
16	·426 83	·471 99	2·118 7	·904 33	44
17	·427 09	·472 34	2·117 1	·904 21	43
18	·427 36	·472 70	2·115 5	·904 08	42
19	·427 62	·473 05	2·113 9	·903 96	41
20	·427 88	·473 41	2·112 3	·903 83	40
21	·428 15	·473 77	2·110 7	·903 71	39
22	·428 41	·474 12	2·109 2	·903 58	38
23	·428 67	·474 48	2·107 6	·903 46	37
24	·428 94	·474 83	2·106 0	·903 34	36
25	·429 20	·475 19	2·104 4	·903 21	35
26	·429 46	·475 55	2·102 8	·903 09	34
27	·429 72	·475 90	2·101 3	·902 96	33
28	·429 99	·476 26	2·099 7	·902 84	32
29	·430 25	·476 62	2·098 1	·902 71	31
30	·430 51	·476 98	2·096 5	·902 59	30
31	·430 77	·477 33	2·095 0	·902 46	29
32	·431 04	·477 69	2·093 4	·902 33	28
33	·431 30	·478 05	2·091 8	·902 21	27
34	·431 56	·478 40	2·090 3	·902 08	26
35	·431 82	·478 76	2·088 7	·901 96	25
36	·432 09	·479 12	2·087 2	·901 83	24
37	·432 35	·479 48	2·085 6	·901 71	23
38	·432 61	·479 84	2·084 0	·901 58	22
39	·432 87	·480 19	2·082 5	·901 46	21
40	·433 13	·480 55	2·080 9	·901 33	20
41	·433 40	·480 91	2·079 4	·901 20	19
42	·433 66	·481 27	2·077 8	·901 08	18
43	·433 92	·481 63	2·076 3	·900 95	17
44	·434 18	·481 98	2·074 8	·900 82	16
45	·434 45	·482 34	2·073 2	·900 70	15
46	·434 71	·482 70	2·071 7	·900 57	14
47	·434 97	·483 06	2·070 1	·900 45	13
48	·435 23	·483 42	2·068 6	·900 32	12
49	·435 49	·483 78	2·067 1	·900 19	11
50	·435 75	·484 14	2·065 5	·900 07	10
51	·436 02	·484 50	2·064 0	·899 94	9
52	·436 28	·484 86	2·062 5	·899 81	8
53	·436 54	·485 21	2·060 9	·899 68	7
54	·436 80	·485 57	2·059 4	·899 56	6
55	·437 06	·485 93	2·057 9	·899 43	5
56	·437 33	·486 29	2·056 4	·899 30	4
57	·437 59	·486 65	2·054 9	·899 18	3
58	·437 85	·487 01	2·053 3	·899 05	2
59	·438 11	·487 37	2·051 8	·898 92	1
60	·438 37	·487 73	2·050 3	·898 79	0
'	Cos.	cot.	Tan.	Sin.	'

(Continued)

TABLE 7A NATURAL FUNCTIONS — *Contd*
(333) 153 27 (207)

26° (206°)

(332°) 152°

'	Sin.	Tan.	Cot.	Cos.	'
0	·438 37	·487 73	2·050 3	·898 79	60
1		·488 09	2·048 8	·898 67	59
3	·438·438 63 89	·488 45	2·047 3	·898 54	58
4	·439·439 42 16	·488 81	2·045 8	·898 41	57
		·489 17	2·044 3	·898 28	56
5					
6	·439·439 94 68	·489 53	2·042 8	·898 16	55
		·489 89	2·041 3	·898 03	54
7	·440 20	·490 26	2·039 8	·897 90	53
8		·490 62	2·038 3	·897 77	52
9	·440·440 46 72	·490 98	2·036 8	·897 64	51
10					
11	·44124 ·440 98	·491 34	2·035 3	·897 52	50
		·491 70	2·033 8	·897 39	49
12	441 51	·492 06	2·032 3	·897 26	48
13		·492 42	2·030 8	·897 13	47
14	·44177 ·442 08	·492 78	2·029 3	·897 00	46
15		·493 15	2·027 8	·896 87	45
16	·442·442 29 55	·493 51	2·026 3	·896 74	44
17		·493 87	2·024 8	·896 62	43
18	·442·443 81 07	·494 23	2·023 3	·896 49	42
19	·443 33	·494 59	2·021 9	·896 36	41
20					
21	·443 443 85 39	·494 9s	2·020 4	·896 23	40
		·495 32	2·018 9	·896 10	39
22	·444 11	·495 68	2·017 4	·895 97	38
23	·444 37	·496 04	2·016 0	·895 84	37
24	·444 64	·496 40	2·014 5	·895 71	36
25	·444 90	·496 77	2·013 0	·895 58	35
26	445 16	·497 13	2·011 5	·895 45	34
27		·497 49	2·010 1	·895 32	33
28	·445 445 42 68	·497 86	2·008 6	·895 19	32
29	·445 94	·498 22	2·007 2	·895 06	31
30	·446 20	·498 58	2·005 7	·894 93	30
31	·446 46	·498 94	2·004 2	·894 80	29
32		·499 31	2·002 8	·894 67	28
33	·446 446 72 98	·499 67	2·001 3	·894 54	27
34	447 24	·500 04	1·999 9	·894 41	26
36	447 50	·500 40	1·998 4	·894 28	25
37	·447 448 02 76	·500 76	1·997 0	·894 15	24
		·501 13	1·995 5	·894 02	23
38	448 28	·501 49	1·994 1	·893 89	22
39	·448 54	·501 85	1·992 6	·893 76	21
40	·448 80	·502 22	1·991 2	·893 63	20
42	449 05	·502 58	1·989 7	·893 so	19
43	·449 449 58 32	·502 95	1·988 3	·893 37	18
		·503 31	1·986 8	·893 24	17
44	449 84	·503 68	1·985 4	·893 11	16
45		·504 04	1·984 0	·892 98	15
46	·450·450 10 36	·504 41	1·982 5	·892 85	14
47	·450 62	·504 77	1·981 1	·892 72	13
48	·450 88	·505 14	1·979 7	·892 59	12
49	·451 14	·505 so	1·978 2	·892 45	11
50	·451 40	·505 87	1·976 8	·892 32	10
51		·506 23	1·975 4	·892 19	9
53	·451·451 66 02	·506 60	1·974 0	·892 06	8
54	·452·452 43 18	·506 96	1·972 5	·891 93	7
		·507 33	1·971 1	·891 80	6
55	·452 69	·507 69	1·969 7	·891 67	5
56		·508 06	1·968 3	·891 53	4
57	·452·453 95 21	·508 43	1·966 9	·891 40	3
58	·453 47	·508 79	1·965 4	·891 27	2
59	·453 73	·509 16	1·964 0	·891 14	1
60	·453 99	·509 53	1·962 6	·891 01	0
'	Cos.	Cot.	Tan.	Sin.	'

116° (296°)

(243°) 63°

'	Sin.	Tan.	Cot.	Cos.	'
0	·453 99	·509 53	1·962 6	·891 01	60
1		·509 89	1·961 2	·890 87	59
2	·454·454 25 51	·510 26	1·959 8	·890 74	58
3		·510 63	1·958 4	·890 61	57
4	·454·455 77 08	·510 99	1·957 0	·890 48	56
5		·511 36	1·955 6	·890 3s	55
6	·455·455 29 54	·511 73	1·954 2	·890 21	54
		·512 09	1·952 8	·890 08	53
3	·455·456 80 06	a·512 46	1·951 4	·889 9s	52
9	·456 32	·512 83	1·950 0	·889 81	51
10		·513 19	1·948 6	·889 68	50
12	·456·456 58 84	·513 56	1·947 2	·889 55	49
13	·457·457 36 10	·513 93	1·945 8	·889 42	48
		·514 30	1·944 4	·889 28	47
14	·457 62	·514 67	1·943 0	·889 15	46
15	·457 87	·515 03	1·941 6	·889 02	45
16		·515 40	1·940 2	·888 88	44
17	·458·458 13 39	·515 77	1·938 8	·888 75	43
18		·516 14	1·937 5	·888 62	42
19	·458·458 65 91	·516 51	1·936 1	·888 48	41
20					
21	·459·459 42 17	·516 88	1·934 7	·888 35	40
		·517 24	1·933 3	·888 22	39
22		·517 61	1·931 9	·888 08	38
23	·459·459 68 94	·517 98	1·930 6	·887 95	37
24	·460 20	·518 35	1·929 2	·887 82	36
25		·518 72	1·927 8	·887 68	35
26	·460·460 46 72	·519 09	1·926 5	·887 5s	34
27		·519 46	1·925 1	·887 41	33
28	·460·461 97 23	·519 83	1·923 7	·887 28	32
29	·461 49	·520 20	1·922 3	·887 15	31
31	·461 75	·520 57	1·921 0	·887 01	30
32	·462 01	·520 94	1·919 6		29
	·462 26	·521 31	1·918 3	·886 88	28
33	·462 52	·521 68	1·916 9	·886 74	27
34	·462 78	·522 05	1·915 5	·886 61	26
35	·463 04	·522 42	1·914 2	·886 48	25
36		·522 79	1·912 8		24
38	·463·463 30 55	·523 16	1·911 5	·886 35	23
39	·463·464 07 81	·523 53	1·910 1	·886 22	22
		·523 90	1·908 8	·886 09	21
40	·464 33	·524 27	1·907 4	·886 66	20
41		·524 64	1·906 1		19
42	·464·464 58 84	·525 01	1·904 7	·886 53	18
43	·465 10	·525 38	1·903 4	·886 40	17
44	·465 36	·525 7s	1·902 0	·886 27	16
45	·465 61	·526 13	1·900 7	·886 14	15
47	·465 87	·526 50	1·899 3		14
48	·466·466 30 13	·526 87	1·898 0	·886 01	13
		·527 24	1·896 7	·885 88	12
49	·466 64	·527 61	1·895 3	·885 75	11
50		·527 98	1·894 0	·885 62	10
51	·466·467 30 16	·528 36	1·892 7		9
52		·528 73	1·891 3	·885 49	8
53	·467·467 42 67	·529 10	1·890 0	·885 36	7
54	·467 93	·529 47	1·888 7	·885 23	6
55					
56	·468·468 44 19	·529 85	1·887 3	·885 10	5
57		·530 22	1·886 0	·884 97	4
58	·468·468 96 70	·530 59	1·884 7	·884 84	3
		·530 96	1·883 4	·884 71	2
59	469 21	·531 34	1·882 0	·884 58	1
60	·469 47	·531 71	1·880 7	·884 45	0
'	Cos.	Cot.	Tan.	Sin.	'

17° (297°)

(242°) 62°

TABLE 7A NATURAL FUNCTIONS — *Contd*
(331°) 151° 29° (209°)

28° (208°)

(330°) 150°

'	Sin.	Tan.	Cot.	Cos.	'	'	Sin.	Tan.	Cot.	Cos.	'
0	.469 47	·531 71	1.880 7	·882 95	60	0	·484 81	·554 31	1.804 0	·874 62	60
1	·469 73	·532 08	1.879 4	·882 81	59	1	·485 06	·554 69.	1.802 8	·874 48	59
2	469 99	·532 46	1·878 1	·882 67	58	2	·485 32	·555 07	1.801 6	·874 34	58
3	·470 24	·532 83	1.876 8	·882 54	57	3	·485 57	·555 45	1·800 3	·874 20	57
4	·470 50	·533 20	1.875 5	·882 40	56	4	·485 83	·555 83	1.799 1	·874 06	56
5	·470 76	·533 58	1.874 1	·882 26	55	5	·486 08	·556 21	1.797 9	·873 91	55
6	·471 01	·533 95	1.872 8	·882 13	54	6	·486 34	·556 59	1.796 6	·873 77	54
7	·471 27	·534 32	1.871 5	·881 99	53	7	·486 59	·556 97	1·795 4	·873 63	53
8	·471 53	·534 70	1.870 2	·881 85	52	8	·486 84	·557 36	1·794 2	·873 49	52
9	·471 78	·535 07	1.868 9	·881 72	51	9	·487 10	·557 74	1.793 0	·873 35	51
10	·472 04	·535 45	1.867 6	·881 58	50	10	·487 35	·558 12	1·791 7	·873 21	50
11	·472 29	·535 82	1.866 3	·881 44	49	11	·487 61	·558 50	1.790 5	·873 06	49
12	·472 55	·536 20	1.865 0	·881 30	48	12	·487 86	·558 88	1.789 3	·872 92	48
13	·472 81	·536 57	1.863 7	·881 17	47	13	·488 11	·559 26	1·788 1	·872 78	47
14	·473 06	·536 94	1.862 4	·881 03	46	14	·488 37	·559 64	1·786 8	·872 64	46
15	·473 32	·537 32	1.861 1	·880 89	45	15	·488 62	·560 03	1.785 6	·872 50	45
16	·473 58	·537 69	1.859 8	·880 75	44	16	·488 88	·560 41	1·784 4	·872 35	44
17	·473 83	·538 07	1.858 5	·880 62	43	17	·489 13	·560 79	1.783 2	·872 21	43
18	·474 09	·538 44	1.857 2	·880 48	42	18	·489 38	·561 17	1.782 0	·872 07	42
19	·474 34	·538 82	1.855 9	·880 34	41	19	·489 64	·561 56	1·780 8	·871 93	41
20	·474 60	·539 20	1.854 6	·880 20	40	20	·489 89	·561 94	1.779 6	·871 78	40
21	·474 86	·539 57	1.853 3	·880 06	39	21	·490 14	·562 32	1.778 3	·871 64	39
22	·475 11	·539 95	1.852 0	·879 93	38	22	·490 40	·562 70	1.777 1	·871 50	38
23	·475 37	·540 32	1·850 7	·879 79	37	23	·490 65	·563 09	1·775 9	·871 36	37
24	·475 62	·540 70	1.849 5	·879 65	36	24	·490 90	·563 47	1.774 7	·871 21	36
25	·475 88	·541 07	1.848 2	·879 51	35	25	·491 16	·563 85	1.773 5	·871 07	35
26	·476 14	·541 45	1.846 9	·879 37	34	26	·491 41	·564 24	1.772 3	·870 93	34
27	·476 39	·541 83	1.845 6	·879 23	33	27	·491 66	·564 62	1.771 1	·870 79	33
28	·476 65	·542 20	1.844 3	·879 09	32	28	·491 92	·565 01	1.769 9	·870 64	32
29	·476 90	·542 58	1.843 0	·878 96	31	29	·492 17	·565 39	1.768 7	·870 50	31
30	·477 16	·542 96	1.841 8	·878 82	30	30	·492 42	·565 77	1.767 5	·870 36	30
31	·477 41	·543 33	1·840 5	·878 68	29	31	·492 68	·566 16	1.7663	·870 21	29
32	·477 67	·543 71	1.839 2	·878 54	28	32	·492 93	·566 54	1.765 1	·870 07	28
33	·477 93	·544 09	1.837 9	·878 40	27	33	·493 18	·566 93	1.7639	·869 93	27
34	·478 18	·544 46	1.836 7	·878 26	26	34	·493 44	·567 31	1.762 7	·869 78	26
35	·478 44	·544 84	1.835 4	·878 12	25	35	·493 69	·567 69	1.761 5	·869 64	25
36	·478 69	·545 22	1·834 1	·877 98	24	36	·493 94	·568 08	1·760 3	·869 49	24
37	·478 95	·545 60	1.832 9	·877 84	23	37	·494 19	·568 46	1·759 1	·869 35	23
38	·479 20	·545 97	1.831 6	·877 70	22	38	·494 45	·568 85	1·757 9	·869 21	22
39	·479 46	·546 35	1·830 3	·877 56	21	39	·494 70	·569 23	1·756 7	·869 06	21
40	·479 71	·546 73	1.829 1	·877 43	20	40	494 95	·569 62	1·755 6	·868 92	20
41	·479 97	·547 11	1.827 8	·877 29	19	41	·495 21	·570 00	1·754 4	·868 78	19
42	·480 22	·547 48	1.826 5	·877 15	18	42	·495 46	·570 39	1·753 2	·868 63	18
43	·480 48	·547 86	1.825 3	·877 01	17	43	·495 71	·570 78	1·752 0	·868 49	17
44	·480 73	·548 24	1·824 0	·876 87	16	44	·495 96	·571 16	1·750 8	·868 34	16
45	·480 99	·548 62	1.822 8	·876 73	15	45	·496 22	·571 55	1·749 6	·868 20	15
46	·481 24	·549 00	1·821 5	·876 59	14	46	·496 47	·571 93	1·748 5	·868 05	14
47	·481 50	·549 38	1·820 2	·876 45	13	47	·496 72	·572 32	1·747 3	·867 91	13
48	·481 75	·549 75	1.819 0	·876 31	12	48	·496 97	·572 71	1.746 1	·867 77	12
49	·482 01	·550 13	1.817 7	·876 17	11	49	·497 23	·573 09	1·744 9	·867 62	11
50	·482 26	·550 51	1.816 5	·876 03	10	50	·497 48	·573 48	1.743 7	·867 48	10
51	·482 52	·550 89	1.815 2	·875 89	9	51	·497 73	·573 86	1.742 6	·867 33	9
52	·482 77	·551 27	1.814 0	·875 75	8	52	·497 98	·574 25	1·741 4	·867 19	8
53	·483 03	·551 65	1.812 7	·875 61	7	53	·498 24	·574 64	1·740 2	·867 04	7
54	·483 28	·552 03	1.811 5	·875 46	6	54	·498 49	·575 03	1.739 1	·866 90	6
55	·483 54	·552 41	1·810 3	·875 32	5	55	·498 74	·575 41	1.737 9	·866 75	5
56	·483 79	·552 79	1·809 0	·875 18	4	56	·498 99	·575 80	1.736 7	·866 61	4
57	·484 05	·553 17	1.807 8	·875 04	3	57	·499 24	·576 19	1·735 5	·866 46	3
58	·484 30	·553 55	1.806 5	·874 90	2	58	·499 50	·576 57	1·734 4	·866 32	2
59	·484 56	·553 93	1.805 3	·874 76	1	59	·499 75	·576 96	1.733 2	·866 17	1
60	·484 81	·554 31	1.804 0	·874 62	0	60				·866 03	0
'	Cos.	Cot.	Tan.	Sin.		'	cos.	cot.	Tan.	Sin.	
							·500 00	·577 35	1.732 1		

118° (298°)

(241°) 61°

119° (299°)

(240°) 60°

(Continued)

TABLE 7A NATURAL FUNCTIONS — Contd

30° (210°)

(329°) 149° 31° (211°)

(328°) 148°

	Sin.	Tan.	Cot.	Cos.	
0	·500 00	·577 35	1.732 1	·866 03	60
1	·500 25	·577 74	1.730 9	·865 88	59
2	·500 50	·578 13	1.729 7	·865 73	58
3	·500 76	·578 51	1.728 6	·865 59	57
4	·501 01	·578 90	1.727 4	·865 44	56
5	·501 26	·579 29	1.726 2	·865 30	55
6	·501 51	·579 68	1.725 1	·865 15	54
7	·501 76	·580 07	1.723 9	·865 01	53
8	·502 01	·580 46	1.722 8	·864 86	52
9	·502 27	·580 85	1.721 6	·864 71	51
10	*502 52	·581 24	1.720 5	·864 57	5 0
11	·502 77	·581 62	1.719 3	·864 42	4 9
12	·503 02	·582 01	1.718 2	·864 27	4 8
13	·503 27	·582 40	1.717 0	·864 13	4 7
14	·503 52	·582 79	1.715 9	·863 98	4 6
15	·503 77	·583 18	1.714 7	·863 84	4 5
16	·504 03	·583 57	1.713 6	·863 69	4 4
17	·504 28	·583 96	1.712 4	·863 54	4 3
18	·504 53	·584 35	1.711 3	·863 40	4 2
19	·504 78	·584 74	1.710 2	·863 25	4 1
20	·505 03	·585 13	1.709 0	·863 10	4 0
21	·505 28	·585 52	1.707 9	·862 95	3 9
22	·505 53	·585 91	1.706 7	·862 81	3 8
23	·505 78	·586 31	1.705 6	·862 66	3 7
24	·506 03	·586 70	1.704 5	·862 51	3 6
25	·506 28	·587 09	1.703 3	·862 37	3 5
26	·506 54	·587 48	1.702 2	·862 22	3 4
27	·506 79	·587 87	1.701 1	·862 07	3 3
28	·507 04	·588 26	1.699 9	·861 92	3 2
29	·507 29	·588 65	1.698 8	·861 78	3 1
30	·507 54	·589 05	1.697 7	·861 63	3 0
31	·507 79	·589 44	1.696 5	·861 48	2 9
32	·508 04	·589 83	1.695 4	·861 33	2 8
33	·508 29	·590 22	1.694 3	·861 19	2 7
34	·508 54	·590 61	1.693 2	·861 04	2 6
35	·508 79	·591 01	1.692 0	·860 89	2 5
36	·509 04	·591 40	1.690 9	·860 74	2 4
37	·509 29	·591 79	1.689 8	·860 59	2 3
38	·509 54	·592 18	1.688 7	·860 45	2 2
39	·509 79	·592 58	1.687 5	·860 30	2 1
40	·510 04	·592 97	1.686 4	·860 15	2 0
41	·510 29	·593 36	1.685 3	·860 00	1 9
42	·510 54	·593 76	1.684 2	·859 85	1 8
43	·510 79	·594 15	1.683 1	·859 70	1 7
44	·511 04	·594 54	1.682 0	·859 56	1 6
45	·511 29	·594 94	1.680 8	·859 41	1 5
46	·511 54	·595 33	1.679 7	·859 26	1 4
47	·511 79	·595 73	1.678 6	·859 11	1 3
48	·512 04	·596 12	1.677 5	·858 96	1 2
49	·512 29	·596 51	1.676 4	·858 81	1 1
50	·512 54	·596 91	1.675 3	·858 66	1 0
51	·512 79	·597 30	1.674 2	·858 51	9
52	·513 04	·597 70	1.673 1	·858 36	8
53	·513 29	·598 09	1.672 0	·858 21	7
54	·513 54	·598 49	1.670 9	·858 06	6
55	·513 79	·598 88	1.669 8	·857 92	5
56	·514 04	·599 28	1.668 7	·857 77	4
57	·514 29	·599 67	1.667 6	·857 62	3
58	·514 54	·600 07	1.666 5	·857 47	2
59	·514 79	·600 46	1.665 4	·857 32	1
60	·515 04	·600 86	1.664 3	·857 17	0
	Cos.	Cot.	Tan.	Sin.	

120° (300°)

(239°) 59°

	Sin.	Tan.	Cot.	Cos.	
0	·515 04	·600 86	1.664 3	·857 17	60
1	·515 29	·601 26	1.663 2	·857 02	59
2	·515 54	·601 65	1.662 1	·856 87	58
3	·515 79	·602 05	1.661 0	·856 72	57
4	·616 04	·602 45	1.659 9	·856 57	56
5	·516 28	·602 84	1.658 8	·856 42	55
6	·516 53	·603 24	1.657 7	·856 27	54
7	·516 78	·603 64	1.656 6	·856 12	53
8	·517 03	·604 03	1.655 5	·855 97	52
9	·517 28	·604 43	1.654 5	·855 82	51
10	·517 53	·604 83	1.653 4	·855 67	50
11	·517 78	·605 22	1.652 3	·855 51	49
12	·518 03	·605 62	1.651 2	·855 36	48
13	·518 28	·606 02	1.650 1	·855 21	47
14	·518 52	·606 42	1.649 0	·855 06	46
15	·518 77	·606 81	1.647 9	·854 91	45
16	·519 02	·607 21	1.646 9	·854 76	44
17	·519 27	·607 61	1.645 8	·854 61	43
18	·519 52	·608 01	1.644 7	·854 46	42
19	·519 77	·608 41	1.643 6	·854 31	41
20	·520 02	·608 81	1.642 6	·854 16	40
21	·520 26	·609 21	1.641 5	·854 01	39
22	·520 51	·609 60	1.640 4	·853 85	38
23	·520 76	·610 00	1.639 3	·853 70	37
24	·521 01	·610 40	1.638 3	·853 55	36
25	·521 26	·610 80	1.637 2	·853 40	35
26	·521 51	·611 20	1.636 1	·853 25	34
27	·521 75	·611 60	1.635 1	·853 10	33
28	·522 00	·612 00	1.634 0	·852 94	32
29	·522 25	·612 40	1.632 9	·852 79	31
30	·522 50	·612 80	1.631 9	·852 64	30
31	·522 75	·613 20	1.630 8	·852 49	29
32	·522 99	·613 60	1.629 7	·852 34	28
33	·523 24	·614 00	1.628 7	·852 18	27
34	·523 49	·614 40	1.627 6	·852 03	26
35	·523 74	·614 80	1.626 5	·851 88	25
36	·523 99	·615 20	1.625 5	·851 73	24
37	·524 23	·615 61	1.624 4	·851 57	23
38	·524 48	·616 01	1.623 4	·851 42	22
39	·524 73	·616 41	1.622 3	·851 27	21
40	·524 98	·616 81	1.621 2	·851 12	20
41	·525 22	·617 21	1.620 2	·850 96	19
42	·525 47	·617 61	1.619 1	·850 81	18
43	·525 72	·618 01	1.618 1	·850 66	17
44	·525 97	·618 42	1.617 0	·850 51	16
45	·526 21	·618 82	1.616 0	·850 35	15
46	·526 46	·619 22	1.614	·850 20	14
47	·526 71	·619 62	1.613 8	·850 05	13
48	·526 96	·620 03	1.612 8	·849 89	12
49	·527 20	·620 43	1.611 8	·849 74	11
50	·527 45	·620 83	1.610 7	·849 59	10
51	·527 70	·621 24	1.609 7	·849 43	9
52	·527 94	·621 64	1.608 7	·849 28	8
53	·528 19	·622 04	1.607 6	·849 13	7
54	·528 44	·622 45	1.606 6	·848 97	6
55	·528 69	·622 85	1.605 5	·848 82	5
56	·528 93	·623 25	1.604 5	·848 66	4
57	·529 18	·623 66	1.603 4	·848 51	3
58	·529 43	·624 06	1.602 4	·848 36	2
59	·529 67	·624 46	1.601 4	·848 20	1
60	·529 92	·624 87	1.600 3	·848 05	0
	Cos.	Cot.	Tan.	Sin.	

121° (301°)

(238°) 58°

(Continued)

TABLE 7A NATURAL FUNCTIONS — Contd

32° (212°)

(327°) 147°

33° (213°)

(326°) 146

'	Sin.	Tan.	Cot.	Cos.	'	Sin.	Tan.	Cot.	Cos.	'
0	·529 92	·624 87	1·600 3	·848 05	60	0	·544 64	·649 41	1·539 9	·838 67
1	·530 17	·625 27	1·599 3	·847 89	59	1	·544 88	·649 82	1·538 9	·838 51
2	·530 41	·625 68	1·598 3	·847 74	58	2	·545 13	·650 24	1·537 9	·838 35
3	·530 66	·626 08	1·597 2	·847 59	57	3	·545 37	·650 65	1·536 9	·838 19
4	·530 91	·626 49	1·596 2	·847 43	56	4	·545 61	·651 06	1·535 9	·838 04
5	·531 15	·626 89	1·595 2	·847 28	55	5	·545 86	·651 48	1·535 0	·837 88
6	·531 40	·627 30	1·594 1	·847 12	54	6	·546 10	·651 89	1·534 0	·837 72
7	·531 64	·627 70	1·593 1	·846 97	53	7	·546 3·5	·652 31	1·533 0	·837 56
8	·531 89	·628 11	1·592 1	·846 81	52	8	a·546 59	·652 72	1·532 0	·837 40
9	·532 14	·628 52	1·591 1	·846 66	51	9	·546 83	·653 14	1·531 1	·837 24
10	·532 38	·628 92	1·590 0	·846 50	50	10	·547 08	·653 55	1·530 1	·837 08
11	·532 63	·629 33	1·589 0	·846 35	49	11	·547 32	·653 97	1·529 1	·836 92
12	·532 88	·629 73	1·588 0	·846 19	48	12	·547 56	·654 38	1·528 2	·836 76
13	·533 12	·630 14	1·586 9	·846 04	47	13	·547 81	·654 80	1·527 2	·836 60
14	·533 37	·630 55	1·585 9	·845 88	46	14	·548 05	·655 21	1·526 2	·836 45
15	·533 61	·630 95	1·584 9	·845 73	45	15	·548 29	·655 63	1·525 3	·836 29
16	·533 86	·631 36	1·583 9	·845 57	44	16	·548 54	·656 04	1·524 3	·836 13
17	·534 11	·631 77	1·582 9	·845 42	43	17	·548 78	·656 46	1·523 3	·835 97
18	·534 35	·632 17	1·581 8	·845 26	42	18	·549 02	·656 88	1·522 4	·835 81
19	·534 60	·632 58	1·580 8	·845 11	41	19	·549 27	·657 29	1·521 4	·835 65
20	·534 84	·632 99	1·579 8	·844 95	40	20	·549 51	·657 71	1·520 4	·835 49
21	·535 09	·633 40	1·578 8	·844 80	39	21	·549 75	·658 13	1·519 5	·835 33
22	·535 34	·633 80	1·577 8	·844 64	38	22	·549 99	·658 54	1·518 5	·835 17
23	·535 58	·634 21	1·576 8	·844 48	37	23	·550 24	·658 96	1·517 5	·835 01
24	·535 83	·634 62	1·575 7	·844 33	36	24	·550 48	·659 38	1·516 6	·834 85
25	·536 07	·635 03	1·574 7	·844 17	35	25	·550 72	·659 80	1·515 6	·834 69
26	·536 32	·635 44	1·573 7	·844 02	34	26	·550 97	·660 21	1·514 7	·834 53
27	·536 56	·635 84	1·572 7	·843 86	33	27	·551 21	·660 63	1·513 7	·834 37
28	·536 81	·636 25	1·571 7	·843 70	32	28	·551 45	·661 05	1·512 7	·834 21
29	·537 05	·636 66	1·570 7	·843 55	31	29	·551 69	·661 47	1·511 8	·834 05
30	·537 30	·637 07	1·569 7	·843 39	30	30	·551 94	·661 89	1·510 8	·833 89
31	·537 54	·637 48	1·568 7	·843 24	29	31	·552 18	·662 30	1·509 9	·833 73
32	·537 79	·637 89	1·567 7	·843 08	28	32	·552 42	·662 72	1·508 9	·833 56
33	·538 04	·638 30	1·566 7	·842 92	27	33	·552 66	·663 14	1·508 0	·833 40
34	·538 28	·638 71	1·565 7	·842 77	26	34	·552 91	·663 56	1·507 0	·833 24
35	·538 53	·639 12	1·564 7	·842 61	25	35	·553 15	·663 98	1·506 1	·833 08
36	·538 77	·639 53	1·563 7	·842 45	24	36	·553 39	·664 40	1·505 1	·832 92
37	·539 02	·639 94	1·562 7	·842 30	23	37	·553 63	·664 82	1·504 2	·832 76
38	·539 26	·640 35	1·561 7	·842 14	22	38	·553 88	·665 24	1·503 2	·832 60
39	·539 51	·640 76	1·560 7	·841 98	21	39	·554 12	·665 66	1·502 3	·832 44
40	·539 75	·641 17	1·559 7	·841 82	20	40	·554 36	·666 08	1·501 3	·832 28
41	·540 00	·641 58	1·558 7	·841 67	19	41	·554 60	·666 50	1·500 4	·832 12
42	·540 24	·641 99	1·557 7	·841 51	18	42	·554 84	·666 92	1·499 4	·831 95
43	·540 49	·642 40	1·556 7	·841 35	17	43	·555 09	·667 34	1·498 5	·831 79
44	·540 73	·642 81	1·555 7	·841 20	16	44	·555 33	·667 76	1·497 5	·831 63
45	·540 97	·643 22	1·554 7	·841 04	15	45	·555 57	·668 18	1·496 6	·831 47
46	·541 22	·643 63	1·553 7	·840 88	14	46	·555 81	·668 60	1·495 7	·831 31
47	·541 46	·644 04	1·552 7	·840 72	13	47	·556 05	·669 02	1·494 7	·831 15
48	·541 71	·644 46	1·551 7	·840 57	12	48	·556 30	·669 44	1·493 8	·830 98
49	·541 95	·644 87	1·550 7	·840 41	11	49	·556 54	·669 86	1·492 8	·830 82
50	·542 20	·645 28	1·549 7	·840 25	10	50	·556 78	·670 28	1·491 9	·830 66
51	·542 44	·645 69	1·548 7	·840 09	9	51	·557 02	·670 71	1·491 0	·830 50
52	·542 69	·646 10	1·547 7	·839 94	8	52	·557 26	·671 13	1·490 0	·830 34
53	·542 93	·646 52	1·546 8	·839 78	7	53	·557 50	·671 55	1·489 1	·830 17
54	·543 17	·646 93	1·545 8	·839 62	6	54	·557 75	·671 97	1·488 2	·830 01
55	·543 42	·647 34	1·544 8	·839 46	5	55	·557 99	·672 39	1·487 2	·829 85
56	·543 66	·647 75	1·543 8	·839 30	4	56	·558 23	·672 82	1·486 3	·829 69
57	·543 91	·648 17	1·542 8	·839 15	3	57	·558 47	·673 24	1·485	·829 53
58	·544 15	·648 58	1·541 8	·838 99	2	58	·558 71	·673 66	1·484 4	·829 36
59	·544 40	·648 99	1·540 8	·838 83	1	59	·558 95	·674 09	1·483 5	·829 20
60	·544 64	·649 41	1·539 9	·838 67	0	60	·559 19	·674 51	1·482 6	·829 04
'	cos.	Cot.	Tan.	Sin.			Cos.	Cot.	Tan.	Sin.

122° (302°)

(237°)

57° 123 (303°)

(236°) 56°

(Continued)

TABLE 7A NATURAL FUNCTIONS — *Contd*

34° (214°)

(325°) 145°

35° (215°)

(324°) 144°

'	Sin.	Tan.	Cot.	Cos.	'	'	Sin.	Tan.	Cot.	Cos.	'
0	·559 19	·674 51	1·482 6	·829 04	60	1	·573 58	·700 21	1·428 1	·819 IS	60
1		·674 93	1·481 6	·828 87	59	2	·574 573 05 81	·700 64	1·427 3	·818 99	59
2	·559 559 43 68	·675 36	1·480 7	·828 71	58			·701 07	1·426 4	·818 82	58
3	·559 92	·675 78	1·479 8	·828 55	57	3		·701 51	1·425 5	·818 65	57
4	·560 16	·676 20	1·478 8	·828 39	56	4	·574 574 29 53	·701 94	1·424 6	·818 48	56
5	·560 40	·676 63	1·477 9	·828 22	55	5	·574 77	·702 38	1·423 7	·818 32	55
6	·560 560 88 64	·677 05	1·477 0	·828 06	54	7	·575 01	·702 81	1·422 9	·818 IS	54
7		·677 48	1·476 1	·827 90	53	8	·575 575 48 24	·703 2s	1·422 0	·817 98	53
8		·677 90	1·475 1	·827 73	52			·703 68	1·421 1	·817 82	52
9	·561 561 12 36	·678 32	1·474 2	·827 57	51	9	·575 72	·704 12	1·420 2	·817 65	51
10	·561 60	·678 75	1·473 3	·827 41	50	10	·575 96	·704 55	1·419 3	·817 48	50
11		·679 17	1·472 4	·827 24	49	11	·576 19	·704 99	1·418 5	·817 31	49
12	·562 561 84 08	·679 60	1·471 s	·827 08	48	12	·576 43	·705 42	1·417 6	·817 14	48
13		·680 02	1·470 5	·826 92	47	13	·576 67	·705 86	1·416 7	·816 98	47
14	·562 562 32 56	·680 45	1·469 6	·826 75	46	14	·576 91	·706 29	1·415 8	·816 81	46
15	·562 80	·680 88	1·468 7	·826 59	45	15	·577 IS	·706 73	1·415 0	·816 64	45
16	·563 0S	·681 30	1·467 8	·826 43	44	16	·577 38	·707 17	1·414 1	·816 47	44
17	·563 29	·681 73	1·466 9	·826 26	43	17	·577 62	·707 60	1·413 2	·816 31	43
18	·563 563 77 53	·682 1S	1·465 9	·826 10	42	18	·577 86	·708 04	1·412 4	·816 14	42
19		·682 58	1·465 0	·825 93	41	19	·578 10	·708 48	1·411 5	·815 97	41
20		·683 01	1·464 1	·825 77	40	20		·708 91	1·410 6	·815 80	40
21	·564 564 01 2S	·683 43	1·463 2	·825 61	39	22	·578 578 33 57	·709 35	1·409 7	·815 63	39
22		·683 86	1·462 3	·825 44	38	23	·578 579 04 81	·709 79	1·408 9	·815 46	38
23	·564 564 49 73	·684 29	1·461 4	·825 28	37			·710 23	1·408 0	·815 30	37
24	·564 97	·684 71	1·460 s	·825 11	36	24	·579 28	·710 66	1·407 1	·815 13	36
25		·685 14	1·459 6	·824 95	35	25		·711 10	1·406 3	·814 96	35
26	·565 565 45 21	·685 57	1·458 6	·824 78	34	26	·579 579 76 52	·711 54	1·405 4	·814 79	34
27		·686 00	1·457 7	·824 62	33	27		·711 98	1·404 5	·814 62	33
28	·565 565 93 69	·686 42	1·456 8	·824 46	32	28	·579 580 99 23	·712 42	1403 7	·814 45	32
29	·566 17	·686 85	1·455 9	·824 29	31	29	·580 47	·712 85	1402 8	·814 28	31
30	·566 41	·687 28	1·455 0	·824 13	30	30	·580 70	·713 29	1·401 9	·814 12	30
31		·687 71	1·454 1	·823 96	29	31		·713 73	1·401 1	·813 95	29
32	·566 566 65 89	·688 14	1·453 2	·823 80	28	32	·580 580 41 01	·714 17	1·400 2	·813 78	28
33	·567 567 36 13	·688 57	1·452 3	·823 63	27	33		·714 61	1·399 4	·813 61	27
34		·689 00	1·451 4	·823 47	26	34	·581 65	·715 05	1·398 5	·813 44	26
35		·689 42	1·450 s	·823 30	25	35	·581 89	·715 49	1·397 6	·813 27	25
36	·567 567 60 84	·689 85	1·449 6	·823 14	24	36	·582 12	·715 93	1·396 8	·813 10	24
37		·690 28	1·448 7	·822 97	23	37		·716 37	1·395 9	·812 93	23
38	·568 568 08 32	·690 71	1·447 8	·822 81	22	38	·582 582 36 60	·716 81	1·395 1	·812 76	22
39	·568 56	·691 14	1·446 9	·822 64	21	39	·582 83	·717 2s	1·394 2	·812 59	21
40		·691 57	1·446 0	·822 48	20	40	·583 07	·717 69	1·393 4	·812 42	20
41	·568 568 40 04	·692 00	1·445 1	·822 31	19	41	·583 30	·718 13	1·392 5	·812 25	19
42	·569 569 52 28	·692 43	1·444 2	·822 14	18	42	·583 54	·718 57	1·391 6	·812 08	18
43		·692 86	1·443 3	·821 98	17	43	·583 78	·719 01	1·390 8	·811 91	17
44	·569 76	·693 29	1·442 4	·821 81	16	44	·584 01	·719 46	1·389 9	·811 74	16
45		·693 72	1·441 5	·821 65	15	45	·584 2s	·719 90	1·389 1	·811 57	15
46	·570 00	·694 16	1·440 6	·821 48	14	46		·720 34	1·388 2	·811 40	14
47	·570 570 47 24	·694 59	1·439 7	·821 32	13	47		·720 78	1·387 4	·811 23	13
48		·695 02	1·438 8	·821 15	12	48	·584 584 47 26	·721 22	1·386 5	·811 06	12
49	·570 71	·695 45	1·437 9	·820 98	11	49	·585 19	·721 67	1·385 7	·810 89	11
50		·695 88	1·437 0	·820 82	10	50		·722 11	1·384 8	·810 72	10
51	·571 19	·696 31	1·436 1	·820 65	9	51	·585 585 43 67	·722 55	1·384 0	·810 55	9
52	·571 43	·696 75	1·435 2	·820 48	8	52	·585 90	·722 99	1·383 1	·810 38	8
53	·571 571 67 91	·697 18	1·434 4	·820 32	7	53	·586 14	·723 44	1·382 3	·810 21	7
54	·572 15	·697 61	1·433 5	·820 15	6	54	·586 37	·723 88	1·381 4	·810 04	6
55		·698 04	1·432 6	·819 99	5	55	·586 61	·724 32	1·380 6	·809 87	5
56	·572 572 62 38	·698 47	1·431 7	·819 82	4	56	·586 84	·724 77	1·379 8	·809 70	4
57		·698 91	1·430 8	·819 65	3	57	·587 08	·725 21	1·378 9	·809 53	3
58	·572 86	·699 34	1·429 9	·819 49	2	58	·587 31	·725 65	1·378 1	·809 36	2
59	·573 10	·699 77	1·429 0	·819 32	1	59	·587 5s	·726 10	1·377 2	·809 19	1
60	·573 34				0	60	·587 79	·726 54	1·376 4	·809 02	0
	·573 58	·700 21	1·428 1	·819 15	0						
'	Cos.	Cot.	Tan.	Sin.	'	'	Cos.	Cot.	Tan.	Sin.	'

124° (304°)

(235°) 55°

125° (305°)

(234°) 54°

(Continued)

TABLE 7A NATURAL FUNCTIONS — Contd

36° (216)

(323°) 143°

37° (217°)

(322°) 142°

	Sin.	Tan.	Cot.	Cos.	
0	·587 79	·726 54	1.376 4	·809 02	60
1	·588 02	·726 99	1.375 5	·808 85	59
2	·588 26	·727 43	1.374 7	·808 67	58
3	·588 49	·727 88	1.373 9	·808 50	57
4	·588 73	·728 32	1.373 0	·808 33	56
5	·588 96	·728 77	1.372 2	·808 16	55
6	·589 20	·729 21	1.371 3	·807 99	54
7	·589 43	·729 66	1.370 5	·807 82	53
8	·589 67	·730 10	1.369 7	·807 65	52
9	·589 90	·730 55	1.368 8	·807 48	51
10	·590 14	·731 00	1.368 0	·807 30	50
11	·590 37	·731 44	1.367 2	·807 13	49
12	·590 61	·731 89	1.366 3	·806 96	48
13	·590 84	·732 34	1.365 5	·806 79	47
14	·591 08	·732 78	1.364 7	·806 62	46
15	·591 31	·733 23	1.363 8	·806 44	45
16	·591 54	·733 68	1.363 0	·806 27	44
17	·591 78	·734 13	1.362 2	·806 10	43
18	·592 01	·734 57	1.361 3	·805 93	42
19	·592 25	·735 02	1.360 5	·805 76	41
20	·592 48	·735 47	1.359 7	·805 58	40
21	·592 72	·735 92	1.358 8	·805 41	39
22	·592 95	·736 37	1.358 0	·805 24	38
23	·593 18	·736 81	1.357 2	·805 07	37
24	·593 42	·737 26	1.356 4	·804 89	36
25	·593 65	·737 71	1.355 5	·804 72	35
26	·593 89	·738 16	1.354 7	·804 55	34
27	·594 12	·738 61	1.353 9	·804 38	33
28	·594 36	·739 06	1.353 1	·804 20	32
29	·594 59	·739 51	1.352 2	·804 03	31
30	·594 82	·739 96	1.351 4	·803 86	30
31	·595 06	·740 41	1.350 6	·803 68	29
32	·595 29	·740 86	1.349 8	·803 51	28
33	·595 52	·741 31	1.349 0	·803 34	27
34	·595 76	·741 76	1.348 1	·803 16	26
35	·595 99	·742 21	1.347 3	·802 99	25
36	·596 22	·742 67	1.346 5	·802 82	24
37	·596 46	·743 12	1.345 7	·802 64	23
38	·596 69	·743 57	1.344 9	·802 47	22
39	·596 93	·744 02	1.344 0	·802 30	21
40	·597 16	·744 47	1.343 2	·802 12	20
41	·597 39	·744 92	1.342 4	·801 95	19
42	·597 63	·745 38	1.341 6	·801 78	18
43	·597 86	·745 83	1.340 8	·801 60	17
44	·598 09	·746 28	1.340 0	·801 43	16
45	·598 32	·746 74	1.339 2	·801 25	15
46	·598 56	·747 19	1.338 4	·801 08	14
47	·598 79	·747 64	1.337 5	·800 91	13
48	·599 02	·748 10	1.336 7	·800 73	12
49	·599 26	·748 55	1.335 9	·800 56	11
50	·599 49	·749 00	1.335 1	·800 38	10
51	·599 72	·749 46	1.334 3	·800 21	9
52	·599 95	·749 91	1.333 5	·800 03	8
53	·600 19	·750 37	1.332 7	·799 86	7
54	·600 42	·750 82	1.331 9	·799 68	6
55	·600 65	·751 28	1.331 1	·799 51	5
56	·600 89	·751 73	1.330 3	·799 34	4
57	·601 12	·752 19	1.329 5	·799 16	3
58	·601 35	·752 64	1.328 7	·798 99	2
59	·601 58	·753 10	1.327 8	·798 81	1
60	·601 82	·753 55	1.327 0	·798 64	0
	cos.	Cot.	Tan.	Sin.	

126° (3106)

(233

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	Sin.	Tan.	Cot.	Cos.	
0	·601 82	·753 55	1.327 0	·798 64	60
1	·602 05	·754 01	1.326 2	·798 46	59
2	·602 28	·754 47	1.325 4	·798 29	58
3	·602 51	·754 92	1.324 6	·798 11	57
4	·602 74	·755 38	1.323 8	·797 93	56
5	·602 98	·755 84	1.323 0	·797 76	55
6	·603 21	·756 29	1.322 2	·797 58	54
7	·603 44	·756 75	1.321 4	·797 41	53
8	·603 67	·757 21	1.320 6	·797 23	52
9	·603 90	·757 67	1.319 8	·797 06	51
10	·604 14	·768 12	1.319 0	·796 88	50
11	·604 37	·758 58	1.318 2	·796 71	49
12	·604 60	·759 04	1.317 5	·796 53	48
13	·604 83	·759 50	1.316 7	·796 35	47
14	·605 06	·759 96	1.315 9	·796 18	46
15	·605 29	·760 42	1.315 1	·796 00	45
16	·605 53	·760 88	1.314 3	·795 83	44
17	·605 76	·761 34	1.313 5	·795 65	43
18	·605 99	·761 80	1.312 7	·795 47	42
19	·606 22	·762 26	1.311 9	·795 30	41
20	·606 45	·762 72	1.311 1	·795 12	40
21	·606 68	·763 18	1.310 3	·794 94	39
22	·606 91	·763 64	1.309 5	·794 77	38
23	·607 14	·764 10	1.308 7	·794 59	37
24	·607 38	·764 56	1.307 9	·794 41	36
25	·607 61	·765 02	1.307 2	·794 24	35
26	·607 84	·765 48	1.306 4	·794 06	34
27	·608 07	·765 94	1.305 6	·793 88	33
28	·608 30	·766 40	1.304 8	·793 71	32
29	·608 53	·766 86	1.304 0	·793 53	31
30	·608 76	·767 33	1.303 2	·793 35	30
31	·608 99	·767 79	1.302 4	·793 18	29
32	·609 22	·768 25	1.301 7	·793 00	28
33	·609 45	·768 71	1.300 9	·792 82	27
34	·609 68	·769 18	1.300 1	·792 64	26
35	·609 91	·769 64	1.299 3	·792 47	25
36	·610 15	·770 10	1.298 5	·792 29	24
37	·610 38	·770 57	1.297 7	·792 11	23
38	·610 61	·771 03	1.297 0	·791 93	22
39	·610 84	·771 49	1.296 2	·791 76	21
40	·611 07	·771 96	1.295 4	·791 58	20
41	·611 30	·772 42	1.294 6	·791 40	19
42	·611 53	·772 89	1.293 8	·791 22	18
43	·611 76	·773 35	1.293 1	·791 05	17
44	·611 99	·773 82	1.292 3	·790 87	16
45	·612 22	·774 28	1.291 5	·790 69	15
46	·612 45	·774 75	1.290 7	·790 51	14
47	·612 68	·775 21	1.290 0	·790 33	13
48	·612 91	·775 68	1.289 2	·790 16	12
49	·613 14	·776 15	1.288 4	·789 98	11
50	·613 37	·776 61	1.287 6	·789 80	10
51	·613 60	·777 08	1.286 9	·789 62	9
52	·613 83	·777 54	1.286 1	·789 44	8
53	·614 06	·778 01	1.285 3	·789 26	7
54	·614 29	·778 48	1.284 6	·789 08	6
55	·614 51	·778 95	1.283 8	·788 91	5
56	·614 74	·779 41	1.283 0	·788 73	4
57	·614 97	·779 88	1.282 2	·788 55	3
58	·615 20	·780 35	1.281 5	·788 37	2
59	·615 43	·780 82	1.280 7	·788 19	1
60	·615 66	·781 29	1.279 9	·788 01	0
	Cos.	Cot.	Tan.	Sin.	

127° (307°)

(232°)

52°

(Continued)

TABLE 7A NATURAL FUNCTIONS — *Contd*

8° (218°)

(321°) 141

39° (219°)

(320°) 140°

'	Sin.	Tan.	Cot.	Cos.	'		Sin.	Tan.	Cot.	Cos.	'
0	·615 66	·781 29	1.279 9	·788 01	60	0	·629 32	·809 78	1.234 9	·777 15	60
1	·615 89	·781 75	1.279 2	·787 83	59	1	·629 55	·810 27	1.234 2	·776 96	59
2	·616 12	·782 22	1.278 4	·787 65	58	2	·629 77	·810 75	1.233 4	·776 78	58
3	·616 35	·782 69	1.277 6	·787 47	57	3	·630 00	·811 23	1.232 7	·776 60	57
4	·616 58	·783 16	1.276 9	·787 29	56	4	·630 22	·811 71	1.232 0	·776 41	56
5	·616 81	·783 63	1.276 1	·787 11	55	5	·630 45	·812 20	1.231 2	·776 23	55
6	·617 04	·784 10	1.275 3	·786 94	54	6	·630 68	·812 68	1.230 5	·776 05	54
7	·617 26	·784 57	1.274 6	·786 76	53	7	·630 90	·813 16	1.229 8	·775 86	53
8	·617 49	·785 04	1.273 8	·786 58	52	8	·631 33	·813 64	1.229 0	·775 68	52
9	·617 72	·785 51	1.273 1	·786 40	51	9	·631 35	·814 13	1.228 3	·775 50	51
10	·617 95	·785 98	·272 3	·786 22	50	10	·631 58	·814 61	1.227 6	·775 31	50
11	·618 18	·786 45	·271 5	·786 04	49	11	·631 80	·815 10	1.226 8	·775 13	49
12	·618 41	·786 92	·270 8	·785 86	48	12	·632 03	·815 58	1.226 1	·774 94	48
13	·618 64	·787 39	1.270 0	·785 68	47	13	·632 25	·816 06	1.225 4	·774 76	47
14	·618 87	·787 86	1.269 3	·785 50	46	14	·632 48	·816 55	1.224 7	·774 58	46
15	·619 09	·788 34	1.268 5	·785 32	45	15	·632 71	·817 03	1.223 9	·774 39	45
16	·619 32	·788 81	1.267 7	·785 14	44	16	·632 93	·817 52	1.223 2	·774 21	44
17	·619 55	·789 28	1.267 0	·784 96	43	17	·633 16	·818 00	1.222 5	·774 02	43
18	·619 78	·789 75	1.266 2	·784 78	42	18	·633 38	·818 49	1.221 8	·773 84	42
19	·620 01	·790 22	1.265 5	·784 60	41	19	·633 61	·818 98	1.221 0	·773 66	41
20	·620 24	·790 70	1.264 7	·784 42	40	20	·633 83	·819 46	1.220 3	·773 47	40
21	·620 46	·791 17	1.264 0	·784 24	39	21	·634 06	·819 95	1.219 6	·773 29	39
22	·620 69	·791 64	1.263 2	·784 05	38	22	·634 28	·820 44	1.218 9	·773 10	38
23	·620 92	·792 12	1.262 4	·783 87	37	23	·634 51	·820 92	1.218 1	·772 92	37
24	·621 15	·792 59	1.261 7	·783 69	36	24	·634 73	·821 41	1.217 4	·772 73	36
25	·621 38	·793 06	1.260 9	·783 51	35	25	·634 96	·821 90	1.216 7	·772 55	35
26	·621 60	·793 54	1.260 2	·783 33	34	26	·635 18	·822 38	1.216 0	·772 36	34
27	·621 83	·794 01	1.259 4	·783 15	33	27	·635 40	·822 87	1.215 3	·772 18	33
28	·622 06	·794 49	1.258 7	·782 97	32	28	·635 63	·823 36	1.214 5	·771 99	32
29	·622 29	·794 96	1.257 9	·782 79	31	29	·635 85	·823 85	1.213 8	·771 81	31
30	·622 51	·795 44	1.257 2	·782 61	30	30	·636 08	·824 34	1.213 1	·771 62	30
31	·622 74	·795 91	1.256 4	·782 43	29	31	·636 30	·824 83	1.212 4	·771 44	29
32	·622 97	·796 39	1.255 7	·782 25	28	32	·636 53	·825 31	1.211 7	·771 25	28
33	·623 20	·796 86	1.254 9	·782 06	27	33	·636 75	·825 80	1.210 9	·771 07	27
34	·623 42	·797 34	1.254 2	·781 88	26	34	·636 98	·826 29	1.210 2	·770 88	26
35	·623 65	·797 81	1.253 4	·781 70	25	35	·637 20	·826 78	1.209 5	·770 70	25
36	·623 88	·798 29	1.252 7	·781 52	24	36	·637 42	·827 27	1.208 8	·770 51	24
37	·624 11	·798 77	1.251 9	·781 34	23	37	·637 65	·827 76	1.208 1	·770 33	23
38	·624 33	·799 24	1.251 2	·781 16	22	38	·637 87	·828 25	1.207 4	·770 14	22
39	·624 56	·799 72	1.250 4	·780 98	21	39	·638 10	·828 74	1.206 6	·769 96	21
40	·624 79	·800 20	1.249 7	·780 79	20	40	·638 32	·829 23	1.205 9	·769 77	20
41	·625 02	·800 67	1.248 9	·780 61	19	41	·638 54	·829 72	1.205 2	·769 59	19
42	·625 24	·801 15	1.248 2	·780 43	18	42	·638 77	·830 22	1.204 5	·769 40	18
43	·625 47	·801 63	1.247 5	·780 25	17	43	·638 99	·830 71	1.203 8	·769 21	17
44	·625 70	·802 11	1.246 7	·780 07	16	44	·639 22	·831 20	1.203 1	·769 03	16
45	·625 92	·802 58	1.246 0	·779 88	15	45	·639 44	·831 69	1.202 4	·768 84	15
46	·626 15	·803 06	1.245 2	·779 70	14	46	·639 66	·832 18	1.201 7	·768 66	14
47	·626 38	·803 54	1.244 5	·779 52	13	47	·639 89	·832 68	1.200 9	·768 47	13
48	·626 60	·804 02	1.243 7	·779 34	12	48	·640 11	·833 17	1.200 2	·768 28	12
49	·626 83	·804 50	1.243 0	·779 16	11	49	·640 33	·833 66	1.199 5	·768 10	11
50	·627 06	·804 98	1.242 3	·778 97	10	50	·640 56	·834 15	1.198 8	·767 91	10
51	·627 28	·805 46	1.241 5	·778 79	9	51	·640 78	·834 65	1.198 1	·767 72	9
52	·627 51	·805 94	1.240 8	·778 61	8	52	·641 00	·835 14	1.197 4	·767 54	8
53	·627 74	·806 42	1.240 1	·778 43	7	53	·641 23	·835 64	1.196 7	·767 35	7
54	·627 96	·806 90	1.239 3	·778 24	6	54	·641 45	·836 13	1.196 0	·767 17	6
55	·628 19	·807 38	1.238 6	·778 06	5	55	·641 67	·836 62	1.195 3	·766 98	5
56	·628 42	·807 86	1.237 8	·777 88	4	56	·641 90	·837 12	1.194 6	·766 79	4
57	·628 64	·808 34	1.237 1	·777 69	3	57	·642 12	·837 61	1.193 9	·766 61	3
58	·628 87	·808 82	1.236 4	·777 51	2	58	·642 34	·838 11	1.193 2	·766 42	2
59	·629 09	·809 30	1.235 6	·777 33	1	59	·642 56	·838 60	1.192 5	·766 23	1
60	·629 32	·809 78	1.234 9	·777 15	0	60	·642 79	·839 10	1.191 8	·766 04	0
'	CO%	cot.	Tan.	Sin.	'	'	Cos.	Cot.	Tan.	Sin.	'

128° (308°)

(231°) 51°

129° (309°)

(230°) 50°

(Continued)

TABLE 7A NATURAL FUNCTIONS — Contd
(319°) 139° 41° (221°)

40° (220°)

(318°) 138°

	Sin.	Tan.	Cot.	Cos.	'
0	.642 79	.839 10	1.191 8	.766 04	60
1	.643 01	.839 60	1.191 0	.765 86	59
2	.643 23	.840 09	1.190 3	.765 67	58
3	.643 46	.840 59	1.189 6	.765 48	57
4	.643 68	.841 08	1.188 9	.765 30	56
5	.643 90	.841 58	1.188 2	.765 11	55
6	.644 12	.842 08	1.187 5	.764 92	54
7	.644 35	.842 58	1.186 8	.764 73	53
8	.644 57	.843 07	1.186 1	.764 55	52
9	.644 79	.843 57	1.185 4	.764 36	51
10	.645 01	.844 07	1.184 7	.764 17	50
11	.645 24	.844 57	1.184 0	.763 98	49
12	.645 46	.845 07	1.183 3	.763 80	48
13	.645 68	.845 56	1.182 6	.763 61	47
14	.645 90	.846 06	1.181 9	.763 42	46
15	.646 12	.846 56	1.181 2	.763 23	45
16	.646 35	.847 06	1.180 6	.763 04	44
17	.646 57	.847 56	1.179 9	.762 86	43
18	.646 79	.848 06	1.179 2	.762 67	42
19	.647 01	.848 56	1.178 5	.762 48	41
20	.647 23	.849 06	1.177 8	.762 29	40
21	.647 46	.849 56	1.177 1	.762 10	39
22	.647 68	.850 06	1.176 4	.761 92	38
23	.647 90	.850 57	1.175 7	.761 73	37
24	.648 12	.851 07	1.175 0	.761 54	36
25	.648 34	.851 57	1.174 3	.761 35	35
26	.648 56	.852 07	1.173 6	.761 16	34
27	.648 78	.852 57	1.172 9	.760 97	33
28	.649 01	.853 08	1.172 2	.760 78	32
29	.649 23	.853 58	1.171 5	.760 59	31
30	.649 45	.854 08	1.170 a	.760 41	30
31	.649 67	.854 58	1.170 2	.760 22	29
32	.649 89	.855 09	1.169 5	.760 03	28
33	.650 11	.855 59	1.168 8	.759 84	27
34	.650 33	.856 09	1.168 1	.759 65	26
35	.650 55	.856 60	1.167 4	.759 46	25
36	.650 77	.857 10	1.166 7	.759 27	24
37	.651 00	.857 61	1.166 0	.759 08	23
38	.651 22	.858 11	1.165 3	.758 a9	22
39	.651 44	.858 62	1.164 7	.758 70	21
40	.651 66	.859 12	1.164 0	.758 51	20
41	.651 88	.859 63	1.163 3	.758 32	19
42	.652 10	.860 14	1.162 6	.758 13	18
43	.652 32	.860 64	1.161 9	.757 94	17
44	.652 54	.861 15	1.161 2	.757 75	16
45	.652 76	.861 66	1.160 6	.757 56	15
46	.652 98	.862 16	1.159 9	.757 38	14
47	.653 20	.862 67	1.159 2	.757 19	13
48	.653 42	.863 18	1.158 5	.757 00	12
49	.653 64	.863 68	1.157 a	.756 80	11
50	.653 86	.864 19	1.157 1	.756 61	10
51	.654 08	.864 70	1.156 5	.756 42	9
52	.654 30	.865 21	1.155 8	.756 23	8
53	.654 52	.865 72	1.155 1	.756 04	7
54	.654 74	.866 23	1.154 4	.755 85	6
55	.654 96	.866 74	1.153 8	.755 66	5
56	.655 18	.867 25	1.153 1	.755 47	4
57	.655 40	.867 76	1.152 4	.755 28	3
58	.655 62	.868 27	1.151 7	.755 09	2
59	.655 84	.868 78	1.151 0	.754 90	1
60	.656 06	.869 29	1.150 4	.754 71	0
	Cos.	Cot.	Tan.	Sin.	'

30° (310°)

(229°) 49°

	Sin.	Tan.	Cot.	Cos.	'
0	.656 06	.869 29	1.150 4	.754 71	60
1	.656 28	.869 80	1.149 7	.754 52	59
2	.656 50	.870 31	1.149 0	.754 33	58
3	.656 72	.870 82	1.148 3	.754 14	57
4	.656 94	.871 33	1.147 7	.753 95	56
5	.657 16	.871 a4	1.147 0	.753 75	55
6	.657 38	.872 36	1.146 3	.753 56	54
7	.657 60	.872 87	1.145 6	.753 37	53
8	.657 82	.873 38	1.145 0	.753 18	52
9	.658 03	.873 89	1.144 3	.752 99	51
10	.658 25	.874 41	1.143 6	.752 80	50
11	.658 47	.874 92	1.143 0	.752 61	49
12	.658 69	.875 43	1.142 3	.752 41	48
13	.658 91	.875 95	1.141 6	.752 22	47
14	.659 13	.876 46	1.141 0	.752 03	46
15	.659 35	.876 98	1.140 3	.751 84	45
16	.659 57	.877 49	1.139 6	.751 65	44
17	.659 79	.878 01	1.138 9	.751 46	43
18	.660 01	.878 52	1.138 3	.751 26	42
19	.660 22	.879 04	1.137 6	.751 07	41
20	.660 44	.879 55	1.136 9	.750 88	40
21	.660 66	.880 07	1.136 3	.750 69	39
22	.660 88	.880 59	1.135 6	.750 50	38
23	.661 10	.881 10	1.134 9	.750 30	37
24	.661 31	.881 62	1.134 3	.750 11	36
25	.661 53	.882 14	1.133 6	.749 92	35
26	.661 75	.882 65	1.132 9	.749 73	34
27	.661 97	.883 17	1.132 3	.749 53	33
28	.662 18	.883 69	1.131 6	.749 34	32
29	.662 40	.884 21	1.1310	.749 15	31
30	.662 62	.884 73	1.130 3	.748 96	30
31	.662 84	.885 24	1.129 6	.748 76	29
32	.663 06	.885 76	1.129 0	.748 57	28
33	.663 28	.886 28	1.128 3	.748 38	27
34	.663 50	.886 80	1.127 6	.748 18	26
35	.663 71	.887 32	1.127 0	.747 99	25
36	.663 93	.887 84	1.126 3	.747 80	24
37	.664 15	.888 36	1.125 7	.747 60	23
38	.664 36	.888 88	1.125 0	.747 41	22
39	.664 58	.889 40	1.124 3	.747 22	21
40	.664 80	.889 92	1.123 7	.747 03	20
41	.665 01	.890 45	1.123 0	.746 83	19
42	.665 23	.890 97	1.122 4	.746 64	18
43	.665 45	.891 49	1.121 7	.746 44	17
44	.665 67	.892 01	1.121 1	.746 25	16
45	.665 88	.892 53	1.120 4	.746 06	15
46	.666 10	.893 06	1.119 7	.745 86	14
47	.666 32	.893 58	1.119 1	.745 66	13
48	.666 53	.894 10	1.118 4	.745 48	12
49	.666 75	.894 63	1.117 a	.745 28	11
50	.666 97	.895 15	1.117 1	.745 09	10
51	.667 18	.895 67	1.116 5	.744 89	9
52	.667 40	.896 20	1.115 8	.744 70	8
53	.667 62	.896 72	1.115 2	.744 51	7
54	.667 83	.897 25	1.114 5	.744 31	6
55	.668 05	.897 77	1.113 9	.744 12	5
56	.668 27	.898 30	1.113 2	.743 92	4
57	.668 48	.898 a3	1.112 6	.743 73	3
58	.668 70	.899 35	1.111 9	.743 53	2
59	.668 91	.899 88	1.111 3	.743 34	1
60	.669 13	.900 40	1.110 6	.743 14	0
	Cos.	Cot.	Tan.	Sin.	'

131° (311°)

(228°) 48°

TABLE 7A NATURAL FUNCTIONS — *Contd*
(317") 137°

42" (222°)

42" (223°)

(316") 136"

'	Sin.	Tan.	Cot.	Cos.	'
0	.669 13	.900 40	1.110 6	.743 14	50
1	.669 35	.900 93	1.110 0	.742 95	59
2	.669 56	.901 46	1.109 3	.742 76	58
3	.669 78	.901 99	1.108 7	.742 56	57
4	.669 99	.902 51	1.108 0	.742 37	56
5	.670 21	.903 04	1.107 4	.742 17	55
6	.670 43	.903 57	1.106 7	.741 98	54
7	.670 64	.904 10	1.106 1	.741 78	53
8	.670 86	.904 63	1.105 4	.741 59	52
9	.671 07	.905 16	1.104 8	.741 39	51
10	.671 29	.905 69	1.104 1	.741 20	50
11	.671 51	.906 21	1.103 5	.741 00	49
12	.671 72	.906 74	1.102 8	.740 80	48
13	.671 94	.907 27	1.102 2	.740 61	47
14	.672 15	.907 81	1.101 6	.740 41	46
15	.672 37	.908 34	1.100 9	.740 22	45
16	.672 58	.908 87	1.100 3	.740 02	44
17	.672 80	.909 40	1.099 6	.739 83	43
18	.673 01	.909 93	1.099 0	.739 63	42
19	.673 23	.910 46	1.098 3	.739 44	41
20	.673 44	.910 99	1.097 7	.739 24	40
21	.673 66	.911 53	1.097 1	.739 04	39
22	.673 87	.912 06	1.096 4	.738 85	38
23	.674 09	.912 59	1.095 8	.738 65	37
24	.674 30	.913 13	1.095 1	.738 46	36
25	.674 52	.913 66	1.094 5	.738 26	35
26	.674 73	.914 19	1.093 9	.738 06	34
27	.674 95	.914 73	1.093 2	.737 87	33
28	.675 16	.915 26	1.092 6	.737 67	32
29	.675 38	.915 80	1.091 9	.737 47	31
30	.675 59	.916 33	1.091 3	.737 28	30
31	.675 80	.916 87	1.090 7	.737 08	29
32	.676 02	.917 40	1.090 0	.736 88	28
33	.676 23	.917 94	1.089 4	.736 69	27
34	.676 45	.918 47	1.088 8	.736 49	26
35	.676 66	.919 01	1.088 1	.736 29	25
36	.676 88	.919 55	1.087 5	.736 10	24
37	.677 09	.920 08	1.086 9	.735 90	23
38	.677 30	.920 62	1.086 2	.735 70	22
39	.677 52	.921 16	1.085 6	.735 51	21
40	.677 73	.921 70	1.085 0	.735 31	20
41	.677 95	.922 24	1.084 3	.735 11	19
42	.678 16	.922 77	1.083 7	.734 91	18
43	.678 37	.923 31	1.083 1	.734 72	17
44	.678 59	.923 85	1.082 4	.734 52	16
45	.678 80	.924 39	1.081 8	.734 32	15
46	.679 01	.924 93	1.081 2	.734 13	14
47	.679 23	.925 47	1.080 5	.733 93	13
48	.679 44	.926 01	1.079 9	.733 73	12
49	.679 65	.926 55	1.079 3	.733 53	11
50	.679 87	.927 09	1.078 6	.733 33	10
51	.680 08	.927 63	1.078 0	.733 14	9
52	.680 29	.928 17	1.077 4	.732 94	8
53	.680 51	.928 72	1.076 8	.732 74	7
54	.680 72	.929 26	1.076 1	.732 54	6
55	.680 93	.929 80	1.075 5	.732 34	5
56	.681 15	.930 34	1.074 9	.732 15	4
57	.681 36	.930 88	1.074 2	.731 95	3
58	.681 57	.931 43	1.073 6	.731 75	2
59	.681 79	.931 97	1.073 0	.731 55	1
60	.682 00	.932 52	1.072 4	.731 35	0
'	cos.	cot.	Tan.	Sin.	'

'	Sin.	Tan.	Cot.	Cos.	'
0	.682 00	.932 52	1.072 4	.731 35	60
1	.682 21	.933 06	1.071 7	.731 16	59
2	.682 42	.933 60	1.071 1	.730 96	58
3	.682 64	.934 15	1.070 5	.730 76	57
4	.682 85	.934 69	1.069 9	.730 56	56
5	.683 06	.935 24	1.069 2	.730 36	55
6	.683 27	.935 78	1.068 6	.730 16	54
7	.683 49	.936 33	1.068 0	.729 96	53
8	.683 70	.936 88	1.067 4	.729 76	52
9	.683 91	.937 42	1.066 8	.729 57	51
10	.684 12	.937 96	1.066 1	.729 37	50
11	.684 34	.938 52	1.065 5	.729 17	49
12	.684 55	.939 06	1.064 9	.728 97	48
13	.684 76	.939 61	1.064 3	.728 77	47
14	.684 97	.940 16	1.063 7	.728 57	46
15	.685 18	.940 71	1.063 0	.728 37	45
16	.685 39	.941 25	1.062 4	.728 17	44
17	.685 61	.941 80	1.061 8	.727 97	43
18	.685 82	.942 35	1.061 2	.727 77	42
19	.686 03	.942 90	1.060 6	.727 57	41
20	.686 24	.943 45	1.059 9	.727 37	40
21	.686 45	.944 00	1.059 3	.727 17	39
22	.686 66	.944 55	1.058 7	.726 97	38
23	.686 88	.945 10	1.058 1	.726 77	37
24	.687 09	.945 65	1.057 5	.726 57	36
25	.687 30 51	.946 20	1.056 9	.726 37	35
26	.687 51 51	.946 76	1.056 2	.726 17	34
27	.687 72 51	.947 31	1.055 6	.725 97	33
28	.687 93 51	.947 86	1.055 0	.725 77	32
29	.688 14	.948 41	1.054 4	.725 57	31
30	.688 35	.948 96	1.053 8	.725 37	30
31	.688 57	.949 52	1.053 2	.725 17	29
32	.688 78	.950 07	1.052 6	.724 97	28
33	.688 99	.950 62	1.051 9	.724 77	27
34	.689 20	.951 18	1.051 3	.724 57	26
35	.689 41	.951 73	1.050 7	.724 37	25
36	.689 62	.952 29	1.050 1	.724 17	24
37	.689 83	.952 84	1.049 5	.723 97	23
38	.690 04	.953 40	1.048 9	.723 77	22
39	.690 25	.953 95	1.048 3	.723 57	21
40	.690 46	.954 51	1.047 7	.723 37	20
41	.690 67 00	.955 06	1.047 0	.723 17	19
42	.690 88 00	.955 62	1.046 4	.722 97	18
43	.691 09 00	.956 18	1.045 8	.722 77	17
44	.691 30 00	.956 73	1.045 2	.722 57	16
45	.691 51	.957 29	1.044 6	.722 36	15
46	.691 72	.957 85	1.044 0	.722 16	14
47	.691 93	.958 41	1.043 4	.721 96	13
48	.692 14 14	.958 97	1.042 8	.721 76	12
49	.692 35	.959 52	1.042 2	.721 56	11
50	.692 56	.960 08	1.041 6	.721 36	10
51	.692 77	.960 64	1.041 0	.721 16	9
52	.692 98	.961 20	1.040 4	.720 95	8
53	.693 19	.961 76	1.039 8	.720 75	7
54	.693 40	.962 32	1.039 2	.720 55	6
55	.693 61	.962 88	1.038 5	.720 35	5
56	.693 82	.963 44	1.037 9	.720 15	4
57	.694 03	.964 00	1.037 3	.719 95	3
58	.694 24	.964 57	1.036 7	.719 74	2
59	.694 45	.965 13	1.036 1	.719 54	1
60	.694 66	.965 69	1.035 5	.719 34	0
'	Cos.	Cot.	Tan.	Sill.	'

132° (312°)

(227°) 47°

133° (313°)

(226°) 46°

(Continued)

TABLE 7A NATURAL FUNCTIONS — *Contd*

44° (224°)

(315°) 135°

,	Sin.	Tan.	cot.	cos.	,
0	·694 66	·965 69	1·035 5	·719 34	60
1		·966 25	1·034 9	·719 14	59
2	·694 695 87 08	·966 81	1·034 3	·718 94	58
3	·695 29		1·033 7	·718 73	57
4	·695 49	·967 38 94	1·033 1	·718 53	56
5	·695 70			·718 33	
6	·695 91	·968 50	1·032 5	·718 13	55
7	·696 12	·969 07	1·031 9	·717 92	54
8	·696 32	·969 63	1·031 3	·717 72	53
9	·696 54 3	·970 20 76	1·030 1·030 7 1	·717 52	52 51
10		·971 33			50
12	·697 17	·971 89	1·028 95	·717 32 11	49
13	·697 37	·972 46	1·027 1·028 3 7	·716 91 71	48
14	·697 58	·973 02			47
15		·973 59	1·027 1	·716 50	46
16	·697 698 79 00	·974 16 16	1·026 1·025 9 5	·716 30 10	44 45
18	·698 21	·975 29	1·025 3	·715 90	43
19	·698 42 62	·975 976 86 43	1·024 1·024 7 1	·715 49 69	42
20		·977 00			41
21	·698 83	·977 56	1·023 1·023 0 5	·715 29 08	40
22	·699 04				39
23	·699 25	·978 70 13	1·022 1·021 4 8	·714 718868	37 38
	·699 46				
24	·699 66	·979 27	1·021 2	·714 47	36
25	·699 87	·979 84	1·020 6	·714 27	35
27	·700 29	·980 41	1·020 0	·714 07	34
28	·700 49	·980 98	1·018 1·019 4 8	·713 713 66 86	33
		·981 55			32
29	·700 70	·982 13	1·018 2	·713 45	31
		·982 70			
31	·700 91	·983 27	1·017 6	·713 25	30
32	·701 12	·983 84	1·017 0	·713 712 05 84	29
33			1·016 4		28
34	·701 74 53	·984 41 99	1·015 1·015 8 2	·712 712 43 64	27 36
38	·701 95	·985 56	1·014 7	·712 23	25
37	·702 36 15	·986 28	1·014 1		24
36	·702 57	·987 28	1·012 9	·712 71103 82	23
39	·702 77	·987 86	1·012 3	·711 62	22
40				·711 41	21
41	·702 98	·988 389 43 01	1·011 1·011 7 1	·711 711 00 21	20
42	·703 19				19
43	·703 39 60	·989 990 58 16	1·010 1·009 9 5	·710 710 80 59	18
44	·703 81	·990 73	1·009 4	·710 39	17
45	·704 22	·991 89	1·008 8	·710 19	15
47	·704 43	·992 47	1·008 2	·709 98	14
48	·704 63		1·0071·007 6 0	·709 78	13
		·993 04		·709 57	12
49	·704 84	·993 62	1·006 4	·709 37	11
50		·994 20	1·005 8		
51	·705 05 25	·994 78	1·005 2	·709 16	10
52		·995 36	1·004 7	·708 96	9
53	·705 705 46 67	·995 94	1·004 71·004 1	·708 75	8
				·708 55	7
54	·705 87	·996 52	1·003 5	·708 34	6
55	·706 08	·997 10	1·002 9	·708 13	5
56	·706 28	·997 68	1·002 3	·707 93	4
57	·706 70				3
58	·706 90 706 49	·998 998 2 35 8	1·0011·001 7 2	·707 52	2
59			1·000 6	·707 31	1
60	·707 11	1·000 0	1·000 0	·707 11	0
,	cos.	cot.	Tan.	Sin.	,

134° (314°)

(225°) 45

TABLE 7B NATURAL FUNCTIONS — SECANTS AND COSECANTS

1° (180")				1° (180")				2° (182")			
(359") 179"				(358") 178"				(357") 177"			
'	Sec.	Csc.	'	'	Sec.	Csc.	'	'	Sec.	Csc.	'
0	1.0000	—	60	0	1.0002	57.299	50	0	1.0006	28.654	60
1	1.0000	3437.7	59	1	1.0002	56.359	50	1	1.0006	28.417	59
2	1.0000	1718.9	58	2	1.0002	55.451	58	2	1.0006	28.184	58
3	1.0008	1145.9	57	3	1.0002	54.570	57	3	1.0006	27.955	57
4	1.0000	859.44	56	4	1.0002	53.718	56	4	1.0007	27.730	56
5	1.0000	687.55	55	5	1.0002	52.892	55	5	1.0007	27.508	55
6	1.0000	572.96	54	6	1.0002	52.090	54	6	1.0007	27.290	54
7	1.0000	491.11	53	7	1.0002	51.313	53	7	1.0007	27.075	53
8	1.0000	429.72	52	8	1.0002	50.558	52	8	1.0007	26.864	52
9	1.0000	381.97	51	9	1.0002	49.826	51	9	1.0007	26.655	51
10	1.0000	343.78	50	10	1.0002	49.114	50	10	1.0007	26.451	50
11	1.0000	312.52	49	11	1.0002	48.422	49	11	1.0007	26.249	49
12	1.0000	286.48	48	12	1.0002	47.750	48	12	1.0007	26.050	48
13	1.0000	264.44	47	13	1.0002	47.096	47	13	1.0007	25.854	47
14	1.0000	245.55	46	14	1.0002	46.460	46	14	1.0008	25.661	46
15	1.0000	229.18	45	15	1.0002	45.840	45	15	1.0008	25.471	45
16	1.0000	214.86	44	16	1.0002	45.237	44	16	1.0008	25.284	44
17	1.0000	202.22	43	17	1.0003	44.650	43	17	1.0008	25.100	43
18	1.0000	190.99	42	18	1.0003	44.077	42	18	1.0008	24.918	42
19	1.0008	180.93	41	19	1.0003	43.520	41	19	1.0008	24.739	41
20	1.0000	171.89	40	20	1.0003	42.976	40	20	1.0008	24.562	40
21	1.0000	163.70	39	21	1.0003	42.445	39	21	1.0008	24.388	39
22	1.0000	156.26	38	22	1.0003	41.928	38	22	1.0009	24.216	38
23	1.0000	149.47	37	23	1.0003	41.423	37	23	1.0009	24.047	37
24	1.0000	143.24	36	24	1.0003	40.930	36	24	1.0009	23.880	36
25	1.0000	137.51	35	25	1.0003	40.448	35	25	1.0009	23.716	35
26	1.0000	132.22	34	26	1.0003	39.978	34	26	1.0009	23.553	34
27	1.0000	127.33	33	27	1.0003	39.519	33	27	1.0009	23.393	33
28	1.0000	122.78	32	28	1.0003	39.070	32	28	1.0009	23.235	32
29	1.0000	118.54	31	29	1.0003	38.631	31	29	1.0009	23.079	31
30	1.0000	114.59	30	30	1.0003	38.202	30	30	1.0010	22.926	30
31	1.0000	110.90	29	31	1.0004	37.782	29	31	1.0010	22.774	29
32	1.0000	107.43	28	32	1.0004	37.371	28	32	1.0010	22.624	28
33	1.0000	104.18	27	33	1.0004	36.970	27	33	1.0010	22.476	27
34	1.0000	101.11	26	34	1.0004	36.576	26	34	1.0010	22.330	26
35	1.0001	98.223	25	35	1.0004	36.191	25	35	1.0010	22.187	25
36	1.0001	95.495	24	36	1.0004	35.815	24	36	1.0010	22.044	24
37	1.0001	92.914	23	37	1.0004	35.445	23	37	1.0010	21.904	23
38	1.0001	90.469	22	38	1.0004	35.084	22	38	1.0011	21.766	22
39	1.0001	88.149	21	39	1.0004	34.730	21	39	1.0011	21.629	21
40	1.0001	85.946	20	40	1.0004	34.382	20	40	1.0011	21.494	20
41	1.0001	83.849	19	41	1.0004	34.042	19	41	1.0011	21.360	19
42	1.0001	81.853	18	42	1.0004	33.708	18	42	1.0011	21.229	18
43	1.0001	79.950	17	43	1.0004	33.381	17	43	1.0011	21.098	17
44	1.0001	78.133	16	44	1.0005	33.060	16	44	1.0011	20.970	16
45	1.0001	76.397	15	45	1.0005	32.746	15	45	1.0012	20.843	15
46	1.0001	74.736	14	46	1.0005	32.437	14	46	1.0012	20.717	14
47	1.0001	73.146	13	47	1.0005	32.134	13	47	1.0012	20.593	13
48	1.0001	71.622	12	48	1.0005	31.836	12	48	1.0012	20.471	12
49	1.0001	70.160	11	49	1.0005	31.544	11	49	1.0012	20.350	11
50	1.0001	68.757	10	50	1.0005	31.258	10	50	1.0012	20.230	10
51	1.0001	67.409	9	51	1.0005	30.976	9	51	1.0012	20.112	9
52	1.0001	66.113	8	52	1.0005	30.700	8	52	1.0013	19.995	8
53	1.0001	64.866	7	53	1.0005	30.428	7	53	1.0013	19.880	7
54	1.0001	63.665	6	54	1.0006	30.161	6	54	1.0013	19.766	6
55	1.0001	62.507	5	55	1.0006	29.899	5	55	1.0013	19.653	5
56	1.0001	61.391	4	56	1.0006	29.641	4	56	1.0013	19.541	4
57	1.0001	60.314	3	57	1.0006	29.388	3	57	1.0013	19.431	3
58	1.0001	59.274	2	58	1.0006	29.139	2	58	1.0013	19.322	2
59	1.0001	58.270	1	59	1.0006	28.894	1	59	1.0014	19.214	1
60	1.0002	57.299	0	60	1.0006	28.654	0	60	1.0014	19.107	0
'	csc.	Sec.	'	'	Csc.	Sec.	'	'	Csc.	Sec.	'

90° (270")

(269") 89°

91° (271")

(268") 88°

92° (272")

(267") 87°

(Continued)

TABLE 7B NATURAL FUNCTIONS — SECANTS AND COSECANTS — *Contd*

3' (183")

(35.6") 176°

4° (184")

(355") 175°

5" (185")

(354

'	Sec.	Csc.	'	'	Sec.	Csc.	'	'	Sec.	Csc.	'
0	1.001 4	19.107	10	0	1.002 4	14.336	60	0	1.003 8	11.474	60
1	1.001 4	19.002	9	1	1.002 5	14.276	59	1	1.003 8	11.436	59
2	1.001 4	18.898	8	2	1.002 5	14.217	58	2	1.003 9	11.398	58
3	1.001 4	18.794	7	3	1.002 5	14.159	57	3	1.003 9	11.360	57
4	1.001 4	18.692	6	4	1.002 5	14.101	56	4	1.003 9	11.323	56
5	1.001 4	18.591	5	5	1.002 5	14.044	55	5	1.003 9	11.286	55
6	1.001 5	18.492	4	6	1.002 6	13.987	54	6	1.004 0	11.249	54
7	1.001 5	18.393	3	7	1.002 6	13.930	53	7	1.004 0	11.213	53
8	1.001 5	18.295	2	8	1.002 6	13.874	52	8	1.004 0	11.176	52
9	1.001 5	18.198	1	9	1.002 6	13.818	51	9	1.004 1	11.140	51
10	1.001 5	18.103	0	10	1.002 7	13.763	50	10	1.004 1	11.105	50
11	1.001 5	18.008	9	11	1.002 7	13.708	49	11	1.004 1	11.069	49
12	1.001 6	17.914	8	12	1.002 7	13.654	48	12	1.004 1	11.034	48
13	1.001 6	17.822	7	13	1.002 7	13.600	47	13	1.004 2	10.998	47
14	1.001 6	17.730	6	14	1.002 7	13.547	46	14	1.004 2	10.963	46
15	1.001 6	17.639	5	15	1.002 8	13.494	45	15	1.004 2	10.929	45
16	1.001 6	17.549	4	16	1.002 8	13.441	44	16	1.004 2	10.894	44
17	1.001 6	17.460	3	17	1.002 8	13.389	43	17	1.004 3	10.860	43
18	1.001 7	17.372	2	18	1.002 8	13.337	42	18	1.004 3	10.826	42
19	1.001 7	17.285	1	19	1.002 8	13.286	41	19	1.004 3	10.792	41
20	1.001 7	17.198	0	20	1.002	13.235	40	20	1.004 3	10.758	40
21	1.001 7	17.113	9	21	1.002 8	13.184	39	21	1.004 4	10.725	39
22	1.001 7	17.028	8	22	1.002 9	13.134	38	22	1.004 4	10.692	38
23	1.001 7	16.945	7	23	1.002 9	13.084	37	23	1.004 4	10.659	37
24	1.001 8	16.862	6	24	1.003 0	13.035	36	24	1.004 5	10.626	36
25	1.001 8	16.779	5	25	1.003 0	12.985	35	25	1.004 5	10.593	35
26	1.001 8	16.698	4	26	1.003 0	12.937	34	26	1.004 5	10.561	34
27	1.001 8	16.618	3	27	1.003 0	12.888	33	27	1.004 5	10.529	33
28	1.001 8	16.538	2	28	1.003 0	12.840	32	28	1.004 6	10.497	32
29	1.001 9	16.459	1	29	1.003 1	12.793	31	29	1.004 6	10.465	31
30	1.001 9	16.380	0	30	1.003 1	12.745	30	30	1.004 6	10.433	30
31	1.001 9	16.303	9	31	1.003 1	12.699	29	31	1.004 7	10.402	29
32	1.001 9	16.226	8	32	1.003 1	12.652	28	32	1.004 7	10.371	28
33	1.001 9	16.150	7	33	1.003 2	12.606	27	33	1.004 7	10.340	27
34	1.001 9	16.075	6	34	1.003 2	12.560	26	34	1.004 7	10.309	26
35	1.002 0	16.000	5	35	1.003 2	12.514	25	35	1.004 8	10.278	25
36	1.002 0	15.926	4	36	1.003 2	12.469	24	36	1.004 8	10.248	24
37	1.002 0	15.853	3	37	1.003 3	12.424	23	37	1.004 8	10.217	23
38	1.002 0	15.780	2	38	1.003 3	12.379	22	38	1.004 9	10.187	22
39	1.002 0	15.708	1	39	1.003 3	12.335	21	39	1.004 9	10.157	21
40	1.002 1	15.637	0	40	1.003 3	12.291	20	40	1.004 9	10.128	20
41	1.002 1	15.566	9	41	1.003 4	12.248	19	41	1.004 9	10.098	19
42	1.002 1	15.496	8	42	1.003 4	12.204	18	42	1.005 0	10.068	18
43	1.002 1	15.427	7	43	1.003 4	12.161	17	43	1.005 0	10.039	17
44	1.002 1	15.358	6	44	1.003 4	12.119	16	44	1.005 0	10.010	16
45	1.002 1	15.290	5	45	1.003 4	12.076	15	45	1.005 1	9.981 2	15
46	1.002 2	15.222	4	46	1.003 5	12.034	14	46	1.005 1	9.952 5	14
47	1.002 2	15.155	3	47	1.003 5	11.992	13	47	1.005 1	9.923 9	13
48	1.002 2	15.089	2	48	1.003 5	11.951	12	48	1.005 1	9.895 5	12
49	1.002 2	15.023	1	49	1.003 5	11.909	11	49	1.005 2	9.867 2	11
50	1.002 2	14.958	0	50	1.003 6	11.868	10	50	1.005 2	9.839 1	10
51	1.002 3	14.893	9	51	1.003 6	11.828	9	51	1.005 2	9.811 2	9
52	1.002 3	14.829	8	52	1.003 6	11.787	8	52	1.005 3	9.783 4	8
53	1.002 3	14.766	7	53	1.003 6	11.747	7	53	1.005 3	9.755 8	7
54	1.002 3	14.703	6	54	1.003 7	11.707	6	54	1.005 3	9.728 3	6
55	1.002 3	14.640	5	55	1.003 7	11.668	5	55	1.005 4	9.701 0	5
56	1.002 4	14.578	4	56	1.003 7	11.628	4	56	1.005 4	9.673 9	4
57	1.002 4	14.517	3	57	1.003 7	11.589	3	57	1.005 4	9.646 9	3
58	1.002 4	14.456	2	58	1.003 8	11.551	2	58	1.005 4	9.620 0	2
59	1.002 4	14.395	1	59	1.003 8	11.512	1	59	1.005 5	9.593 3	1
60	1.002 4	14.336	0	60	1.003 8	11.474	0	60	1.005 5	9.566 8	0
'	csc.	Sec.			Csc.	Sec.		'	csc.	Sec.	

93" (273")

(266°) 86°

14° (274°)

(265°) 85°

95" (275")

(264°) 84°

TABLE 7B NATURAL FUNCTIONS — SECANTS AND COSECANTS — *Cont'd*

6° (186°)

(353°) 173°

7° (187°)

(352°) 172°

8° (188°)

(351°) 171°

'	Sec.	Csc.	'	'	Sec.	Csc.	'	'	Sec.	Csc.	'
0	1.005 5	9.566 8	60	0	1.007 5	8.205 5	60	0	1.009 8	7.185 3	60
1	1.005 5	9.540 4	59	1	1.007 5	8.186 1	59	1	1.009 9	7.170 5	59
2	1.005 6	9.514 1	58	2	1.007 6	8.166 8	58	2	1.009 9	7.155 7	58
3	1.005 6	9.488 0	57	3	1.007 6	8.147 6	57	3	1.010 0	7.141 0	57
4	1.005 6	9.462 0	56	4	1.007 7	8.128 5	56	4	1.010 0	7.126 3	56
5	1.005 7	9.436 2	55	5	1.007 7	8.109 5	55	5	1.010 0	7.111 7	55
6	1.005 7	9.410 5	54	6	1.007 7	8.090 5	54	6	1.010 1	7.097 2	54
7	1.005 7	9.385 0	53	7	1.007 8	8.071 7	53	7	1.010 1	7.082 7	53
8	1.005 8	9.359 6	52	8	1.007 8	8.052 9	52	8	1.010 2	7.068 3	52
9	1.005 8	9.334 3	51	9	1.007 8	8.034 2	51	9	1.010 2	7.053 9	51
10	1.005 8	9.309 2	50	10	1.007 9	8.015 6	50	10	1.010	7.039 6	50
11	1.005 9	9.284 2	49	11	1.007 9	8.015 6	49	11	1.010 3	7.025 4	49
12	1.005 9	9.259 3	48	12	1.007 9	8.015 6	48	12	1.010 3	7.011 2	48
13	1.005 9	9.234 6	47	13	1.008 0	7.997 7	47	13	1.010 4	6.997 1	47
14	1.005 9	9.210 0	46	14	1.008 0	7.980 4	46	14	1.010 4	6.983 0	46
15	1.006 0	9.185 5	45	15	1.008 1	7.962 0	45	15	1.010 5	6.969	45
16	1.006 0	9.161 2	44	16	1.008 1	7.945 9	44	16	1.010 5	6.955 8	44
17	1.006 0	9.137 0	43	17	1.008 1	7.929 9	43	17	1.010 5	6.941 1	43
18	1.006 1	9.112 9	42	18	1.008 2	7.914 2	42	18	1.010 6	6.927 3	42
19	1.006 1	9.089 0	41	19	1.008 2	7.898 7	41	19	1.010 6	6.913 5	41
20	1.006 1	9.065 2	40	20	1.008 3	7.883 4	40	20	1.010 7	6.899 8	40
21	1.006 2	9.041 5	39	21	1.008 3	7.868 3	39	21	1.010 7	6.886 1	39
22	1.006 2	9.017 9	38	22	1.008 3	7.853 4	38	22	1.010 8	6.872 5	38
23	1.006 2	8.994 4	37	23	1.008 4	7.838 7	37	23	1.010 8	6.858 9	37
24	1.006 3	8.971 1	36	24	1.008 4	7.824 2	36	24	1.010 8	6.845 4	36
25	1.006 3	8.947 9	35	25	1.008 5	7.809 9	35	25	1.010 9	6.832 0	35
26	1.006 3	8.924 8	34	26	1.008 5	7.795 6	34	26	1.010 9	6.818 6	34
27	1.006 4	8.901 9	33	27	1.008 5	7.781 4	33	27	1.011 0	6.805 2	33
28	1.006 4	8.879 0	32	28	1.008 6	7.767 3	32	28	1.011 0	6.791 9	32
29	1.006 4	8.856 3	31	29	1.008 6	7.753 3	31	29	1.011 1	6.778 7	31
30	1.006 5	8.833 7	30	30	1.008 6	7.739 4	30	30	1.011 1	6.765 5	30
31	1.006 5	8.811 2	29	31	1.008 7	7.725 6	29	31	1.011 2	6.752 3	29
32	1.006 5	8.788 8	28	32	1.008 7	7.711 8	28	32	1.011 2	6.739 2	28
33	1.006 6	8.766 5	27	33	1.008 8	7.698 0	27	33	1.011 2	6.726 2	27
34	1.006 6	8.744 4	26	34	1.008 8	7.684 2	26	34	1.011 3	6.713 2	26
35	1.006 6	8.722 3	25	35	1.008 8	7.670 4	25	35	1.011 3	6.700 3	25
36	1.006 7	8.700 4	24	36	1.008 9	7.656 6	24	36	1.011 4	6.687 4	24
37	1.006 7	8.678 6	23	37	1.008 9	7.642 8	23	37	1.011 4	6.674 5	23
38	1.006 7	8.656 9	22	38	1.009 0	7.629 0	22	38	1.011 5	6.661 6	22
39	1.006 8	8.635 3	21	39	1.009 0	7.615 2	21	39	1.011 5	6.649 0	21
40	1.006 8	8.613 8	20	40	1.009 0	7.601 4	20	40	1.011 6	6.636 3	20
41	1.006 8	8.592 4	19	41	1.009 1	7.587 6	19	41	1.011 6	6.623 7	19
42	1.006 9	8.571 1	18	42	1.009 1	7.573 8	18	42	1.011 6	6.611 1	18
43	1.006 9	8.550 0	17	43	1.009 1	7.560 0	17	43	1.011 7	6.598 6	17
44	1.006 9	8.528 9	16	44	1.009 2	7.546 2	16	44	1.011 7	6.586 1	16
45	1.007 0	8.507 9	15	45	1.009 2	7.532 4	15	45	1.011	6.573 6	15
46	1.007 0	8.487 1	14	46	1.009 3	7.518 6	14	46	1.011 3	6.561 2	14
47	1.007 0	8.466 3	13	47	1.009 3	7.504 8	13	47	1.011 9	6.548 9	13
48	1.007 1	8.445 7	12	48	1.009 3	7.491 0	12	48	1.011 9	6.536 6	12
49	1.007 1	8.425 1	11	49	1.009 4	7.477 2	11	49	1.012 0	6.524 3	11
50	1.007 2	8.404 7	10	50	1.009 4	7.463 4	10	50	1.012 0	6.512 1	10
51	1.007 2	8.384 3	9	51	1.009 5	7.449 5	9	51	1.012 0	6.499 9	9
52	1.007 3	8.364 1	8	52	1.009 5	7.435 7	8	52	1.012 1	6.487 8	8
53	1.007 3	8.344 0	7	53	1.009 5	7.421 8	7	53	1.012 1	6.475 7	7
54	1.007 3	8.323 8	6	54	1.009 6	7.407 9	6	54	1.012 2	6.463 7	6
55	1.007 3	8.303 9	5	55	1.009 6	7.394 0	5	55	1.012 2	6.451 7	5
56	1.007 4	8.284 0	4	56	1.009 6	7.380 1	4	56	1.012 3	6.439 8	4
57	1.007 4	8.264 2	3	57	1.009 7	7.366 2	3	57	1.012 3	6.427 9	3
58	1.007 4	8.244 6	2	58	1.009 7	7.352 3	2	58	1.012 4	6.416 0	2
59	1.007 5	8.225 0	1	59	1.009 7	7.338 4	1	59	1.012 4	6.404 2	1
60	1.007 5	8.205 5	0	60	1.009 8	7.324 5	0	60	1.012 5	6.392 5	0
'	Csc.	Sec.	'	'	Csc.	Sec.	'	'	Csc.	Sec.	'

96° (1276°)

(263°) 83°

97° (277°)

(262°) 82°

98° (278°)

(261°) 81°

TABLE 7B NATURAL FUNCTIONS — SECANTS AND COSECANTS — Contd

9° (189°)				(350°) 170°				10° (190°)				(349°) 169°				11° (191°)				(348°) 168°			
'	Sec.	CSC.	'	'	Sec.	Csc.	'	'	Sec.	Csc.	'	'	Sec.	Csc.	'	'	Sec.	Csc.	'				
0	1.012 5	6.392 5	60	0	1.015 4	5.758 8	60	0	1.018 8	5.240 8	60	0	1.018 8	5.240 8	60	0	1.018 8	5.240 8	60				
1	1.012 5	6.380 7	59	1	1.015 5	5.749 3	59	1	1.018 8	5.233 0	59	1	1.018 8	5.233 0	59	1	1.018 8	5.233 0	59				
2	1.012 6	6.369 1	58	2	1.015 5	5.739 8	58	2	1.018 9	5.225 2	58	2	1.018 9	5.225 2	58	2	1.018 9	5.225 2	58				
3	1.012 6	6.357 4	57	3	1.015 6	5.730 4	57	3	1.018 9	5.217 4	57	3	1.018 9	5.217 4	57	3	1.018 9	5.217 4	57				
4	1.012 7	6.345 8	56	4	1.015 6	5.721 0	56	4	1.018 9	5.209 7	56	4	1.018 9	5.209 7	56	4	1.018 9	5.209 7	56				
5	1.012 7	6.334 3	55	5	1.015 7	5.711 7	55	5	1.019 0	5.201 9	55	5	1.019 0	5.201 9	55	5	1.019 0	5.201 9	55				
6	1.012 7	6.322 8	54	6	1.015 7	5.702 3	54	6	1.019 1	5.194 2	54	6	1.019 1	5.194 2	54	6	1.019 1	5.194 2	54				
7	1.012 8	6.311 3	53	7	1.015 8	5.693 0	53	7	1.019 1	5.186 5	53	7	1.019 1	5.186 5	53	7	1.019 1	5.186 5	53				
8	1.012 8	6.299 9	52	8	1.015 8	5.683 8	52	8	1.019 2	5.178 9	52	8	1.019 2	5.178 9	52	8	1.019 2	5.178 9	52				
9	1.012 9	6.288 5	51	9	1.015 9	5.674 5	51	9	1.019 2	5.171 2	51	9	1.019 2	5.171 2	51	9	1.019 2	5.171 2	51				
10	1.012 9	6.277 2	50	10	1.016	5.665 3	50	10	1.019 3	5.163 6	50	10	1.019 3	5.163 6	50	10	1.019 3	5.163 6	50				
11	1.013 0	6.265 9	49	11	1.016 8	5.656 2	49	11	1.019 4	5.156 0	49	11	1.019 4	5.156 0	49	11	1.019 4	5.156 0	49				
12	1.013 0	6.254 6	48	12	1.016 1	5.647 0	48	12	1.019 4	5.148 4	48	12	1.019 4	5.148 4	48	12	1.019 4	5.148 4	48				
13	1.013 1	6.243 4	47	13	1.016 1	5.637 9	47	13	1.019 5	5.140 9	47	13	1.019 5	5.140 9	47	13	1.019 5	5.140 9	47				
14	1.013 1	6.232 3	46	14	1.016 2	5.628 8	46	14	1.019 5	5.133 3	46	14	1.019 5	5.133 3	46	14	1.019 5	5.133 3	46				
15	1.013 2	6.221 1	45	15	1.016 2	5.619 8	45	15	1.019 6	5.125 8	45	15	1.019 6	5.125 8	45	15	1.019 6	5.125 8	45				
16	1.013 2	6.210	44	16	1.016 3	5.610 7	44	16	1.019 7	5.118 3	44	16	1.019 7	5.118 3	44	16	1.019 7	5.118 3	44				
17	1.013 3	6.199 8	43	17	1.016 3	5.601 7	43	17	1.019 7	5.110 9	43	17	1.019 7	5.110 9	43	17	1.019 7	5.110 9	43				
18	1.013 3	6.188 0	42	18	1.016 4	5.592 8	42	18	1.019 8	5.103 4	42	18	1.019 8	5.103 4	42	18	1.019 8	5.103 4	42				
19	1.013 4	6.177 0	41	19	1.016 4	5.583 8	41	19	1.019 8	5.096 0	41	19	1.019 8	5.096 0	41	19	1.019 8	5.096 0	41				
20	1.013 4	6.166 1	40	20	1.016 5	5.574 9	40	20	1.019 9	5.088 6	40	20	1.019 9	5.088 6	40	20	1.019 9	5.088 6	40				
21	1.013 5	6.155	39	21	1.016 5	5.566 0	39	21	1.019 9	5.081 3	39	21	1.019 9	5.081 3	39	21	1.019 9	5.081 3	39				
22	1.013 5	6.144 3	38	22	1.016 6	5.557 2	38	22	1.020 0	5.073 9	38	22	1.020 0	5.073 9	38	22	1.020 0	5.073 9	38				
23	1.013 6	6.133 5	37	23	1.016 6	5.548 4	37	23	1.020 1	5.066 6	37	23	1.020 1	5.066 6	37	23	1.020 1	5.066 6	37				
24	1.013 6	6.122 7	36	24	1.016 7	5.539 6	36	24	1.020 1	5.059 3	36	24	1.020 1	5.059 3	36	24	1.020 1	5.059 3	36				
25	1.013 7	6.112 0	35	25	1.016 8	5.530 8	35	25	1.020 2	5.052 0	35	25	1.020 2	5.052 0	35	25	1.020 2	5.052 0	35				
26	1.013 7	6.101 3	34	26	1.016 8	5.522 1	34	26	1.020 2	5.044 7	34	26	1.020 2	5.044 7	34	26	1.020 2	5.044 7	34				
27	1.013 8	6.090 6	33	27	1.016 9	5.513 4	33	27	1.020 3	5.037 5	33	27	1.020 3	5.037 5	33	27	1.020 3	5.037 5	33				
28	1.013 8	6.080 0	32	28	1.016 9	5.504 7	32	28	1.020 4	5.030 2	32	28	1.020 4	5.030 2	32	28	1.020 4	5.030 2	32				
29	1.013 9	6.069 4	31	29	1.017 0	5.496 0	31	29	1.020 4	5.023 0	31	29	1.020 4	5.023 0	31	29	1.020 4	5.023 0	31				
30	1.013 9	6.058 9	30	30	1.017 0	5.487 4	30	30	1.020 5	5.015 9	30	30	1.020 5	5.015 9	30	30	1.020 5	5.015 9	30				
31	1.014 0	6.048 3	29	31	1.017 1	5.478 8	29	31	1.020 5	5.008 7	29	31	1.020 5	5.008 7	29	31	1.020 5	5.008 7	29				
32	1.014 0	6.037 9	28	32	1.017 1	5.470 2	28	32	1.020 6	5.001 6	28	32	1.020 6	5.001 6	28	32	1.020 6	5.001 6	28				
33	1.014 1	6.027 4	27	33	1.017 2	5.461 7	27	33	1.020 7	4.994 4	27	33	1.020 7	4.994 4	27	33	1.020 7	4.994 4	27				
34	1.014 1	6.017 0	26	34	1.017 3	5.453 2	26	34	1.020 7	4.987 3	26	34	1.020 7	4.987 3	26	34	1.020 7	4.987 3	26				
35	1.014 2	6.006 7	25	35	1.017 3	5.444 7	25	35	1.020 8	4.980 3	25	35	1.020 8	4.980 3	25	35	1.020 8	4.980 3	25				
36	1.014 2	5.996 3	24	36	1.017 4	5.436 2	24	36	1.020 9	4.973 2	24	36	1.020 9	4.973 2	24	36	1.020 9	4.973 2	24				
37	1.014 3	5.986 0	23	37	1.017 4	5.427 8	23	37	1.020 9	4.966 2	23	37	1.020 9	4.966 2	23	37	1.020 9	4.966 2	23				
38	1.014 3	5.975 8	22	38	1.017 5	5.419 4	22	38	1.021 0	4.959 1	22	38	1.021 0	4.959 1	22	38	1.021 0	4.959 1	22				
39	1.014 4	5.965 6	21	39	1.017 5	5.411 0	21	39	1.021 0	4.952 1	21	39	1.021 0	4.952 1	21	39	1.021 0	4.952 1	21				
40	1.014 4	5.955 4	20	40	1.017 6	5.402 6	20	40	1.021 1	4.945 2	20	40	1.021 1	4.945 2	20	40	1.021 1	4.945 2	20				
41	1.014 5	5.945 2	19	41	1.017 6	5.394 3	19	41	1.021 1	4.938 2	19	41	1.021 1	4.938 2	19	41	1.021 1	4.938 2	19				
42	1.014 5	5.935 1	18	42	1.017 7	5.386 0	18	42	1.021 a	4.931 3	18	42	1.021 a	4.931 3	18	42	1.021 a	4.931 3	18				
43	1.014 6	5.925 0	17	43	1.017 8	5.377 7	17	43	1.021 3	4.924 4	17	43	1.021 3	4.924 4	17	43	1.021 3	4.924 4	17				
44	1.014 6	5.915 0	16	44	1.017 8	5.369 5	16	44	1.021 3	4.917 5	16	44	1.021 3	4.917 5	16	44	1.021 3	4.917 5	16				
45	1.014 7	5.904 9	15	45	1.017 9	5.361 2	15	45	1.021 4	4.910 6	15	45	1.021 4	4.910 6	15	45	1.021 4	4.910 6	15				
46	1.014 7	5.895 0	14	46	1.017 9	5.353 0	14	46	1.021 5	4.903 7	14	46	1.021 5	4.903 7	14	46	1.021 5	4.903 7	14				
47	1.014 8	5.885 0	13	47	1.018 0	5.344 9	13	47	1.021 5	4.896 9	13	47	1.021 5	4.896 9	13	47	1.021 5	4.896 9	13				
48	1.014 8	5.875 1	12	48	1.018 0	5.336 7	12	48	1.021 6	4.890 1	12	48	1.021 6	4.890 1	12	48	1.021 6	4.890 1	12				
49	1.014 9	5.865 2	11	49	1.018 1	5.328 6	11	49	1.021 7	4.883 3	11	49	1.021 7	4.883 3	11	49	1.021 7	4.883 3	11				
50	1.014 9	5.855 4	10	50	1.018 1	5.320 5	10	50	1.021 7	4.876 5	10	50	1.021 7	4.876 5	10	50	1.021 7	4.876 5	10				
51	1.015 0	5.845 6	9	51	1.018 2	5.312 4	9	51	1.021 8	4.869 7	9	51	1.021 8	4.869 7	9	51	1.021 8	4.869 7	9				
52	1.015 0	5.835 8	8	52	1.018 3	5.304 4	8	52	1.021 8	4.863 0	8	52	1.021 8	4.863 0	8	52	1.021 8	4.863 0	8				
53	1.015 1	5.826 1	7	53	1.018 3	5.296 3	7	53	1.021 9	4.856 3	7	53	1.021 9	4.856 3	7	53	1.021 9	4.856 3	7				
54	1.015 1	5.816 4	6	54	1.018 4	5.288 3	6	54	1.022 0	4.849 6	6	54	1.022 0	4.849 6	6	54	1.022 0	4.849 6	6				
55	1.015 2	5.806 7	5	55	1.018 4	5.280 4	5	55	1.022 0	4.842 9	5	55	1.022 0	4.842 9	5	55	1.022 0	4.842 9	5				
56	1.015 2	5.797 0	4	56	1.018 5	5.272 4	4	56	1.022 1	4.836 2	4	56	1.022 1	4.836 2	4	56	1.022 1	4.836 2	4				
57	1.015 3	5.787 4	3	57	1.018 5	5.264 5	3	57	1.022 2	4.829 6	3	57	1.022 2	4.829 6	3	57	1.022 2	4.829 6	3				
58	1.015 3	5.777 8	2	58	1.018 6	5.256 6	2	58	1.022 2	4.822 9	2	58	1.022 2	4.822 9	2	58	1.022 2	4.822 9	2				
59	1.015 4	5.768 3	1	59	1.018 7	5.248 7	1	59	1.022 3	4.816 3	1	59	1.022 3	4.816 3	1	59	1.022 3	4.816 3	1				
60	1.015 4	5.758 8	0	60	1.018 7	5.240 8	0	60	1.022 3	4.809 7	0	60	1.022 3	4.809 7	0	60	1.022 3	4.809 7	0				
'	CEC.	Sec.	'	'	Csc.	Sec.	'	'	CSC.	Sec.	'	'	CSC.	Sec.	'	'	CSC.	Sec.	'				
99° (279°)				(260°) 80°				100° (280°)				(259°) 79°				101° (281°)				(258°) 78°			

99° (279°)

(260°) 80°

100° (280°)

(259°) 79°

101° (281°)

(258°) 78°

TABLE 7B NATURAL FUNCTIONS — SECANTS AND COSECANTS — *Contd*

12° (192°)

(347°) 167

13 (193°)

(346°) 166

14° (1949)

(345°) 165°

'	Sec.	Csc.	'
0	1.022 3	4.809 7	60
1	1.022 4	4.803 2	59
2	1.022 5	4.796 6	58
3	1.022 5	4.790 1	57
4	1.022 6	4.783 6	56
5	1.022 7	4.777 1	55
6	1.022 7	4.770 6	54
7	1.022 8	4.764 1	53
8	1.022 8	4.757 7	52
9	1.022 9	4.751 2	51
10	1.023 0	4.744 8	50
11	1.023 0	4.738 4	49
12	1.023 1	4.732 1	48
13	1.023 2	4.725 7	47
14	1.023 2	4.719 4	46
15	1.023 3	4.713 0	45
16	1.023 4	4.706 7	44
17	1.023 4	4.700 4	43
18	1.023 5	4.694 2	42
19	1.023 6	4.687 9	41
20	1.023 6	4.681 7	40
21	1.023 7	4.675 5	39
22	1.023 8	4.669 3	38
23	1.023 8	4.663 1	37
24	1.023 9	4.656 9	36
25	1.024 0	4.650 7	35
26	1.024 0	4.644 6	34
27	1.024 1	4.638 5	33
28	1.024 1	4.632 4	32
29	1.024 2	4.626 3	31
30	1.024 3	4.620 2	30
31	1.024 3	4.614 2	29
32	1.024 4	4.608 1	28
33	1.024 5	4.602 1	27
34	1.024 5	4.596 1	26
35	1.024 6	4.590 1	25
36	1.024 7	4.584 1	24
37	1.024 7	4.578 2	23
38	1.024 8	4.572 2	22
39	1.024 9	4.566 3	21
40	1.024 9	4.560 4	20
41	1.025 0	4.554 5	19
42	1.025 1	4.548 6	18
43	1.025 1	4.542 8	17
44	1.025 2	4.536 9	16
45	1.025 3	4.531 1	15
46	1.025 3	4.525 3	14
47	1.025 4	4.519 5	13
48	1.025 5	4.513 7	12
49	1.025 6	4.507 9	11
50	1.025 6	4.502 2	10
51	1.025 7	4.496 4	9
52	1.025 8	4.490 7	8
53	1.025 8	4.485 0	7
54	1.025 9	4.479 3	6
55	1.026 0	4.473 6	5
56	1.026 0	4.467 9	4
57	1.026 1	4.462 3	3
58	1.026 2	4.456 6	2
59	1.026 2	4.451 0	1
60	1.026 3	4.445 4	0
'	Csc.	Sec.	'

'	Sec.	Csc.	'
0	1.026 3	4.445 4	60
1	1.026 4	4.439 8	59
2	1.026 4	4.434 2	58
3	1.026 5	4.428 7	57
4	1.026 6	4.423 1	56
5	1.026 6	4.417 6	55
6	1.026 7	4.412 1	54
7	1.026 8	4.406 6	53
8	1.026 9	4.401 1	52
9	1.026 9	4.395 6	51
10	1.027 0	4.390 1	50
11	1.027 1	4.384 7	49
12	1.027 1	4.379 2	48
13	1.027 2	4.373 8	47
14	1.027 3	4.368 4	46
15	1.027 3	4.363 0	45
16	1.027 4	4.357 6	44
17	1.027 5	4.352 2	43
18	1.027 6	4.346 9	42
19	1.027 6	4.341 5	41
20	1.027 7	4.336 2	40
21	1.027 8	4.330 9	39
22	1.027 8	4.325 6	38
23	1.027 9	4.320 3	37
24	1.028 0	4.315 0	36
25	1.028 1	4.309 8	35
26	1.028 1	4.304 5	34
27	1.028 2	4.299 3	33
28	1.028 3	4.294 1	32
29	1.028 3	4.288 9	31
30	1.028 4	4.283 7	30
31	1.028 5	4.278 5	29
32	1.028 6	4.273 3	28
33	1.028 6	4.268 1	27
34	1.028 7	4.263 0	26
35	1.028 8	4.257 9	25
36	1.028 8	4.252 7	24
37	1.028 9	4.247 6	23
38	1.029 0	4.242 5	22
39	1.029 1	4.237 5	21
40	1.029 1	4.232 4	20
41	1.029 2	4.227 3	19
42	1.029 3	4.222 3	18
43	1.029 4	4.217 3	17
44	1.029 4	4.212 2	16
45	1.029 5	4.207 2	15
46	1.029 6	4.202 2	14
47	1.029 7	4.197 3	13
48	1.029 7	4.192 3	12
49	1.029 8	4.187 3	11
50	1.029 9	4.182 4	10
51	1.029 9	4.177 4	9
52	1.030 0	4.172 5	8
53	1.030 1	4.167 6	7
54	1.030 2	4.162 7	6
55	1.030 2	4.157 8	5
56	1.030 3	4.152 9	4
57	1.030 4	4.148 1	3
58	1.030 5	4.143 2	2
59	1.030 5	4.138 4	1
60	1.030 6	4.133 6	0
'	Sec.		'

'	Sec.	Csc.	'
0	1.030 6	4.133 6	60
1	1.030 7	4.128 7	59
2	1.030 8	4.123 9	58
3	1.030 8	4.119 1	57
4	1.030 9	4.114 4	56
5	1.031 0	4.109 6	55
6	1.031 1	4.104 8	54
7	1.031 1	4.100 1	53
8	1.031 2	4.095 4	52
9	1.031 3	4.090 6	51
10	1.031 4	4.085 9	50
11	1.031 4	4.081 2	49
12	1.031 5	4.076 5	48
13	1.031 6	4.071 8	47
14	1.031 7	4.067 2	46
15	1.031 7	4.062 5	45
16	1.031 8	4.057 9	44
17	1.031 9	4.053 2	43
18	1.032 0	4.048 6	42
19	1.032 1	4.044 0	41
20	1.032 1	4.039 4	40
21	1.032 2	4.034 8	39
22	1.032 3	4.030 2	38
23	1.032 4	4.025 6	37
24	1.032 4	4.021 1	36
25	1.032 5	4.016 5	35
26	1.032 6	4.012 0	34
27	1.032 7	4.007 5	33
28	1.032 7	4.002 9	32
29	1.032 8	3.998 4	31
30	1.032 9	3.993 9	30
31	1.033 0	3.989 4	29
32	1.033 1	3.985 0	28
33	1.033 1	3.980 5	27
34	1.033 2	3.976 0	26
35	1.033 3	3.971 6	25
36	1.033 4	3.967 2	24
37	1.033 4	3.962 7	23
38	1.033 5	3.958 3	22
39	1.033 6	3.953 9	21
40	1.033 7	3.949 5	20
41	1.033 8	3.945 1	19
42	1.033 8	3.940 8	18
43	1.033 9	3.936 4	17
44	1.034 0	3.932 0	16
45	1.034 1	3.927 7	15
46	1.034 2	3.923 4	14
47	1.034 2	3.919 0	13
48	1.034 3	3.914 7	12
49	1.034 4	3.910 4	11
50	1.034 5	3.906 1	10
51	1.034 6	3.901 8	9
52	1.034 6	3.897 6	8
53	1.034 7	3.893 3	7
54	1.034 8	3.889 0	6
55	1.034 9	3.884 8	5
56	1.035	3.880 6	4
57	1.035 8	3.876 3	3
58	1.035 1	3.872 1	2
59	1.035 2	3.867 9	1
60	1.035 3	3.863 7	0
'	Csc.	Sec.	'

102° (282°)

(257°) 77°

103 (283°)

(2°) 76

104° (284°)

(255°) 75°

TABLE 7B NATURAL FUNCTIONS — SECANTS AND COSECANTS — <i>Contd</i>											
15° (195°)				16° (196°)				17° (197°)			
(344°) 164°				(343°) 163°				(342°) 162°			
'	Sec.	Csc.	'	'	Sec.	Csc.	'	'	Sec.	Csc.	'
0	1.035 3	3.863 7	60	0	1.040 3	3.628 0	60	0	1.045 7	3.420 3	60
1	1.035 4	3.859 5	59	1	1.040 4	3.624 3	59	1	1.045 8	3.417 1	59
2	1.035 4	3.855 3	58	2	1.040 5	3.620 6	58	2	1.045 9	3.413 8	58
3	1.035 5	3.851 2	57	3	1.040 6	3.616 9	57	3	1.046 0	3.410 6	57
4	1.035 6	3.847 0	56	4	1.040 6	3.613 3	56	4	1.046 1	3.407 3	56
5	1.035 7	3.842 8	55	5	1.040 7	3.609 7	55	5	1.046 2	3.404 1	55
6	1.035 8	3.838 7	54	6	1.040 8	3.606 0	54	6	1.046 3	3.400 9	54
7	1.035 8	3.834 6	53	7	1.040 9	3.602 4	53	7	1.046 3	3.397 7	53
8	1.035 9	3.830 4	52	8	1.041 0	3.598 8	52	8	1.046 4	3.394 5	52
9	1.036 0	3.826 3	51	9	1.041 1	3.595 1	51	9	1.046 5	3.391 3	51
10	1.036 1	3.822 2	50	10	1.041 2	3.591 5	50	10	1.046 6	3.388 1	50
11	1.036 2	3.818 1	49	11	1.041 3	3.587 9	49	11	1.046 7	3.384 9	49
12	1.036 3	3.814 0	48	12	1.041 3	3.584 3	48	12	1.046 8	3.381 7	48
13	1.036 3	3.810 0	47	13	1.041 4	3.580 8	47	13	1.046 9	3.378 5	47
14	1.036 4	3.805 9	46	14	1.041 5	3.577 2	46	14	1.047 0	3.375 4	46
15	1.036 5	3.801 8	45	15	1.041 6	3.573 6	45	15	1.047 1	3.372 2	45
16	1.036 6	3.797 8	44	16	1.041 7	3.570 0	44	16	1.047 2	3.369 1	44
17	1.036 7	3.793 7	43	17	1.041 8	3.566 5	43	17	1.047 3	3.365 9	43
18	1.036 7	3.789 7	42	18	1.041 9	3.562 9	42	18	1.047 4	3.362 8	42
19	1.036 8	3.785 7	41	19	1.042 0	3.559 4	41	19	1.047 5	3.359 6	41
20	1.036 9	3.781 7	40	20	1.042 1	3.555 0	40	20	1.047 6	3.356 5	40
21	1.037 0	3.777 7	39	21	1.042 1	3.552 3	39	21	1.047 7	3.353 4	39
22	1.037 1	3.773 7	38	22	1.042 2	3.548 8	38	22	1.047 8	3.350 2	38
23	1.037 2	3.769 7	37	23	1.042 3	3.545 3	37	23	1.047 9	3.347 1	37
24	1.037 2	3.765 7	36	24	1.042 4	3.541 8	36	24	1.048 0	3.344 0	36
25	1.037 3	3.761 7	35	25	1.042 5	3.538 3	35	25	1.048 0	3.340 9	35
26	1.037 4	3.757 7	34	26	1.042	3.534 8	34	26	1.048 1	3.337 8	34
27	1.037 5	3.753 8	33	27	1.042 4	3.531 3	33	27	1.048 2	3.334 7	33
28	1.037	3.749 8	32	28	1.042 8	3.527 9	32	28	1.048 3	3.331 7	32
29	1.037 4	3.745 9	31	29	1.042 9	3.524 4	31	29	1.048 4	3.328 6	31
30	1.037 7	3.742 0	30	30	1.042 9	3.520 9	30	30	1.048 5	3.325 5	30
31	1.037 8	3.738 1	29	31	1.043 0	3.517 5	29	31	1.048 6	3.322 4	29
32	1.037 9	3.734 1	28	32	1.043 1	3.514 0	28	32	1.048 7	3.319 4	28
33	1.038 0	3.730 2	27	33	1.043 2	3.510 6	27	33	1.048 8	3.316 3	27
34	1.038 1	3.726 3	26	34	1.043 3	3.507 2	26	34	1.048 9	3.313 3	26
35	1.038 2	3.722 5	25	35	1.043 4	3.503 7	25	35	1.049 0	3.310 2	25
36	1.038 2	3.718 6	24	36	1.043 5	3.500 3	24	36	1.049 1	3.307 2	24
37	1.038 3	3.714 7	23	37	1.043	3.496 9	23	37	1.049 2	3.304 2	23
38	1.038 4	3.710 8	22	38	1.043 4	3.493 5	22	38	1.049 3	3.301 2	22
39	1.038 5	3.707 0	21	39	1.043 8	3.490 1	21	39	1.049 4	3.298 1	21
40	1.038 6	3.703 2	20	40	1.043 9	3.486 7	20	40	1.049 5	3.295 1	20
41	1.038 7	3.699 3	19	41	1.043 9	3.483 3	19	41	1.049 6	3.292 1	19
42	1.038 8	3.695 5	18	42	1.044 0	3.479 9	18	42	1.049 7	3.289 1	18
43	1.038 8	3.691 7	17	43	1.044 1	3.476 6	17	43	1.049 8	3.286 1	17
44	1.038 9	3.687 9	16	44	1.044 2	3.473 2	16	44	1.049 9	3.283 1	16
45	1.039 0	3.684 0	15	45	1.044 3	3.469 9	15	45	1.050 0	3.280 1	15
46	1.039 1	3.680 3	14	46	1.044 4	3.466 5	14	46	1.050 1	3.277 2	14
47	1.039 2	3.676 5	13	47	1.044 5	3.463 2	13	47	1.050 2	3.274 2	13
48	1.039 3	3.672 7	12	48	1.044 6	3.459 8	12	48	1.050 3	3.271 2	12
49	1.039 4	3.668 9	11	49	1.044 7	3.456 5	11	49	1.050 4	3.268 3	11
50	1.039 4	3.665 2	10	50	1.044 8	3.453 2	10	50	1.050 5	3.265 3	10
51	1.039 5	3.661 4	9	51	1.044 9	3.449 9	9	51	1.050 6	3.262 4	9
52	1.039 6	3.657 6	8	52	1.045	3.446 5	8	52	1.050 7	3.259 4	8
53	1.039 7	3.653 9	7	53	1.045 8	3.443 2	7	53	1.050 8	3.256 5	7
54	1.039 8	3.650 2	6	54	1.045 1	3.439 9	6	54	1.050 9	3.253 5	6
55	1.039 9	3.646 5	5	55	1.045 2	3.436 7	5	55	1.051 0	3.250 6	5
56	1.040 0	3.642 7	4	56	1.045 3	3.433 4	4	56	1.051 1	3.247 7	4
57	1.040 0	3.639 0	3	57	1.045 4	3.430 1	3	57	1.051 2	3.244 8	3
58	1.040 1	3.635 3	2	58	1.045 5	3.426 8	2	58	1.051 3	3.241 9	2
59	1.040 2	3.631 6	1	59	1.045 6	3.423 6	1	59	1.051 4	3.239 0	1
60	1.040 3	3.628 0	0	60	1.045 7	3.420 3	0	60	1.051 5	3.236 1	0
'	Csc.	Sec.	'	'	csc.	Sec.	'	'	Csc.	Sec.	'
35° (285°)	(254°) 74°			106° (286°)	(253°) 73°			107° (287°)	(252°) 72°		

(Continued)

TABLE 7B NATURAL FUNCTIONS — SECANTS AND COSECANTS — <i>Contd</i>											
18" (198")				19" (199")				20" (200°)			
(341") 161"				(340") 160"				(339") 159"			
'	Sec.	Csc.	'	'	Sec.	Csc.	'	'	Sec.	Csc.	'
60	1.051 5	3.236 1	60	0	1.057 6	3.071 6	60	0	1.064 2	2.923 8	60
1	1.051 6	3.233 2	59	1	1.057 7	3.069 0	59	1	1.064 3	2.921 5	59
2	1.051 7	3.230 3	58	2	1.057 8	3.066 4	58	2	1.064 4	2.919 1	58
3	1.051 8	3.227 4	57	3	1.057 9	3.063 8	57	3	1.064 5	2.916 8	57
4	1.051 9	3.224 5	56	4	1.058 0	3.061 2	56	4	1.064 6	2.914 5	56
5	1.052 0	3.221 7	55	5	1.058 2	3.058 6	55	5	1.064 7	2.912 2	55
6	1.052 1	3.218 8	54	6	1.058 3	3.056 1	54	6	1.064 9	2.909 9	54
7	1.052 2	3.215 9	53	7	1.058 4	3.053 5	53	7	1.065 0	2.907 5	53
8	1.052 3	3.213 1	52	8	1.058 5	3.050 9	52	8	1.065 1	2.905 2	52
9	1.052 4	3.210 2	51	9	1.058 6	3.048 4	51	9	1.065 2	2.902 9	51
10	1.052 5	3.207 4	50	10	1.058 7	3.045 8	50	10	1.065 3	2.900 6	50
11	1.052 6	3.204 5	49	11	1.058 8	3.043 3	49	11	1.065 4	2.898 3	49
12	1.052 7	3.201 7	48	12	1.058 9	3.040 7	48	12	1.065 5	2.896 0	48
13	1.052 8	3.198 9	47	13	1.059 0	3.038 2	47	13	1.065 7	2.893 8	47
14	1.052 9	3.196 0	46	14	1.059 1	3.035 7	46	14	1.065 8	2.891 5	46
15	1.053 0	3.193 2	45	15	1.059 2	3.033 1	45	15	1.065 9	2.889 2	45
16	1.053 1	3.190 4	44	16	1.059 3	3.030 6	44	16	1.066 0	2.886 9	44
17	1.053 2	3.187 6	43	17	1.059 4	3.028 1	43	17	1.066 1	2.884 6	43
18	1.053 3	3.184 8	42	18	1.059 5	3.025 6	42	18	1.066 2	2.882 4	42
19	1.053 4	3.182 0	41	19	1.059 7	3.023 1	41	19	1.066 3	2.880 1	41
20	1.053 5	3.179 2	40	20	1.059 8	3.020 6	40	20	1.066 5	2.877 9	40
21	1.053 6	3.176 4	39	21	1.059 9	3.018 1	39	21	1.066 6	2.875 6	39
22	1.053 7	3.173 6	38	22	1.060 0	3.015 6	38	22	1.066 7	2.873 3	38
23	1.053 8	3.170 8	37	23	1.060 1	3.013 1	37	23	1.066 8	2.871 1	37
24	1.053 9	3.168 1	36	24	1.060 2	3.010 6	36	24	1.066 9	2.868 8	36
25	1.054 0	3.165 3	35	25	1.060 3	3.008 1	35	25	1.067 0	2.866 6	35
26	1.054 1	3.162 5	34	26	1.060 4	3.005 6	34	26	1.067 1	2.864 4	34
27	1.054 2	3.159 8	33	27	1.060 5	3.003 1	33	27	1.067 3	2.862 1	33
28	1.054 3	3.157 0	32	28	1.060 6	3.000 7	32	28	1.067 4	2.859 9	32
29	1.054 4	3.154 3	31	29	1.060 7	2.998 2	31	29	1.067 5	2.857 7	31
30	1.054 5	3.151 5	30	30	1.060 8	2.995 7	30	30	1.067 6	2.855 5	30
31	1.054 6	3.148 8	29	31	1.061 0	2.993 3	29	31	1.067 7	2.853 2	29
32	1.054 7	3.146 1	28	32	1.061 1	2.990 8	28	32	1.067 8	2.851 0	28
33	1.054 8	3.143 3	27	33	1.061 2	2.988 4	27	33	1.068 0	2.848 8	27
34	1.054 9	3.140 6	26	34	1.061 3	2.985 9	26	34	1.068 1	2.846 6	26
35	1.055 0	3.137	25	35	1.061 4	2.983 5	25	35	1.068 2	2.844 4	25
36	1.055 1	3.135 4	24	36	1.061 5	2.981 1	24	36	1.068 3	2.842 2	24
37	1.055 2	3.132 5	23	37	1.061 6	2.978 6	23	37	1.068 4	2.840 0	23
38	1.055 3	3.129 8	22	38	1.061 7	2.976 2	22	38	1.068 5	2.837 8	22
39	1.055 4	3.127 1	21	39	1.061 8	2.973 8	21	39	1.068 7	2.835 6	21
40	1.055 5	3.124 4	20	40	1.061 9	2.971 3	20	40	1.068 8	2.833 4	20
41	1.055 6	3.121 7	19	41	1.062 1	2.968 9	19	41	1.068 9	2.831 2	19
42	1.055 7	3.119 0	18	42	1.062 2	2.966 5	18	42	1.069 0	2.829 1	18
43	1.055 8	3.116 3	17	43	1.062 3	2.964 1	17	43	1.069 1	2.826 9	17
44	1.055 9	3.113 7	16	44	1.062 4	2.961 7	16	44	1.069 2	2.824 7	16
45	1.056 0	3.111 0	15	45	1.062 5	2.959 3	15	45	1.069 4	2.822 5	15
46	1.056 1	3.108 3	14	46	1.062 6	2.956 9	14	46	1.069 5	2.820 4	14
47	1.056 2	3.105 7	13	47	1.062 7	2.954 5	13	47	1.069 6	2.818 2	13
48	1.056 3	3.103 0	12	48	1.062 8	2.952 1	12	48	1.069 7	2.816 1	12
49	1.056 4	3.100 4	11	49	1.062 9	2.949 8	11	49	1.069 8	2.813 9	11
50	1.056 5	3.097 7	10	50	1.063 1	2.947 4	10	50	1.070 0	2.811 7	10
51	1.056 6	3.095 1	9	51	1.063 2	2.945 0	9	51	1.070 1	2.809 6	9
52	1.056 7	3.092 5	8	52	1.063 3	2.942 6	8	52	1.070 2	2.807 5	8
53	1.056 8	3.089 8	7	53	1.063 4	2.940 3	7	53	1.070 3	2.805 3	7
54	1.056 9	3.087 2	6	54	1.063 5	2.937 9	6	54	1.070 4	2.803 2	6
55	1.057 0	3.084 6	5	55	1.063 6	2.935 5	5	55	1.070 5	2.801 0	5
56	1.057 1	3.082 0	4	56	1.063 7	2.933 2	4	56	1.070 7	2.798 9	4
57	1.057 2	3.079 4	3	57	1.063 8	2.930 8	3	57	1.070 8	2.796 8	3
58	1.057 3	3.076 8	2	58	1.064 0	2.928 5	2	58	1.070 9	2.794 7	2
59	1.057 4	3.074 2	1	59	1.064 1	2.926 1	1	59	1.071 0	2.792 5	1
60	1.057 5	3.071 6	0	60	1.064 2	2.923 8	0	60	1.071 1	2.790 4	0
	Csc.				Csc.				Csc.	Sec.	
108° (2818")				109° (289")				110° 90°			
(251") 71"				(250") 70"				(249°) 69°			

(Continued)

TABLE 7B NATURAL FUNCTIONS — SECANTS AND COSECANTS — *Contd*

21° (201°) (338°) 158° 22° (202°) (337°) 157° 23° (203°) (336°) 156°

	Sec.	Csc.	
0	1.071 1	2.790 4	60
1	1.071 3	2.788 3	59
2	1.071 4	2.786 2	58
3	1.071 5	2.784 1	57
4	1.071 6	2.782 0	56
5	1.071 7	2.779 9	55
6	1.071 9	2.777 8	54
7	1.072 0	2.775 7	53
8	1.072 1	2.773 6	52
9	1.072 2	2.771 5	51
10	1.072 3	2.769 5	50
11	1.072 5	2.767 4	49
12	1.072 6	2.765 3	48
13	1.072 7	2.763 2	47
14	1.072 8	2.761 2	46
15	1.073 0	2.759 1	45
16	1.073 1	2.757 0	44
17	1.073 2	2.755 0	43
18	1.073 3	2.752 9	42
19	1.073 4	2.750 9	41
20	1.073 6	2.748 8	40
21	1.073 7	2.746 8	39
22	1.073 8	2.744 7	38
23	1.073 9	2.742 7	37
24	1.074 0	2.740 7	36
25	1.074 2	2.738 6	35
26	1.074 3	2.736 6	34
27	1.074 4	2.734 6	33
28	1.074 5	2.732 5	32
29	1.074 7	2.730 5	31
30	1.074 8	2.728 5	30
31	1.074 9	2.726 5	29
32	1.075 0	2.724 5	28
33	1.075 2	2.722 5	27
34	1.075 3	2.720 5	26
35	1.075 4	2.718 5	25
36	1.075 5	2.716 5	24
37	1.075 7	2.714 5	23
38	1.075 8	2.712 5	22
39	1.075 9	2.710 5	21
40	1.076 0	2.708 5	20
41	1.076 1	2.706 5	19
42	1.076 3	2.704 6	18
43	1.076 4	2.702 6	17
44	1.076 5	2.700 6	16
45	1.076 6	2.698 6	15
46	1.076 8	2.696 7	14
47	1.076 9	2.694 7	13
48	1.077 0	2.692 7	12
49	1.077 1	2.690 8	11
50	1.077 3	2.688 8	10
51	1.077 4	2.686 9	9
52	1.077 5	2.684 9	8
53	1.077 7	2.683 0	7
54	1.077 8	2.681 1	6
55	1.077 9	2.679 1	5
56	1.078 0	2.677 2	4
57	1.078 2	2.675 2	3
58	1.078 3	2.673 3	2
59	1.078 4	2.671 4	1
60	1.078 5	2.669 5	0
	Csc.	Sec.	

111° (291°) (248°) 68°

	Sec.	Csc.	
0	1.078 5	2.669 5	60
1	1.078 7	2.667 5	59
2	1.078 8	2.665 6	58
3	1.078 9	2.663 7	57
4	1.079 0	2.661 8	56
5	1.079 2	2.659 9	55
6	1.079 3	2.658 0	54
7	1.079 4	2.656 1	53
8	1.079 6	2.654 2	52
9	1.079 7	2.652 3	51
10	1.079 8	2.650 4	50
11	1.079 9	2.648 5	49
12	1.080 1	2.646 6	48
13	1.080 2	2.644 7	47
14	1.080 3	2.642 9	46
15	1.080 4	2.641 0	45
16	1.080	2.639 1	44
17	1.080 4	2.637 2	43
18	1.080 8	2.635 4	42
19	1.081 0	2.633 5	41
20	1.081 1	2.631 6	40
21	1.081 2	2.629 8	39
22	1.081 4	2.627 9	38
23	1.081 5	2.626 0	37
24	1.081 6	2.624 2	36
25	1.081 7	2.622 3	35
26	1.081 9	2.620 5	34
27	1.082 0	2.618 6	33
28	1.082 1	2.616 8	32
29	1.082 3	2.615 0	31
30	1.082 4	2.613 1	30
31	1.082 5	2.611 3	29
32	1.082 7	2.609 5	28
33	1.082 8	2.607 6	27
34	1.082 9	2.605 8	26
35	1.083 0	2.604 0	25
36	1.083 2	2.602 2	24
37	1.083 3	2.600 3	23
38	1.083 4	2.598 5	22
39	1.083 6	2.596 7	21
40	1.083 7	2.594 9	20
41	1.083 8	2.593 1	19
42	1.084 0	2.591 3	18
43	1.084 1	2.589 5	17
44	1.084 2	2.587 7	16
45	1.084 4	2.585 9	15
46	1.084 5	2.584 1	14
47	1.084 6	2.582 3	13
48	1.084 8	2.580 5	12
49	1.084 9	2.578 8	11
50	1.085 0	2.577 0	10
51	1.085 2	2.575 2	9
52	1.085 3	2.573 4	8
53	1.085 4	2.571 6	7
54	1.085 6	2.569 9	6
55	1.085 7	2.568 1	5
56	1.085 8	2.566 3	4
57	1.086 0	2.564 6	3
58	1.086 1	2.562 8	2
59	1.086 2	2.561 1	1
60	1.086 4	2.559 3	0
	Csc.	Sec.	

112° (292°) (247°) 67°

	Sec.	Csc.	
0	1.086 4	2.559 3	60
1	1.086 5	2.557 6	59
2	1.086 6	2.555 8	58
3	1.086 8	2.554 1	57
4	1.086 9	2.552 3	56
5	1.087 2	2.550 6	55
6	1.087 3	2.547 2 548 1	54
7	1.087 4	2.545 4	53
8	1.087 4	2.543 6	52
9	1.087 6	2.541 9	51
10	1.087 7	2.540 2	50
11	1.087 8	2.538	49
12	1.088 0	2.536 3	48
13	1.088 1	2.535 0	47
14	1.088 3	2.533 3	46
15	1.088 4	2.531 6	45
16	1.088 5	2.529 9	44
17	1.088 7	2.528	43
18	1.088 8	2.526 3	42
19	1.088 9	2.524 7	41
20	1.089 1	2.523 0	40
21	1.089 2	2.521 3	39
22	1.089 3	2.519 6	38
23	1.089 5	2.518 0	37
24	1.089 6	2.516 3	36
25	1.089 8	2.514 6	35
26	1.089 9	2.512 9	34
27	1.090	2.511 2	33
28	1.090 4	2.509 5	32
29	1.090 3	2.507 8	31
30	1.090 4	2.506 2	30
31	1.090 6	2.504 5	29
32	1.090 7	2.502 8	28
33	1.090 9	2.501 2	27
34	1.091 0	2.499 5	26
35	1.091 1	2.497 8	25
36	1.091 3	2.496 2	24
37	1.091 4	2.494 5	23
38	1.091 5	2.492 8	22
39	1.091 7	2.491 2	21
40	1.091 8	2.489 5	20
41	1.092 0	2.487 9	19
42	1.092 1	2.486 2	18
43	1.092 2	2.484 6	17
44	1.092 4	2.483 0	16
45	1.092 5	2.481 3	15
46	1.092 7	2.479 7	14
47	1.092 8	2.478 0	13
48	1.092 9	2.476 4	12
49	1.093 1	2.474 8	11
50	1.093 2	2.473 1	10
51	1.093 4	2.471 5	9
52	1.093 5	2.469 9	8
53	1.093 6	2.468 3	7
54	1.093 8	2.466 7	6
55	1.093 9	2.465 0	5
56	1.094 1	2.463 4	4
57	1.094 2	2.461 8	3
58	1.094 4	2.460 2	2
59	1.094 5	2.458 6	1
60	1.094 6		0
	csc.	Sec.	

113° (293°) (246°) 66

(Continued)

TABLE 7B NATURAL FUNCTIONS — SECANTS AND COSECANTS — <i>Contd</i>											
24" (204°)				25° (205°)				26° (206°)			
(335°) 155°				(334°) 154°				(333°) 153°			
	Sec.	Csc.	'		Sec.	Csc.	'		Sec.	Csc.	'
0	1.094 6	2.458 6	0	0	1.103 4	2.366 2	60	0	1.112 6	2.281 2	60
1	1.094 8	2.457 0	9	1	1.103 5	2.364 7	59	1	1.112 8	2.279 8	59
2	1.094 9	2.455 4	8	2	1.103 7	2.363 3	58	2	1.112 9	2.278 5	58
3	1.095 1	2.453 8	7	3	1.103 8	2.361 8	57	3	1.113 1	2.277 1	57
4	1.095 2	2.452 2	6	4	1.104 0	2.360 3	56	4	1.113 2	2.275 7	56
5	1.095 3	2.450 6	5	5	1.104 1	2.358 8	55	5	1.113 4	2.274 4	55
6	1.095 5	2.449 0	4	6	1.104 3	2.357 4	54	6	1.113	2.273 0	54
7	1.095 6	2.447 4	3	7	1.104 4	2.355 9	53	7	1.113 4	2.271 7	53
8	1.095 8	2.445 8	2	8	1.104 6	2.354 5	52	8	1.113 9	2.270 3	52
9	1.095 9	2.444 2	1	9	1.104 7	2.353 0	51	9	1.114 0	2.269 0	51
10	1.096 1	2.442 6	0	10	1.104 9	2.351 5	50	10	1.114 2	2.267 7	50
11	1.096 2	2.441 1	9	11	1.105 0	2.350 1	49	11	1.114 3	2.266 3	49
12	1.096 3	2.439 5	8	12	1.105 2	2.348 6	48	12	1.114 5	2.265 0	48
13	1.096 5	2.437 9	7	13	1.105 3	2.347 2	47	13	1.114 7	2.263 6	47
14	1.096 6	2.436 3	6	14	1.105 5	2.345 7	46	14	1.114 8	2.262 3	46
15	1.096 8	2.434 8	5	15	1.105 6	2.344 3	45	15	1.115 0	2.261 0	45
16	1.096 9	2.433 2	4	16	1.105 8	2.342 8	44	16	1.115 1	2.259 6	44
17	1.097 1	2.431 6	3	17	1.105 9	2.341 4	43	17	1.115 3	2.258 3	43
18	1.097 2	2.430 0	2	18	1.106 1	2.340 0	42	18	1.115 5	2.257 0	42
19	1.097 4	2.428 5	1	19	1.106 2	2.338 5	41	19	1.115 6	2.255 6	41
20	1.097 5	2.426 9	0	20	1.106 4	2.337 1	40	20	1.115 8	2.254 3	40
21	1.097 6	2.425 4	9	21	1.106 6	2.335 6	39	21	1.115 9	2.253 0	39
22	1.097 8	2.423 8	8	22	1.106 7	2.334 2	38	22	1.116 1	2.251 7	38
23	1.097 9	2.422 2	7	23	1.106 9	2.332 8	37	23	1.116 3	2.250 4	37
24	1.098 1	2.420 7	6	24	1.107 0	2.331 4	36	24	1.116 4	2.249 0	36
25	1.098 2	2.419 1	5	25	1.107 2	2.329 9	35	25	1.116 6	2.247 7	35
26	1.098 4	2.417 6	4	26	1.107 3	2.328 5	34	26	1.116 8	2.246 4	34
27	1.098 5	2.416 0	3	27	1.107 5	2.327 1	33	27	1.116 9	2.245 1	33
28	1.098 7	2.414 5	2	28	1.107 6	2.325 7	32	28	1.117 1	2.243 8	32
29	1.098 8	2.413 0	1	29	1.107 8	2.324 2	31	29	1.117 2	2.242 5	31
30	1.098 9	2.411 4	0	30	1.107 9	2.322 8	30	30	1.117 4	2.241 2	30
31	1.099 1	2.409 9	9	31	1.108 1	2.321 4	29	31	1.117 6	2.239 9	29
32	1.099 2	2.408 3	8	32	1.108 2	2.320 0	28	32	1.117 7	2.238 5	28
33	1.099 4	2.406 8	7	33	1.108 4	2.318 6	27	33	1.117 9	2.237 2	27
34	1.099 5	2.405 3	6	34	1.108 5	2.317 2	26	34	1.118 0	2.235 9	26
35	1.099 7	2.403 8	5	35	1.108 7	2.315 8	25	35	1.118 2	2.234 6	25
36	1.099 8	2.402 2	4	36	1.108 9	2.314 4	24	36	1.118 4	2.233 3	24
37	1.100 0	2.400 7	3	37	1.109 0	2.313 0	23	37	1.118 6	2.232 0	23
38	1.100 1	2.399 2	2	38	1.109 2	2.311 5	22	38	1.118 7	2.230 8	22
39	1.100 3	2.397 7	1	39	1.109 3	2.310 1	21	39	1.118 9	2.229 5	21
40	1.100 4	2.396 1	0	40	1.109 5	2.308 8	20	40	1.119 0	2.228 2	20
41	1.100 6	2.394 6	9	41	1.109 6	2.307 4	19	41	1.119 2	2.226 9	19
42	1.100 7	2.393 1	8	42	1.109 8	2.306 0	18	42	1.119 4	2.225 6	18
43	1.100 9	2.391 6	7	43	1.109 9	2.304 6	17	43	1.119 5	2.224 3	17
44	1.101 0	2.390 1	6	44	1.110 1	2.303 2	16	44	1.119 7	2.223 0	16
45	1.101 1	2.388 6	5	45	1.110 2	2.301 8	15	45	1.119 8	2.221 7	15
46	1.101 3	2.387 1	4	46	1.110 4	2.300 4	14	46	1.120 0	2.220 5	14
47	1.101 4	2.385 6	3	47	1.110 6	2.299 0	13	47	1.120 2	2.219 2	13
48	1.101 6	2.384 1	2	48	1.110 7	2.297 6	12	48	1.120 3	2.217 9	12
49	1.101 7	2.382 6	1	49	1.110 9	2.296 2	11	49	1.120 5	2.216 6	11
50	1.101 9	2.381 1	0	50	1.111 0	2.294 9	10	50	1.120 7	2.215 3	10
51	1.102 0	2.379 6	9	51	1.111 2	2.293 5	9	51	1.120 8	2.214 1	9
52	1.102 2	2.378 1	8	52	1.111 3	2.292 1	8	52	1.121 0	2.212 8	8
53	1.102 3	2.376 6	7	53	1.111 5	2.290 7	7	53	1.121 2	2.211 5	7
54	1.102 5	2.375 1	6	54	1.111 7	2.289 4	6	54	1.121 3	2.210 3	6
55	1.102 6	2.373 6	5	55	1.111 8	2.288 0	5	55	1.121 5	2.209 0	5
56	1.102 8	2.372 1	4	56	1.112 0	2.286 6	4	56	1.121 7	2.207 7	4
57	1.102 9	2.370 6	3	57	1.112 1	2.285 3	3	57	1.121 8	2.206 5	3
58	1.103 1	2.369 2	2	58	1.112 3	2.283 9	2	58	1.122 0	2.205 2	2
59	1.103 2	2.367 7	1	59	1.112 4	2.282 5	1	59	1.122 2	2.203 9	1
60	1.103 4	2.366 2	0	60	1.112 6	2.281 2	0	60	1.122 3	2.202 7	0
	csc.	Sec.	'		Csc.	Sec.	'		csc.	Sec.	'
114° (294°)	(245°) 65°			115° (295°)	(244°) 64°			116° (296°)	(243°) 63°		

(Continued)

TABLE 7B NATURAL FUNCTIONS — SECANTS AND COSECANTS — <i>Contd</i>											
27° (207°)			(332°) 152°			28° (208°)			(331°) 151°		
			29° (209°)			(330°) 150°					
	Sec.	Csc.		Sec.	Csc.		Sec.	Csc.		Sec.	Csc.
0	1.122 3	2.202 7	60	1.132 6	2.130 1	60	1.143 4	2.062 7	60	1.143 4	2.062 7
1	1.122 5	2.201 4	59	1.132 7	2.128 9	59	1.143 5	2.061 6	59	1.143 5	2.061 6
2		2.200 2	58	1.132 9	2.127 7	58	1.143 7	2.060 5	58	1.143 7	2.060 5
3	1.122 8	2.198 9	57	1.133 1	2.126 6	57	1.143 9	2.059 4	57	1.143 9	2.059 4
4	1.123 0	2.197 7	56	1.133 3	2.125 4	56	1.144 1	2.058 3	56	1.144 1	2.058 3
5	1.123 2	2.196 4	55	1.133 4	2.124 2	55	1.144 3	2.057 3	55	1.144 3	2.057 3
6	1.123 3	2.195 2	54	1.133 6	2.123 1	54	1.144 5	2.056 2	54	1.144 5	2.056 2
7	1.123 5	2.193 9	53	1.133 8	2.121 9	53	1.144 6	2.055 1	53	1.144 6	2.055 1
8	1.123 7	2.192 7	52	1.134 0	2.120 8	52	1.144 8	2.054 0	52	1.144 8	2.054 0
9	1.123 8	2.191 4	51	1.134 2	2.119 6	51	1.145 0	2.053 0	51	1.145 0	2.053 0
10	1.124 0		50	1.134 3	2.118 5	50	1.145 2	2.051 9	50	1.145 2	2.051 9
11	1.124 2	2.190 2.189 2.1	49	1.134 5	2.117 3	49	1.145 4	2.050 8	49	1.145 4	2.050 8
12		2.187 7	48	1.134 7	2.116 2	48	1.145 6	2.049 8	48	1.145 6	2.049 8
13	1.124 5	2.186 5	47	1.134 9	2.115 0	47	1.145 8	2.048 7	47	1.145 8	2.048 7
14	1.124 7	2.185 2	46	1.135 0	2.113 9	46	1.146 0	2.047 6	46	1.146 0	2.047 6
15	1.124 8	2.184 0	45	1.135 2	2.112 7	45	1.146 1	2.046 6	45	1.146 1	2.046 6
16	1.125 0	2.182 8	44	1.135 4	2.111 6	44	1.146 3	2.045 5	44	1.146 3	2.045 5
17	1.125 2	2.181 5	43	1.135 6	2.110 5	43	1.146 5	2.044 5	43	1.146 5	2.044 5
18	1.125 3	2.180 3	42	1.135 7	2.109 3	42	1.146 7	2.043 4	42	1.146 7	2.043 4
19	1.125 5	2.179 1	41	1.135 9	2.108 2	41	1.146 9	2.042 3	41	1.146 9	2.042 3
20	1.125 7	2.177 9	40	1.136 1	2.107 0	40	1.147 1	2.041 3	40	1.147 1	2.041 3
21	1.125 9	2.176 6	39	1.136 3	2.105 9	39	1.147 3	2.040 2	39	1.147 3	2.040 2
22	1.126 0	2.175 4	38	1.136 5	2.104 8	38	1.147 4	2.039 2	38	1.147 4	2.039 2
23	1.126 2	2.174 2	37	1.136 6	2.103 6	37	1.147 6	2.038 1	37	1.147 6	2.038 1
24	1.126 4	2.173 0	36	1.136 8	2.102 5	36	1.147 8	2.037 1	36	1.147 8	2.037 1
25		2.171 8	35	1.137 0	2.101 4	35	1.148 0	2.036 0	35	1.148 0	2.036 0
26	1.126 5	2.170 5	34	1.137 2	2.100 2	34	1.148 2	2.035 0	34	1.148 2	2.035 0
27		2.169 3	33	1.137 4	2.099 1	33	1.148 4	2.033 9	33	1.148 4	2.033 9
28	1.127 0	2.168 1	32	1.137 5	2.098 0	32	1.148 6	2.032 9	32	1.148 6	2.032 9
29	1.127 2	2.166 9	31	1.137 7	2.096 9	31	1.148 8	2.031 8	31	1.148 8	2.031 8
30	1.127 4		30	1.137 9	2.095 7	30	1.149 0	2.030 8	30	1.149 0	2.030 8
31	1.127 6	2.165 2.164 7.5	29	1.138 1	2.094 6	29	1.149 1	2.029 7	29	1.149 1	2.029 7
32	1.127 7	2.163 3	28	1.138 3	2.093 5	28	1.149 3	2.028 7	28	1.149 3	2.028 7
33	1.127 9	2.162 1	27	1.138 4	2.092 4	27	1.149 5	2.027 6	27	1.149 5	2.027 6
34	1.128 1	2.160 9	26	1.138 6	2.091 3	26	1.149 7	2.026 6	26	1.149 7	2.026 6
35	1.128 2	2.159 6	25	1.138 8	2.090 1	25	1.149 9	2.025 6	25	1.149 9	2.025 6
36	1.128 4	2.158 4	24	1.139 0	2.089 0	24	1.150 1	2.024 5	24	1.150 1	2.024 5
37	1.128 6	2.157 2	23	1.139 2	2.087 9	23	1.150 3	2.023 5	23	1.150 3	2.023 5
38	1.128 8	2.156 0	22	1.139 3	2.086 8	22	1.150 5	2.022 5	22	1.150 5	2.022 5
39	1.128 9	2.154 9	21	1.139 5	2.085 7	21	1.150 7	2.021 4	21	1.150 7	2.021 4
40		2.153 7	20	1.139 7	2.084 6	20	1.150 9	2.020 4	20	1.150 9	2.020 4
41	1.129 1	2.152 5	19	1.139 9	2.083 5	19	1.151 0	2.019 4	19	1.151 0	2.019 4
42		2.151 3	18	1.140 1	2.082 4	18	1.151 2	2.018 3	18	1.151 2	2.018 3
43	1.129 6	2.150 1	17	1.140 2	2.081 3	17	1.151 4	2.017 3	17	1.151 4	2.017 3
44	1.129 8	2.148 9	16	1.140 4	2.080 2	16	1.151 6	2.016 3	16	1.151 6	2.016 3
45	1.130 0	2.147 7	15	1.140 6	2.079 1	15	1.151 8	2.015 2	15	1.151 8	2.015 2
46		2.146 5	14	1.140 8	2.077 9	14	1.152 0	2.014 2	14	1.152 0	2.014 2
47	1.130 5	2.145 3	13	1.141 0	2.076 8	13	1.152 2	2.013 2	13	1.152 2	2.013 2
48	1.130 7	2.144 2.143 1.1	12	1.141 2	2.075 7	12	1.152 4	2.012 2	12	1.152 4	2.012 2
49			11	1.141 3	2.074 7	11	1.152 6	2.011 2	11	1.152 6	2.011 2
50	1.130 8	2.141 8	10	1.141 5	2.073 6	10	1.152 8	2.010 1	10	1.152 8	2.010 1
51	1.131 0	2.140 6	9	1.141 7	2.072 5	9	1.153 0	2.009 1	9	1.153 0	2.009 1
52	1.131 2		8	1.141 9	2.071 4	8	1.153 2	2.008 1	8	1.153 2	2.008 1
53	1.131 3	2.139 2.138 4.2	7	1.142 1	2.070 3	7	1.153 3	2.007 1	7	1.153 3	2.007 1
54	1.131 5	2.137 1	6	1.142 3	2.069 2	6	1.153 5	2.006 1	6	1.153 5	2.006 1
55	1.131 7	2.135 9	5	1.142 4	2.068 1	5	1.153 7	2.005 1	5	1.153 7	2.005 1
56	1.131 9	2.134 7	4	1.142 6	2.067 0	4	1.153 9	2.004 0	4	1.153 9	2.004 0
57	1.132 0		3	1.142 8	2.065 9	3	1.154 1	2.003 0	3	1.154 1	2.003 0
58	1.132 2	2.133 2.132 6.4	2	1.143 0	2.064 8	2	1.154 3	2.002 0	2	1.154 3	2.002 0
59	1.132 4	2.131 2	1	1.143 2	2.063 7	1	1.154 5	2.001 0	1	1.154 5	2.001 0
60	1.132 6	2.130 1	0	1.143 4	2.062 7	0	1.154 7	2.000 0	0	1.154 7	2.000 0
	Csc.	Sec.		CSC	Sec.			Sec.			

117° (297°)

(242°) 62°

118° (298°)

(24) 61

119° (299°)

(340°) 60°

TABLE 7B NATURAL FUNCTIONS — SECANTS AND COSECANTS — *Contd*

30° (210°)				31° (211°)				32° (212°)			
(329°) 149"				(328°) 148°				(327°) 147°			
'	Sec.	Csc.	'	'	Sec.	Csc.	'	'	Sec.	Csc.	'
0	1.154 7	2.000 0	60	0	1.166 6	1.941 6	60	0	1.179 2	1.887 1	iii -
1	1.154 9	1.999 0	59	1	1.166 8	1.940 7	59	1	1.179 4	1.886	59
2	1.155 1	1.998 0	58	2	1.167 0	1.939 7	58	2	1.179 6	1.885 3	58
3	1.155 3	1.997 0	57	3	1.167 2	1.938 8	57	3	1.179 8	1.884 4	57
4	1.155 5	1.996 0	56	4	1.167 5	1.937 9	56	4	1.180 0	1.883 6	56
5	1.155 7	1.995 0	55	5	1.167 7	1.936 9	55	5	1.180 3	1.882 7	55
6	1.155 9	1.994 0	54	6	1.167 9	1.936 0	54	6	1.180 5	1.881 8	54
7	1.156 1	1.993	53	7	1.168 1	1.935 1	53	7	1.180 7	1.881 0	53
8	1.156 3	1.992 8	52	8	1.168 3	1.934 1	52	8	1.180 9	1.886 1	52
9	1.156 5	1.991 0	51	9	1.168 5	1.933 2	51	9	1.181 1	1.879 2	51
10	1.156 6	1.990 0	50	10	1.168 7	1.932 3	50	10	1.181 3	1.878 3	50
11	1.156 8	1.989 0	49	11	1.168 9	1.931 3	49	11	1.181 5	1.877 5	49
12	1.157 0	1.988 0	48	12	1.169 1	1.930 4	48	12	1.181 8	1.876 6	48
13	1.157 2	1.987 0	47	13	1.169 3	1.929 5	47	13	1.182 0	1.875 7	47
14	1.157 4	1.986 0	46	14	1.169 5	1.928 5	46	14	1.182 2	1.874 9	46
15	1.157 6	1.985 0	45	15	1.169 7	1.927 6	45	15	1.182 4	1.874 0	45
16	1.157 8	1.984 0	44	16	1.169 9	1.926 7	44	16	1.182 6	1.873 1	44
17	1.158 0	1.983 0	43	17	1.170 1	1.925 8	43	17	1.182 8	1.872 3	43
18	1.158 2	1.982 1	42	18	1.170 3	1.924 9	42	18	1.183 1	1.871 4	42
19	1.158 4	1.981 1	41	19	1.170 5	1.923 9	41	19	1.183 3	1.870 6	41
20	1.158 6	1.980 1	40	20	1.170 7	1.923 0	40	20	1.183 5	1.869 7	40
21	1.158 8	1.979 1	39	21	1.171 0	1.922 1	39	21	1.183 7	1.868 8	39
22	1.159 0	1.978 1	38	22	1.171 2	1.921 2	38	22	1.183 9	1.868 0	38
23	1.159 2	1.977 1	37	23	1.171 4	1.920 3	37	23	1.184 2	1.867 1	37
24	1.159 4	1.976 2	36	24	1.171 6	1.919 4	36	24	1.184 4	1.866 3	36
25	1.159 6	1.975 2	35	25	1.171 8	1.918 4	35	25	1.184 6	1.865 4	35
26	1.159 8	1.974 2	34	26	1.172 0	1.917 5	34	26	1.184 8	1.864 6	34
27	1.160 0	1.973 2	33	27	1.172 2	1.916 6	33	27	1.185 0	1.863 7	33
28	1.160 2	1.972	32	28	1.172 4	1.915 7	32	28	1.185 2	1.862 9	32
29	1.160 4	1.971 3	31	29	1.172 6	1.914 8	31	29	1.185 5	1.862 0	31
30	1.160 6	1.970 3	30	30	1.172 8	1.913 9	30	30	1.185 7	1.861 2	30
31	1.160 8	1.969 3	29	31	1.173 0	1.913 0	29	31	1.185 9	1.860 3	29
32	1.161 0	1.968 4	28	32	1.173 2	1.912 1	28	32	1.186 1	1.859 5	28
33	1.161 2	1.967 4	27	33	1.173 5	1.911 2	27	33	1.186 3	1.858 6	27
34	1.161 4	1.966 4	26	34	1.173 7	1.910 3	26	34	1.186 6	1.857 8	26
35	1.161 6	1.965 4	25	35	1.173 9	1.909 4	25	35	1.186 8	1.856 9	25
36	1.161 8	1.964 5	24	36	1.174 1	1.908 4	24	36	1.187 0	1.856 1	24
37	1.162 0	1.963 5	23	37	1.174 3	1.907 5	23	37	1.187 2	1.855 2	23
38	1.162 2	1.962 5	22	38	1.174 5	1.906 6	22	38	1.187 5	1.854 4	22
39	1.162 4	1.961 6	21	39	1.174 7	1.905 7	21	39	1.187 7	1.853 5	21
40	1.162 6	1.960 6	20	40	1.174 9	1.904 8	20	40	1.187 9	1.852 7	20
41	1.162 8	1.959 7	19	41	1.175 1	1.903 9	19	41	1.188 1	1.851 9	19
42	1.163 0	1.958 7	18	42	1.175 3	1.903 1	18	42	1.188 3	1.851 0	18
43	1.163 2	1.957 7	17	43	1.175 5	1.902 2	17	43	1.188 6	1.850 2	17
44	1.163 4	1.956 8	16	44	1.175 8	1.901 3	16	44	1.188 8	1.849 4	16
45	1.163 6	1.955 8	15	45	1.176 0	1.900 4	15	45	1.189 0	1.848 5	15
46	1.163 8	1.954 9	14	46	1.176 2	1.899 5	14	46	1.189 2	1.847 7	14
47	1.164 0	1.953 9	13	47	1.176 4	1.898 6	13	47	1.189 5	1.846 8	13
48	1.164 2	1.953 0	12	48	1.176 6	1.897 7	12	48	1.189 7	1.846 0	12
49	1.164 4	1.952 0	11	49	1.176 8	1.896 8	11	49	1.189 9	1.845 2	11
50	1.164 6	1.951 1	10	50	1.177 0	1.895 9	10	50	1.190 1	1.844 3	10
51	1.164 8	1.950 1	9	51	1.177 3	1.895 0	9	51	1.190 3	1.843 5	9
52	1.165 0	1.949 2	8	52	1.177 5	1.894 1	8	52	1.190 6	1.842 7	8
53	1.165 2	1.948 2	7	53	1.177 7	1.893 3	7	53	1.190 8	1.841 9	7
54	1.165 4	1.947 3	6	54	1.177 9	1.892 4	6	54	1.191 0	1.841 0	6
55	1.165 6	1.946 3	5	55	1.178 1	1.891 5	5	55	1.191 2	1.840 2	5
56	1.165 8	1.945 4	4	56	1.178 3	1.890 6	4	56	1.191 5	1.839 4	4
57	1.166 0	1.944 4	3	57	1.178 5	1.889 7	3	57	1.191 7	1.838 5	3
58	1.166 2	1.943 5	2	58	1.178 8	1.888 8	2	58	1.191 9	1.837 7	2
59	1.166 4	1.942 5	1	59	1.179 0	1.888 0	1	59	1.192 1	1.836 8	1
60	1.166 6	1.941 6	0	60	1.179 2	1.887 1	0	60	1.192 4	1.836 1	0
'	csc.	Sec.	'	'	Csc.	Sec.	'	'	csc.	Sec.	'

120° (300°)

(23°) 55"

121° (301°)

(238°) 58"

122° (302°)

(237°) 5

(Continued)

TABLE 7B NATURAL FUNCTIONS — SECANTS AND COSECANTS — *Contd*

33° (213°)				34° (214°)				35° (215°)			
(326°) 146°				(325°) 145°				(324°) 144°			
'	Sec.	Csc.	'	'	Sec.	Csc.	'	'	Sec.	Csc.	'
0	1.192 4	1.836 1	60	0	1.206 2	1.788 3	60	0	1.220 8	1.743 4	60
1	1.192 6	1.835 3	59	1	1.206 5	1.787 5	59	1	1.221 0	1.742 7	59
2	1.192 8	1.834 4	58	2	1.206 7	1.786 8	58	2	1.221 3	1.742 0	58
3	1.193 0	1.833 6	57	3	1.206 9	1.786 0	57	3	1.221 5	1.741 3	57
4	1.193 3	1.832 8	56	4	1.207 2	1.785 2	56	4	1.221 8	1.740 6	56
5	1.193 5	1.832 0	55	5	1.207 4	1.784 4	55	5	1.222 0	1.739 8	55
6	1.193 7	1.831 2	54	6	1.207 6	1.783 7	54	6	1.222 3	1.739 1	54
7	1.193 9	1.830 3	53	7	1.207 9	1.782 9	53	7	1.222 5	1.738 4	53
8	1.194 2	1.829 5	52	8	1.208 1	1.782 1	52	8	1.222 8	1.737 7	52
9	1.194 4	1.828 7	51	9	1.208 4	1.781 4	51	9	1.223 0	1.737 0	51
10	1.194 6	1.827 9	50	10	1.208 6	1.780 6	50	10	1.223 3	1.736 2	50
11	1.194 9	1.827 1	49	11	1.208 8	1.779 9	49	11	1.223 5	1.735 5	49
12	1.195 1	1.826 3	48	12	1.209 1	1.779 1	48	12	1.223 8	1.734 8	48
13	1.195 3	1.825 5	47	13	1.209 3	1.778 3	47	13	1.224 0	1.734 1	47
14	1.195 5	1.824 7	46	14	1.209 6	1.777 6	46	14	1.224 3	1.733 4	46
15	1.195 8	1.823 8	45	15	1.209 8	1.776 8	45	15	1.224 5	1.732 7	45
16	1.196 0	1.823 0	44	16	1.210 0	1.776 1	44	16	1.224 8	1.732 0	44
17	1.196 2	1.822 2	43	17	1.210 3	1.775 3	43	17	1.225 0	1.731 2	43
18	1.196 4	1.821 4	42	18	1.210 5	1.774 5	42	18	1.225 3	1.730 5	42
19	1.196 7	1.820 6	41	19	1.210 8	1.773 8	41	19	1.225 5	1.729 8	41
20	1.196 9	1.819 8	40	20	1.211 0	1.773 0	40	20	1.225 8	1.729 1	40
21	1.197 1	1.819 0	39	21	1.211 2	1.772 3	39	21	1.226 0	1.728 4	39
22	1.197 4	1.818 2	38	22	1.211 5	1.771 5	38	22	1.226 3	1.727 7	38
23	1.197 6	1.817 4	37	23	1.211 7	1.770 8	37	23	1.226 5	1.727 0	37
24	1.197 8	1.816 6	36	24	1.212 0	1.770 0	36	24	1.226 8	1.726 3	36
25	1.198 1	1.815 8	35	25	1.212 2	1.769 3	35	25	1.227 1	1.725 6	35
26	1.198 3	1.815 0	34	26	1.212 4	1.768 5	34	26	1.227 3	1.724 9	34
27	1.198 5	1.814 2	33	27	1.212 7	1.767 8	33	27	1.227 6	1.724 2	33
28	1.198 7	1.813 4	32	28	1.212 9	1.767 0	32	28	1.227 8	1.723 5	32
29	1.199 0	1.812 6	31	29	1.213 2	1.766 3	31	29	1.228 1	1.722 8	31
30	1.199 2	1.811 8	30	30	1.213 4	1.765 5	30	30	1.228 3	1.722 1	30
31	1.199 4	1.811 0	29	31	1.213 6	1.764 8	29	31	1.228 6	1.721 3	29
32	1.199 7	1.810 2	28	32	1.213 9	1.764 0	28	32	1.228 8	1.720 6	28
33	1.199 9	1.809 4	27	33	1.214 1	1.763 3	27	33	1.229 1	1.719 9	27
34	1.200 1	1.808 6	26	34	1.214 4	1.762 5	26	34	1.229 3	1.719 2	26
35	1.200 4	1.807 8	25	35	1.214 6	1.761 8	25	35	1.229 6	1.718 5	25
36	1.200 6	1.807 0	24	36	1.214 9	1.761 0	24	36	1.229 9	1.717 7	24
37	1.200 8	1.806 2	23	37	1.215 1	1.760 3	23	37	1.230 1	1.717 0	23
38	1.201 1	1.805 5	22	38	1.215 4	1.759 6	22	38	1.230 4	1.716 3	22
39	1.201 3	1.804 7	21	39	1.215 6	1.758 8	21	39	1.230 6	1.715 6	21
40	1.201 5	1.803 9	20	40	1.215 8	1.758 1	20	40	1.230 9	1.715 1	20
41	1.201 8	1.803 1	19	41	1.216 1	1.757 3	19	41	1.231 1	1.714 4	19
42	1.202 0	1.802 3	18	42	1.216 3	1.756 6	18	42	1.231 4	1.713 7	18
43	1.202 2	1.801 5	17	43	1.216 6	1.755 9	17	43	1.231 7	1.713 0	17
44	1.202 5	1.800 7	16	44	1.216 8	1.755 1	16	44	1.231 9	1.712 3	16
45	1.202 7	1.800 0	15	45	1.217 1	1.754 4	15	45	1.232 2	1.711 6	15
46	1.202 9	1.799 2	14	46	1.217 3	1.753 7	14	46	1.232 4	1.710 9	14
47	1.203 2	1.798 4	13	47	1.217 6	1.752 9	13	47	1.232 7	1.710 2	13
48	1.203 4	1.797 6	12	48	1.217 8	1.752 2	12	48	1.232 9	1.709 5	12
49	1.203 6	1.796 8	11	49	1.218 1	1.751 5	11	49	1.233 2	1.708 8	11
50	1.203 9	1.796 0	10	50	1.218 3	1.750 7	10	50	1.233 5	1.708 1	10
51	1.204 1	1.795 3	9	51	1.218 5	1.750 0	9	51	1.233 7	1.707 4	9
52	1.204 3	1.794 5	8	52	1.218 8	1.749 3	8	52	1.234 0	1.706 7	8
53	1.204 6	1.793 7	7	53	1.219 0	1.748 5	7	53	1.234 2	1.706 0	7
54	1.204 8	1.792 9	6	54	1.219 3	1.747 8	6	54	1.234 5	1.705 3	6
55	1.205 0	1.792 2	5	55	1.219 5	1.747 1	5	55	1.234 8	1.704 6	5
56	1.205 3	1.791 4	4	56	1.219 8	1.746 3	4	56	1.235 0	1.703 9	4
57	1.205 5	1.790 6	3	57	1.220 0	1.745 6	3	57	1.235 3	1.703 2	3
58	1.205 7	1.789 8	2	58	1.220 3	1.744 9	2	58	1.235 5	1.702 5	2
59	1.206 0	1.789 1	1	59	1.220 5	1.744 2	1	59	1.235 8	1.701 8	1
60	1.206 2	1.788 3	0	60	1.220 8	1.743 4	0	60	1.236 1	1.701 1	0
'	csc.	Sec.	'	'	Csc.	Sec.	'	'	Csc.	Sec.	'

123° (303°) (236°) 56° 124° (304°) (235°) 55° 125° (305°) (234°) 54°

TABLE 7B NATURAL FUNCTIONS — SECANTS AND COSECANTS — <i>Contd</i>											
36° (216")				(323") 143°				37° (217")			
				(322") 142°				38° (218")			
								(231") 141°			
'	Sec.	Csc.	'	'	Sec.	Csc.	'	'	Sec.	Csc.	'
0	1.236 1	1.701 3	60	0	1.252 1	1.661 6	60	0	1.269 0	1.624 3	60
1	1.236 3	1.700 6	59	1	1.252 4	1.661 0	59	1	1.269 3	1.623 7	59
2	1.236 6	1.699 9	58	2	1.252 7	1.660 4	58	2	1.269 6	1.623 1	58
3	1.236 9		57	3	1.253 0	1.659 7	57	3	1.269 9	1.622 5	57
4	1.237 1	1.699 1.690 34	56	4	1.253 2	1.659 1	56	4	1.270 2	1.621 9	56
5			55	5	1.253 5	1.658 5	55	5	1.270 5	1.621 3	55
6	1.237 9	1.697 1.697 9 2	54	6			54 53	6	1.271 1.270 8 0	1.620 7	54
7	1.238 2	1.696 6	53	7	1.253 1.254 1 1	1.657 1.657 0 2		7		1.620 1	53
8			52	8			52 51	8	1.271 1.271 34	1.619 5	52
9	1.238 4	1.695 1.695 9 2	51	9	1.254 1.254 34	1.656 1.655 9		9		1.618 9	51
10	1.238 7	1.694 5	50	10	1.254 9	1.655 3	50	10		1.618 3	50
11				11	1.255 2	1.654 6	49	11	1.272 1.271 9 2	1.617 7	49
12	1.239 1.239 1.239 1 5	1.693 1.693 1.693 1 5	49 48 47	12	1.255 4	1.654 0	48	12		1.617 1	48
13	1.239 7	1.691 8	46	13	1.255 7	1.653 4	47	13	1.272 1.272 54	1.616 5	47
14				14	1.256 0	1.652 7	46	14	1.273 1	1.615 9	46
15	1.240 0	1.691 2	45	15	1.256 3	1.652 1	45	15		1.615 3	45
16	1.240 3	1.690 5	44	16	1.256 6	1.651 5	44	16	1.273 1.273 4 7	1.614 7	44
17	1.240 5	1.689 8	43	17	1.256 8	1.650 8	43	17		1.614 1	43
18	1.240 8	1.689 2	42	18	1.257 1	1.650 2	42	18	1.274 1.274 0 2	1.613 5	42
19	1.241 1	1.688 5	41	19	1.257 4	1.649 6	41	19	1.274 5	1.612 9	41
20	1.241 3	1.687 8	40	20				20			
21	1.241 6	1.687 1	39	21	1.257 1.257 9 7	1.648 9	40	21	1.274 8	1.612 3	40
22	1.241 9	1.686 5	38	22		1.648 3	39	22	1.275 1.275 4 1	1.611 7	39
23	1.242 1	1.685 8	37	23	1.258 1.258 2 5	1.647 1.647 7 1	38 37	23		1.611 1	38
24	1.242 4	1.685 2	36	24	1.258 8	1.646 4	36	24	1.275 1.276 7 0	1.610 5	37
25	1.242 7	1.684 5	35	25	1.259 1	1.645 8	35	25		1.609 9	36
26	1.242		34	26	1.259 3	1.645 2	34	26	1.276 1.276 6 3	1.609 3	35
27	1.243 4	1.683 1.683 1 2	33	27	1.259 6	1.644 6	33	27		1.608 7	34
28	1.243 5	1.682 5	32	28	1.259 9	1.643 9	32	28		1.608 2	33
29	1.243 7	1.681 8	31	29	1.260 2	1.643 3	31	29	1.276 1.277 1 5	1.607 6	32
30	1.244 0	1.681 2	30	30	1.260 5	1.642 7	30	30		1.607 0	31
31	1.244 3	1.680 5	29	31	1.260 8	1.642 1	29	31	1.277 8	1.606 4	30
32	1.244 5	1.679 9	28	32	1.261 0	1.641 4	28	32	1.278 1	1.605 8	29
33	1.244 8	1.679 2	27	33	1.261 3	1.640 8	27	33	1.278 1.278 4 7	1.605 2	28
34	1.245 1	1.678 5	26	34	1.261 6	1.640 2	26	34	1.279 0	1.604 6	27
35	1.245 3	1.677 9	25	35	1.261 9	1.639 6	25	35		1.604 0	26
36	1.245 9	1.677 2	24	36	1.262 2	1.639 0	24	36	1.279 3	1.603 5	25
37	1.246 2	1.676 6	23	37	1.262 4	1.638 3	23	37	1.279 1.279 6 9	1.602 9	24
38				38	1.262 7	1.637 7	22	38		1.602 3	23
39	1.246 4	1.675 1.675 9 3	22 21	39	1.263 0	1.637 1	21	39	1.280 1.280 2 4	1.601 7	22
40	1.246 7	1.674 6	20	40	1.263 3	1.636 5	20	40		1.601 1	21
41	1.247 0	1.673 9	19	41	1.263 6	1.635 9	19	41		1.600 5	20
42	1.247 2	1.673 3	18	42	1.263 9	1.635 3	18	42	1.280 1.281 7 0	1.600 0	19
43	1.247 5	1.672 6	17	43	1.264 1	1.634 6	17	43		1.599 4	18
44	1.247 8	1.672 0	16	44	1.264 4	1.634 0	16	44	1.281 1.281 3 6	1.598 8	17
45	1.248 0	1.671 3	15	45				45	1.281 9	1.598 2	16
46	1.248 3	1.670 7	14	46	1.265 1.264 0 7	1.632 1.633 4 8	15 14	46		1.597 6	15
47	1.248	1.670 0	13	47				47	1.282 1.282 2 5	1.597 1	14
48	1.248 8	1.669 4	12	48	1.265 1.265 6 3	1.632 1.631 6	13 12	48		1.596 5	13
49	1.249 1	1.668 7	11	49	1.265 9	1.631 0	11	49	1.282 1.283 1 1	1.595 9	12
50				50	1.266 1	1.630 3	10	50	1.283 4	1.595 3	11
51	1.249 1.249 4 7	1.668 1.667 4 1	10	51	1.266 4	1.629 7	9	51	1.283 7	1.594 8	10
52			9	52	1.266 7	1.629 1	8	52	1.284 0	1.594 2	9
53	1.249 1.250 1 1	1.666 1.666 0 1	8	53	1.267 0	1.628 5	7	53	1.284 3	1.593 6	8
54	1.250 5	1.665 5	6	54	1.267 3	1.627 9	6	54	1.284 6	1.593 0	7
55			5	55	1.267 6	1.627 3		55	1.284 9	1.592 5	6
56	1.250 8	1.664 9	4	56	1.267 9	1.626 7	8	56	1.285 2	1.591 9	5
57	1.251 1.251 1 3	1.664 1.663 2 6	3	57	1.268 2	1.626 1	3	57		1.591 3	4
58	1.251		2	58	1.268 4	1.625 5	2	58	1.285 5	1.590 7	3
59	1.251 8	1.662 3.1.662 9	21	59	1.268 7	1.624 9	1	59		1.590 2	2
60	1.252 1	1.661 6	0	60			0	60	1.286 8	1.589 6	1
	csc.	Sec.	'		csc.	Sec.	'		Csc.	Sec.	'

126° (306°)

(233") 53°

127° (307°)

(232") 52°

128° (308°)

(231") 51°

(Continued)

TABLE 7B NATURAL FUNCTIONS — SECANTS AND COSECANTS — *Contd*

39° (219°) (220°) 140° 40° (220°) (319°) 139° 41° (221°) (318°) 138°

'	Sec.	Csc.	'	'	Sec.	Csc.	'	'	Sec.	Csc.	'
0	1.2868	1.589 0	60	0	1.305 4	1.555 7	60	0	1.325 0	1.524 3	60
1	1.287 1	1.588	59	1	1.305 7	1.555 2	59	1	1.325 3	1.523 7	59
2	1.287 4	1.587 3	58	2	1.306 0	1.554 6	58	2	1.325 7	1.523 2	58
3	1.287 7	1.587 3	57	3	1.306 4	1.554 1	57	3	1.326 0	1.522 7	57
4	1.288 0	1.586 7	56	4	1.306 7	1.553 6	56	4	1.326 4	1.522 2	56
5	1.288 3	1.586 2	55	5	1.307 0	1.553 0	55	5	1.326 7	1.521 7	55
6	1.288 6	1.585 6	54	6	1.307 8	1.552 5	54	6	1.327 0	1.521 2	54
7	1.288 9	1.585 0	53	7	1.307 6	1.552 0	53	7	1.327 4	1.520 7	53
8	1.289 2	1.584 5	52	8	1.308 0	1.551 4	52	8	1.327 7	1.520 2	52
9	1.289 5	1.583 9	51	9	1.308 3	1.550 9	51	9	1.328 0	1.519 7	51
10	1.289 8	1.583 3	50	10	1.308 6	1.550 4	50	10	1.328 4	1.519 2	50
11	1.290 1	1.582 8	49	11	1.308 9	1.549 8	49	11	1.328 7	1.518 7	49
12	1.290	1.582 2	48	12	1.309 3	1.549 3	48	12	1.329 1	1.518 2	48
13	1.290 3	1.581 6	47	13	1.309 6	1.548 8	47	13	1.329 4	1.517 7	47
14	1.291 0	1.581 1	46	14	1.309 9	1.548 2	46	14	1.329 7	1.517 2	46
15	1.291 3	1.580 5	45	15	1.310 2	1.547 7	45	15	1.330 1	1.516 7	45
16	1.291 6	1.580 0	44	16	1.310 5	1.547 2	44	16	1.330 4	1.516 2	44
17	1.291 9	1.579 4	43	17	1.310 9	1.546 6	43	17	1.330 7	1.515 6	43
18	1.292 3	1.578 8	42	18	1.311 2	1.546 1	42	18	1.331 1	1.515 1	42
19	1.292 6	1.578 3	41	19	1.311 5	1.545 6	41	19	1.331 4	1.514 6	41
20	1.292 9	1.577 7	40	20	1.311 8	1.545 0	40	20	1.331 8	1.514 1	40
21	1.293 2	1.577 1	39	21	1.312 2	1.544 5	39	21	1.332 1	1.513 6	39
22	1.293 5	1.576 6	38	22	1.312 5	1.544 0	38	22	1.332 5	1.513 1	38
23	1.293 8	1.576 0	37	23	1.312 8	1.543 5	37	23	1.332 8	1.512 6	37
24	1.294 1	1.575 5	36	24	1.313 1	1.542 9	36	24	1.333 1	1.512 1	36
25	1.294 4	1.574 9	35	25	1.313 5	1.542 4	35	25	1.333 5	1.511 6	35
26	1.294 7	1.574 4	34	26	1.313 8	1.541 9	34	26	1.333 8	1.511 1	34
27	1.295 0	1.573 8	33	27	1.314 1	1.541 3	33	27	1.334 2	1.510 7	33
28	1.295 3	1.573 2	32	28	1.314 4	1.540 8	32	28	1.334 5	1.510 2	32
29	1.295 7	1.572 7	31	29	1.314 8	1.540 3	31	29	1.334 8	1.509 7	31
30	1.296 0	1.572 1	30	30	1.315 1	1.539 8	30	30	1.335 2	1.509 2	30
31	1.296 3	1.571 6	29	31	1.315 4	1.539 2	29	31	1.335 5	1.508 7	29
32	1.296 6	1.571 0	28	32	1.315 7	1.538 7	28	32	1.335 9	1.508 2	28
33	1.296 9	1.570 5	27	33	1.316 1	1.538 2	27	33	1.336 2	1.507 7	27
34	1.297 2	1.569 9	26	34	1.316 4	1.537 7	26	34	1.336 6	1.507 2	26
35	1.297 5	1.569 4	25	35	1.31 67	1.537 2	25	35	1.336 9	1.506 7	25
36	1.297 8	1.568 8	24	36	1.31 71	1.536 6	24	36	1.337 3	1.506 2	24
37	1.298 1	1.568 3	23	37	1.317 4	1.536 1	23	37	1.337 6	1.505 7	23
38	1.298 5	1.567 7	22	38	1.317 7	1.535 6	22	38	1.338 0	1.505 2	22
39	1.298 8	1.567 2	21	39	1.318 0	1.535 1	21	39	1.338 3	1.504 7	21
40	1.299 1	1.566 6	20	40	1.318 4	1.534 5	20	40	1.338 6	1.504 2	20
41	1.299 4	1.566 1	19	41	1.318 7	1.534 0	19	41	1.339 0	1.503 7	19
42	1.299 7	1.565 5	18	42	1.319 0	1.533 5	18	42	1.339 3	1.503 2	18
43	1.300 0	1.565 0	17	43	1.319 4	1.533 0	17	43	1.339 7	1.502 7	17
44	1.300 3	1.564 4	16	44	1.319 7	1.532 5	16	44	1.340 0	1.502 3	16
45	1.300 7	1.563 9	15	45	1.320 0	1.532 0	15	45	1.340 4	1.501 8	15
46	1.301 0	1.563 3	14	46	1.320 3	1.531 4	14	46	1.340 7	1.501 3	14
47	1.301 3	1.562 8	13	47	1.320 7	1.530 9	13	47	1.341 1	1.500 8	13
48	1.301 6	1.562 2	12	48	1.321 0	1.530 4	12	48	1.341 4	1.500 3	12
49	1.301 9	1.561 7	11	49	1.321 3	1.529 9	11	49	1.341 8	1.499 8	11
50	1.302 2	1.561 1	10	50	1.321 7	1.529 4	10	50	1.342 1	1.499 3	10
51	1.302 6	1.560 6	9	51	1.322 0	1.528 9	9	51	1.342 5	1.498 8	9
52	1.302 9	1.560 1	8	52	1.322 3	1.528 3	8	52	1.342 8	1.498 4	8
53	1.303 2	1.559 5	7	53	1.322 7	1.527 8	7	53	1.343 2	1.497 9	7
54	1.303 5	1.559 0	6	54	1.323 0	1.527 3	6	54	1.343 5	1.497 4	6
55	1.303 8	1.558 4	5	55	1.323 3	1.526 8	5	55	1.343 9	1.496 9	5
56	1.304 1	1.557 9	4	56	1.323 7	1.526 3	4	56	1.344 2	1.496 4	4
57	1.304 5	1.557 3	3	57	1.324 0	1.525 8	3	57	1.344	1.495 9	3
58	1.304 8	1.556 8	2	58	1.324 3	1.525 3	2	58	1.344 8	1.495 4	2
59	1.305 1	1.556 3	1	59	1.324 7	1.524 8	1	59	1.345 3	1.495 0	1
60	1.305 4	1.555 7	0	60	1.325 0	1.524 3	0	60	1.345 6	1.494 5	0
'	Csc.	Sec.	'	'	Csc.	Sec.	'	'	Csc.	Sec.	'

129° (309°)

(230°) 50°

130° (310°)

(229°) 49°

131° (311°)

(228°) 48°

TABLE 7B NATURAL FUNCTIONS — SECANT'S AND COSECANTS — *Contd*

42° (222°)				(317°) 137°				43° (223°)				(316°) 136°				44° (224°)				(315°) 135°			
'	Sec.	Csc.	'	'	Sec.	Csc.	'	'	Sec.	Csc.	'	'	Sec.	Csc.	'	'	Sec.	Csc.	'	'			
0	1.345 6	1.494 5	0	0	1.367 3	1.466 3	60	0	1.390 2	1.439 6	60	0	1.390 2	1.439 6	60	0	1.390 2	1.439 6	60	0			
1	1.346 0	1.494 0	9	1	1.367 7	1.465 8	59	1	1.390 6	1.439 1	59	1	1.390 6	1.439 1	59	1	1.390 6	1.439 1	59	1			
2	1.346 3	1.493 5	8	2	1.368 1	1.465 4	58	2	1.390 9	1.438 7	58	2	1.390 9	1.438 7	58	2	1.390 9	1.438 7	58	2			
3	1.346 7	1.493 0	7	3	1.368 4	1.464 9	57	3	1.391 3	1.438 3	57	3	1.391 3	1.438 3	57	3	1.391 3	1.438 3	57	3			
4	1.347 0	1.492 5	6	4	1.368 8	1.464 5	56	4	1.391 7	1.437 8	56	4	1.391 7	1.437 8	56	4	1.391 7	1.437 8	56	4			
5	1.347 4	1.492 1	5	5	1.369 2	1.464 0	55	5	1.392 1	1.437 4	55	5	1.392 1	1.437 4	55	5	1.392 1	1.437 4	55	5			
6	1.347 8	1.491 6	4	6	1.369	1.463 5	54	6	1.392 5	1.437 0	54	6	1.392 5	1.437 0	54	6	1.392 5	1.437 0	54	6			
7	1.348 1	1.491 1	3	7	1.369 8	1.463 1	53	7	1.392 9	1.436 5	53	7	1.392 9	1.436 5	53	7	1.392 9	1.436 5	53	7			
8	1.348 5	1.490 6	2	8	1.370 3	1.462 6	52	8	1.393 3	1.436 1	52	8	1.393 3	1.436 1	52	8	1.393 3	1.436 1	52	8			
9	1.348 8	1.490 1	1	9	1.370 7	1.462 2	51	9	1.393 7	1.435 7	51	9	1.393 7	1.435 7	51	9	1.393 7	1.435 7	51	9			
10	1.349 2	1.489 7	50	10	1.371 1	1.461 7	50	10	1.394 1	1.435 2	50	10	1.394 1	1.435 2	50	10	1.394 1	1.435 2	50	10			
11	1.349 5	1.489 2	49	11	1.371 4	1.461 3	49	11	1.394 5	1.434 8	49	11	1.394 5	1.434 8	49	11	1.394 5	1.434 8	49	11			
12	1.349 9	1.488 7	48	12	1.371 8	1.460 8	48	12	1.394 9	1.434 4	48	12	1.394 9	1.434 4	48	12	1.394 9	1.434 4	48	12			
13	1.350 2	1.488 2	47	13	1.372 2	1.460 4	47	13	1.395 3	1.434 0	47	13	1.395 3	1.434 0	47	13	1.395 3	1.434 0	47	13			
14	1.350 6	1.487 8	46	14	1.372 6	1.459 9	46	14	1.395 7	1.433 5	46	14	1.395 7	1.433 5	46	14	1.395 7	1.433 5	46	14			
15	1.351	1.487 3	45	15	1.372 9	1.459 5	45	15	1.396 1	1.433 1	45	15	1.396 1	1.433 1	45	15	1.396 1	1.433 1	45	15			
16	1.351 3	1.486 8	44	16	1.373 3	1.459 0	44	16	1.396 5	1.432 7	44	16	1.396 5	1.432 7	44	16	1.396 5	1.432 7	44	16			
17	1.351 7	1.486 3	43	17	1.373 7	1.458 6	43	17	1.396 9	1.432 2	43	17	1.396 9	1.432 2	43	17	1.396 9	1.432 2	43	17			
18	1.352 0	1.485 9	42	18	1.374 1	1.458 1	42	18	1.397 2	1.431 8	42	18	1.397 2	1.431 8	42	18	1.397 2	1.431 8	42	18			
19	1.352 4	1.485 4	41	19	1.374 4	1.457 7	41	19	1.397 6	1.431 4	41	19	1.397 6	1.431 4	41	19	1.397 6	1.431 4	41	19			
20	1.352 7	1.484 9	40	20	1.374 8	1.457 2	40	20	1.398 0	1.431 0	40	20	1.398 0	1.431 0	40	20	1.398 0	1.431 0	40	20			
21	1.353 1	1.484 4	39	21	1.375 2	1.456 8	39	21	1.398 4	1.430 5	39	21	1.398 4	1.430 5	39	21	1.398 4	1.430 5	39	21			
22	1.353 5	1.484 0	38	22	1.375	1.456 3	38	22	1.398 8	1.430 1	38	22	1.398 8	1.430 1	38	22	1.398 8	1.430 1	38	22			
23	1.353 8	1.483 5	37	23	1.375 8	1.455 9	37	23	1.399 2	1.429 7	37	23	1.399 2	1.429 7	37	23	1.399 2	1.429 7	37	23			
24	1.354 2	1.483 0	36	24	1.376 3	1.455 4	36	24	1.399 6	1.429 3	36	24	1.399 6	1.429 3	36	24	1.399 6	1.429 3	36	24			
25	1.354 5	1.482 5	35	25	1.376 7	1.455 0	35	25	1.4000	1.428 8	35	25	1.4000	1.428 8	35	25	1.4000	1.428 8	35	25			
26	1.354 9	1.482 1	34	26	1.377 1	1.454 5	34	26	1.400 4	1.428 4	34	26	1.400 4	1.428 4	34	26	1.400 4	1.428 4	34	26			
27	1.355 3	1.481 6	33	27	1.377 5	1.454 1	33	27	1.400 8	1.428 0	33	27	1.400 8	1.428 0	33	27	1.400 8	1.428 0	33	27			
28	1.355 6	1.481 1	32	28	1.377 8	1.453 6	32	28	1.401 2	1.427 6	32	28	1.401 2	1.427 6	32	28	1.401 2	1.427 6	32	28			
29	1.356 0	1.480 7	31	29	1.378 2	1.453 2	31	29	1.401 6	1.427 1	31	29	1.401 6	1.427 1	31	29	1.401 6	1.427 1	31	29			
30	1.356 3	1.480 2	30	30	1.378 6	1.452 7	30	30	1.402 0	1.426 7	30	30	1.402 0	1.426 7	30	30	1.402 0	1.426 7	30	30			
31	1.356 7	1.479 7	29	31	1.379 0	1.452 3	29	31	1.402 4	1.426 3	29	31	1.402 4	1.426 3	29	31	1.402 4	1.426 3	29	31			
32	1.357 1	1.479 2	28	32	1.379 4	1.451 8	28	32	1.402 8	1.425 9	28	32	1.402 8	1.425 9	28	32	1.402 8	1.425 9	28	32			
33	1.357 4	1.478 8	27	33	1.379 7	1.451 4	27	33	1.403 2	1.425 5	27	33	1.403 2	1.425 5	27	33	1.403 2	1.425 5	27	33			
34	1.357 8	1.478 3	26	34	1.380 1	1.451 0	26	34	1.403 6	1.425 0	26	34	1.403 6	1.425 0	26	34	1.403 6	1.425 0	26	34			
35	1.358 2	1.477 8	25	35	1.380 5	1.450 5	25	35	1.4040	1.424 6	25	35	1.4040	1.424 6	25	35	1.4040	1.424 6	25	35			
36	1.358 5	1.477 4	24	36	1.380 9	1.450 1	24	36	1.4044	1.424 2	24	36	1.4044	1.424 2	24	36	1.4044	1.424 2	24	36			
37	1.358 9	1.476 9	23	37	1.381 3	1.449 6	23	37	1.404 8	1.423 8	23	37	1.404 8	1.423 8	23	37	1.404 8	1.423 8	23	37			
38	1.359 2	1.476 4	22	38	1.381 7	1.449 2	22	38	1.405 2	1.423 4	22	38	1.405 2	1.423 4	22	38	1.405 2	1.423 4	22	38			
39	1.359 6	1.476 0	21	39	1.382 0	1.448 7	21	39	1.405 7	1.422 9	21	39	1.405 7	1.422 9	21	39	1.405 7	1.422 9	21	39			
40	1.360 0	1.475 5	20	40	1.382 4	1.448 3	20	40	1.406 1	1.422 5	20	40	1.406 1	1.422 5	20	40	1.406 1	1.422 5	20	40			
41	1.360 3	1.475 0	19	41	1.382 8	1.447 9	19	41	1.406 5	1.422 1	19	41	1.406 5	1.422 1	19	41	1.406 5	1.422 1	19	41			
42	1.360 7	1.474 6	18	42	1.383 2	1.447 4	18	42	1.406 9	1.421 7	18	42	1.406 9	1.421 7	18	42	1.406 9	1.421 7	18	42			
43	1.361 1	1.474 1	17	43	1.383 6	1.447 0	17	43	1.407 3	1.421 3	17	43	1.407 3	1.421 3	17	43	1.407 3	1.421 3	17	43			
44	1.361 4	1.473 7	16	44	1.384 0	1.446 5	16	44	1.407 7	1.420 8	16	44	1.407 7	1.420 8	16	44	1.407 7	1.420 8	16	44			
45	1.361 8	1.473 2	15	45	1.384 3	1.446 1	15	45	1.408 1	1.420 4	15	45	1.408 1	1.420 4	15	45	1.408 1	1.420 4	15	45			
46	1.362 2	1.472 7	14	46	1.384 7	1.445 7	14	46	1.408 5	1.420 0	14	46	1.408 5	1.420 0	14	46	1.408 5	1.420 0	14	46			
47	1.362 5	1.472 3	13	47	1.385 1	1.445 2	13	47	1.408 9	1.419 6	13	47	1.408 9	1.419 6	13	47	1.408 9	1.419 6	13	47			
48	1.362 9	1.471 8	12	48	1.385 5	1.444 8	12	48	1.409 3	1.419 2	12	48	1.409 3	1.419 2	12	48	1.409 3	1.419 2	12	48			
49	1.363 3	1.471 3	11	49	1.385 9	1.444 3	11	49	1.409 7	1.418 8	11	49	1.409 7	1.418 8	11	49	1.409 7	1.418 8	11	49			
50	1.363 6	1.470 9	10	50	1.386 3	1.443 9	10	50	1.410 1	1.418 3	10	50	1.410 1	1.418 3	10	50	1.410 1	1.418 3	10	50			
51	1.364 0	1.470 4	9	51	1.386 7	1.443 5	9	51	1.410 5	1.417 9	9	51	1.410 5	1.417 9	9	51	1.410 5	1.417 9	9	51			
52	1.364 4	1.470 0	8	52	1.387 1	1.443 0	8	52	1.410 9	1.417 5	8	52	1.410 9	1.417 5	8	52	1.410 9	1.417 5	8	52			
53	1.364 7	1.469 5	7	53	1.387 4	1.442 6	7	53	1.411 3	1.417 1	7	53	1.411 3	1.417 1	7	53	1.411 3	1.417 1	7	53			
54	1.365 1	1.469 0	6	54	1.387 8	1.442 2	6	54	1.411 8	1.416 7	6	54	1.411 8	1.416 7	6	54	1.411 8	1.416 7	6	54			
55	1.365 5	1.468 6	5	55	1.388 2	1.441 7	5	55	1.412 2	1.416 3	5	55	1.412 2	1.416 3	5	55	1.412 2	1.416 3	5	55			
56	1.365 8	1.468 1	4	56	1.388 6	1.441 3	4	56	1.412 6	1.415 9	4	56	1.412 6	1.415 9	4	56	1.412 6	1.415 9	4	56			
57	1.366 2	1.467 7	3	57	1.389 0	1.440 9	3	57	1.413 0	1.415 4	3	57	1.413 0	1.415 4	3	57	1.413 0	1.415 4	3	57			
58	1.366 6	1.467 2	2	58	1.389 4	1.440 4	2	58	1.413 4	1.415 0	2	58	1.413 4	1.415 0	2	58	1.413 4	1.415 0	2	58			
59	1.367 0	1.466 7	1	59	1.389 8	1.440 0	1	59	1.413 8	1.414 6	1	59	1.413 8	1.414 6	1	59	1.413 8	1.414 6	1	59			
60	1.367 3	1.466 3	0	60	1.390 2	1.439 6	0	60	1.414 2	1.414 2	0	60	1.414 2	1.414 2	0	60	1.414 2	1.414 2	0	60			
	Csc.	Sec.	'		csc.</																		

TABLE 8 LENGTHS OF CIRCULAR ARCS

Deg.	Arc.	Deg.	Arc.	Deg.	Arc.	Min.	Arc. x 10 ⁻⁷	Sec.	Arc. x10 ⁻⁷
1	-017 453 3	61	1-064 650 8	121	2-111 8484	1	2909	1	48
2	-034 906 6	62	1-082 104 1	122	2-129 301 7	2	5 818	2	97
3	-052 359 9	63	1-099 557 4	123	2-146 755 0	3	8 727	3	145
4	-069 813 2	64	1-117 010 7	124	2-164 208 3	4	11 636	4	194
5	-087 266 5	65	1-134 464 0	125	2-186 611 6	5	14 544	5	242
6	-104 719 8	66	1-151 917 3	126	2-199 114 9	6	17 453	6	291
7	-122 173 0	67	1-169 370 6	127	2-216 568 2	7	20 362	7	339
8	-139 626 3	68	1-186 823 9	128	2-234 021 4	8	23 271	8	388
9	-157 079 6	69	1-204 277 2	129	2-251 474 7	9	26 180	9	436
10	-174 532 9	70	1-221 730 5	130	2-268 928 0	10	29 089	10	485
11	-191 986 2	71	1-239 183 8	131	2-286 381 3	11	31 998	11	533
12	-209 439 5	72	1-256 637 1	132	2-303 834 6	12	34 907	12	582
13	-226 892 8	73	1-274 090 4	133	2-321 287 9	13	37 815	13	630
14	-244 346 1	74	1-291 543 6	134	2-338 741 2	14	40 724	14	679
15	-261 799 4	75	1-308 996 9	135	2-356 194 5	15	43 633	15	727
16	-279 252 7	76	1-326 450 2	136	2-373 647 8	16	46 542	16	776
17	-296 706 0	77	1-343 903 5	137	2-391 101 1	17	49 451	17	824
18	-314 159 3	78	1-361 356 8	138	2-408 554 4	18	52 360	18	873
19	-331 612 6	79	1-378 810 1	139	2-426 007 7	19	55 269	19	921
20	-349 065 9	80	1-396 263 4	140	2-443 461 0	20	58 178	20	970
21	-366 519 1	81	1-413 716 7	141	2-460 914 2	21	61 087	21	1 018
22	-383 972 4	82	1-431 1700	142	2-478 367 5	22	63 995	22	1 067
23	-401 425 7	83	1-448 623 3	143	2-495 820 8	23	66 904	23	1 115
24	-418 879 0	84	1-466 076 6	144	2-513 274 1	24	69 813	24	1 164
25	-436 332 3	85	1-483 529 9	145	2-530 727 4	25	72 722	25	1 212
26	-453 785 6	86	1-500 983 2	146	2-548 180 7	26	75 631	26	1 261
27	-471 238 9	87	1-518 436 4	147	2-565 634 0	27	78 540	27	1 309
28	-488 692 2	88	1-535 889 7	148	2-583 087 3	28	81 449	28	1 357
29	-506 145 5	89	1-553 343 0	149	2-600 540 6	29	84 358	29	1 406
30	-523 598 8	90	1-570 796 3	150	2-617 993 9	30	87 266	30	1 454
31	-541 052 1	91	1-588 249 6	151	2-635 447 2	31	90 175	31	1 503
32	-558 505 4	92	1-605 702 9	152	2-652 900 5	32	93 084	32	1 551
33	-575 958 7	93	1-623 156 2	153	2-670 353 8	33	95 993	33	1 599
34	-593 411 9	94	1-640 609 5	154	2-687 807 0	34	98 902	34	1 648
35	-610 865 2	95	1-658 062 8	155	2-705 260 3	35	101 811	35	1 697
36	-628 318 5	96	1-675 516 1	156	2-722 713 6	36	104 720	36	1 745
37	-645 771 8	97	1-692 969 4	157	2-740 166 9	37	107 629	37	1 794
38	-663 225 1	98	1-710 422 7	158	2-757 620 2	38	110 538	38	1 842
39	-680 678 4	99	1-727 876 0	159	2-775 073 5	39	113 446	39	1 891
40	-698 131 7	100	1-745 329 3	160	2-792 526 8	40	116 355	40	1 939
41	-715 585 0	101	1-762 782 5	161	2-809 980 1	41	119 264	41	1 988
42	-733 038 3	102	1-780 235 8	162	2-827 433 4	42	122 173	42	2 036
43	-750 491 6	103	1-797 689 1	163	2-844 886 7	43	125 082	43	2 085
44	-767 944 9	104	1-815 142 4	164	2-862 340 0	44	127 991	44	2 133
45	-785 398 2	105	1-832 595 7	165	2-879 793 3	45	130 900	45	2 182
46	-802 851 5	106	1-850 049 0	166	2-897 246 6	46	133 809	46	2 230
47	-820 304 7	107	1-867 502 3	167	2-914 699 9	47	136 717	47	2 279
48	-837 758 0	108	1-884 955 6	168	2-932 153 1	48	139 626	48	2 327
49	-855 211 3	109	1-902 408 9	169	2-949 606 4	49	142 535	49	2 376
50	-872 664 6	110	1-919 862 2	170	2-967 059 7	50	145 444	50	2 424
51	-890 117 9	111	1-937 315 5	171	2-984 513 0	51	148 353	51	2 473
52	-907 571 2	112	1-954 768 8	172	3-001 966 3	52	151 262	52	2 521
53	-925 024 5	113	1-972 222 0	173	3-019 419 6	53	154 171	53	2 570
54	-942 477 8	114	1-989 675 3	174	3-036 872 9	54	157 080	54	2 618
55	-959 931 1	115	2-007 128 6	175	3-054 326 2	55	159 989	55	2 666
56	-977 384 4	116	2-024 581 9	176	3-071 779 5	56	162 897	56	2 715
57	-994 837 7	117	2-042 035 2	177	3-089 232 8	57	165 806	57	2 763
58	-1 012 291 0	118	2-059 488 5	178	3-106 686 1	58	168 715	58	2 812
59	-1 029 744 3	119	2-076 941 8	179	3-124 139 4	59	171 624	59	2 860
60	-1 047 197 6	120	2-094 395 1	180	3-141 592 7	60	174 533	60	2 909
Deg.	Arc.	Deg.	Arc.	Deg.	Arc.	Min.	Arc.	Sec.	Arc.

TABLE 9 RADIANS TO CIRCULAR FUNCTIONS

RADIANS	DEGREES		SIN.	Cos.	TAN.	RADIANS	DEGREES		SIN.	Cos.	TAN.
	$\overset{A}{\text{---}}$						$\overset{A}{\text{---}}$				
·01	0·573	0°34'	·010 0	1·000	·010 0	·80	45·84	45°50'	·717 4	-6% 7	1·030
·02	1·146	1° 9'	·020 0	·999 8	·020 0	·82	46·98	46°59'	·731 2	·682 2	1·072
·03	1·719	1°43'	·030 0	·999 6	·030 0	·84	48·13	48°08'	·744 6	·667 s	1·116
·04	2·292	2°18'	·040 0	·999 2	·040 0	·86	49·27	49°16'	·757 8	·652 4	1·162
·05	2·865	2°52'	·050 0	·998 7	·050 0	·88	50·42	50°25'	·770 7	·637 2	1·210
·06	3·438	3°26'	·060 0	·998 2	·060 1	·90	51·57	51°34'	·783 3	·621 6	1·260
·07	4·011	4° 1'	·069 9	·997 5	·070 1	·92	52·71	52°43'	·795 6	·605 8	1·313
·08	4·584	4°35'	·079 9	·996 8	·080 2	·94	53·86	53°51'	·807 6	·589 8	1·369
·09	5·157	5° 9'	·089 9	·995 9	·090 2	·96	55·00	55° 0'	·819 2	·573 5	1·428
·10	5·730	5°44'	·099 8	·995 0	·100 3	·98	56·15	56° 9'	·830 5	·557 0	1·491
·12	6·876	6°53'	·119 7	·992 8	·120 6	1·00	57·30	57°18'	·841 5	·540 3	1·557
·14	8·022	8° 1'	·139 5	·990 2	·140 9	1·02	58·44	58°27'	·852 1	·523 4	1·628
·16	9·167	9°10'	·159 3	·987 2	·161 4	1·04	59·59	59°35'	·862 4	*s062	1·704
·18	10·31	10°19'	·179 0	·983 8	·182 0	1·06	60·74	60°44'	·872 4	·488 9	1·784
·20	11·46	11°28'	·198 7	·980 1	·202 7	1·08	61·88	61°53'	·882 0	·471 3	1·871
·22	12·61	12°36'	·118 2	·975 9	·223 6	1·10	63·03	63° 2'	·891 2	·453 6	1·965
·24	13·75	13°45'	·227 7	·971 3	·244 7	1·12	64·18	64°10'	·900 1	·435 7	2·066
·26	14·90	14°54'	·257 1	·966 4	·266 0	1·14	65·32	65°19'	·908 6	·417 6	2·176
·28	16·04	16° 3'	·276 4	·961 1	·287 6	1·16	66·47	66°28'	·916 8	·399 3	2·296
·30	17·19	17°11'	·295 5	·955 3	·309 3	1·18	67·61	67°37'	·924 6	·380 9	2·427
·32	18·33	18°20'	·314 6	·949 2	·331 4	1·20	68·76	68°45'	·932 0	·362 4	2·572
·34	19·48	19°29'	·333 5	·942 7	·353 7	1·22	69·91	69°54'	·939 1	·343 7	2·733
·36	20·63	20°38'	·352 3	·935 9	·376 4	1·24	71·05	71°03'	·945 8	·324 8	2·912
·38	21·77	21°46'	·370 9	·928 7	·399 4	1·26	72·20	72°12'	·952 1	·305 8	3·113
·40	22·92	22°55'	·389 4	·921 1	·422 8	1·28	73·35	73°20'	·958 0	·286 7	3·343
·42	24·06	24° 4'	·407 8	·913 1	·446 6	1·30	74·49	74°29'	·963 6	·267 5	3·602
·44	25·21	25°13'	·425 9	·904 7	·470 8	1·32	75·64	75°38'	·968 7	·248 2	3·903
·46	26·36	26°21'	·443 9	·896 1	·495 4	1·34	76·78	76°47'	·973 5	·228 7	4·256
·48	27·50	27°30'	·461 8	·887 0	·520 6	1·36	77·93	77°55'	·977 9	·209 2	4·673
·50	28·65	28°39'	·479 4	·877 6	·546 3	1·38	79·08	79°04'	·981 8	·189 6	5·177
·52	29·79	29°48'	·496 9	·867 8	·572 6	1·40	80·22	80°13'	·985 5	·170 0	5·798
·54	30·94	30°56'	·514 1	·857 7	·599 4	1·42	81·37	81°22'	·988 7	·150 2	6·581
·56	32·09	32° 5'	·531 2	·847 3	·626 9	1·44	82·52	82°30'	·991 5	·130 4	7·602
·58	33·23	33°14'	·548 0	·836 5	·655 2	1·46	83·66	83°39'	·993 9	·110 6	8·989
·60	34·38	34°23'	·564 6	·825 3	·684 1	1·48	84·81	84°48'	·995 9	·090 7	10·983
·62	35·52	35°31'	·581 0	·813 9	·713 9	1·50	85·95	85°57'	·997 5	·070 7	14·110
·64	36·67	36°40'	·597 2	·802 1	·744 5	1·52	87·10	87°05'	·998 7	·050 8	19·670
·66	37·82	37°49'	·613 1	·790 0	·776 1	1·54	88·25	88°14'	·999 5	·030 8	32·461
·68	38·96	38°58'	·628 8	·777 6	·808 7	1·56	89·39	89°23'	·999 9	·010 8	92·621
·70	40·11	40°06'	·644 2	·764 8	·842 3	$\pi/2$	90'				
·72	41·25	41°15'	·659 4	·751 8	·877 1						
·74	42·40	42°24'	·674 3	·738 s	·913 1						
·76	43·54	43°33'	·688 9	·724 9	·950 5						
·78	44·69	44°41'	·703 2	·710 9	·989 3						

TABLE 10 POWERS AND SQUARE ROOTS

NO. x	SQUARE x^2	CUBE x^3	FOURTH POWER x^4	FIFTH POWER x^5	SQUARE ROOT $\sqrt{x}$	SQUARE ROOT OF RECIPROCAL $\frac{1}{\sqrt{x}}$	RECIPROCAL OF SQUARE $\frac{1}{x^2}$
0	0	0	0	0	0.000 000	8	
1	1	1	1	1	1.000 000	1.000 000	1.000 000 000
2	4	8	16	32	1.414 214	0.707 107	0.250 000 000
3	9	27	81	243	1.732 051	0.577 350	0.111 111 111
4	16	64	256	1024	2.000 000	0.500 000	0.062 500 000
5	25	125	625	3 125	2.236 068	0.447 214	0.040 000 000
6	36	216	1 296	7 776	2.449 490	0.408 248	0.027 777 778
7	49	343	2 401	16 807	2.645 751	0.377 964	0.020 408 163
8	64	512	4 096	32 768	2.828 427	0.353 553	0.015 625 000
9	81	729	6 561	59 049	3.000 000	0.333 333	0.012 345 679
10	100	1 000	10 000	100 000	3.162 278	0.316 228	0.010 000 000
11	121	1 331	14 651	161 051	3.316 625	0.301 511	0.008 264 463
12	144	1 728	20 736	248 832	3.464 102	0.288 675	0.006 944 444
13	169	2 197	28 561	371 293	3.605 551	0.277 350	0.005 517 160
14	196	2 744	38 416	537 824	3.741 657	0.267 261	0.005 102 041
15	225	3 375	50 625	759 375	3.872 983	0.258 199	0.004 444 444
16	256	4 096	65 536	1 048 576	4.000 000	0.250 000	0.003 906 250
17	289	4 913	83 521	1 419 857	4.123 106	0.242 536	0.003 460 208
18	324	5 832	104 976	1 889 568	4.242 641	0.235 702	0.003 086 420
19	361	6 859	130 321	2 476 099	4.358 899	0.229 416	0.002 770 083
20	400	8 000	160 000	3 200 000	4.472 136	0.223 607	0.002 500 000
21	441	9 261	194 481	4 084 101	4.582 576	0.218 218	0.002 267 574
22	484	10 648	234 256	5 153 632	4.690 416	0.213 201	0.002 066 116
23	529	12 167	279 841	6 436 343	4.795 832	0.208 514	0.001 890 359
24	576	13 824	331 776	7 962 624	4.858 575	0.204 124	0.001 736 111
25	625	15 625	390 625	9 765 625	5.000 000	0.200 000	0.001 600 000
26	676	17 576	456 976	11 881 376	5.099 020	0.196 116	0.001 479 290
27	729	19 683	531 441	14 348 907	5.196 152	0.192 450	0.001 371 742
28	784	21 952	614 656	17 210 368	5.291 503	0.188 782	0.001 275 510
29	841	24 389	707 281	20 511 149	5.385 165	0.185 695	0.001 185 061
30	900	27 000	810 000	24 300 000	5.477 226	0.182 574	0.001 111 111
31	961	29 791	923 521	28 629 151	5.567 764	0.179 605	0.001 040 583
32	1 024	32 768	1 048 576	33 554 432	5.656 854	0.176 777	0.000 976 562
33	1 089	35 937	1 185 921	39 135 393	5.744 563	0.174 078	0.000 918 274
34	1 156	39 304	1 336 336	45 435 424	5.830 952	0.171 455	0.000 865 052
35	1 225	42 875	1 500 625	52 521 875	5.916 080	0.169 031	0.000 816 327
36	1 296	46 656	1 679 616	60 466 176	6.000 000	0.166 667	0.000 771 605
37	1 369	50 653	1 874 161	69 343 957	6.082 763	0.164 395	0.000 730 460
38	1 444	54 872	2 085 136	79 235 168	6.164 414	0.162 221	0.000 692 521
39	1 521	59 319	2 313 441	90 224 199	6.244 998	0.160 128	0.000 657 462
40	1 600	64 000	2 560 000	102 400 000	6.324 555	0.158 114	0.000 625 000
41	1 681	68 921	2 825 761	115 856 201	6.463 124	0.156 174	0.000 594 884
42	1 764	74 088	3 111 696	130 691 232	6.480 741	0.154 303	0.000 566 853
43	1 849	79 507	3 418 801	147 008 443	6.557 439	0.152 459	0.000 540 833
44	1 936	85 184	3 748 096	164 916 224	6.633 250	0.150 756	0.000 516 529
45	2 025	91 125	4 100 625	184 528 125	6.708 204	0.149 071	0.000 493 827
46	2 116	97 336	4 477 456	205 962 976	6.782 330	0.147 442	0.000 472 550
47	2 209	103 823	4 879 681	229 345 007	6.855 555	0.145 865	0.000 452 694
48	2 304	110 592	5 308 416	254 803 968	6.928 203	0.144 338	0.000 434 028
49	2 401	117 649	5 764 801	282 475 249	7.000 000	0.142 857	0.000 416 493
50	2 500	125 000	6 250 000	312 500 000	7.071 069	0.141 421	0.000 400 000

TABLE 10 POWERS AND SQUARE ROOTS — *Contd*

No. x	SQUARE x^2	CUBE x^3	FOURTH POWER x^4	FIFTH POWER x^5	SQUARE ROOT $\sqrt{x}$	SQUARE ROOT OF RECIPROCAL $\frac{1}{\sqrt{x}}$	RECIPROCAL OF SQUARE $\frac{1}{x^2}$
50	2500	125 000	6250000	312500000	7·071 068	0·141 421	0·000,400 000
51	2 601	132 651	6 765 201	345 025 251	7·141 428	0·140 028	0·000,384 468
52	2 704	140 608	7 311 616	380204032	7·211 103	0·138 675	0·000,369 822
53	2809	148 877	7 890 481	418 195 493	7·280 110	0·137 361	0·000,355 999
54	2916	157 464	8 503 056	459 165 024	7·348 469	0·136 083	0·000,342 936
55	3 025	166 375	9 150 625	503 284 375	7·416 198	0·134 840	0·000,330 579
56	3 136	175 616	9 834 496	550 731 776	7·483 315	0·133 631	0·000,318 878
57	3 249	185 193	10 556 001	601692 057	7·549 834	0·132 453	0·000,307 787
58	3 364	195 112	11 316 496	656 356 768	7·615 773	0·131 306	0·000,297 265
59	3 481	205 379	12117361	714 924 299	7·681 146	0·130 189	0·000,287 274
60	3 600	216 000	12 960 000	777 600 000	7·745 967	0·129 099	0·000,277 778
61	3 721	226 981	13 845 841	844 596 301	7·810 250	0·128 037	0·000,268 745
62	3844	238 328	14 776 336	916 132 832	7·874 008	0·127 000	0·000,260 146
63	3969	250 047	15 752961	992 436 543	7·937 254	0·125 988	0·000,251 953
64	4 096	262 144	16777216	1 073 741824	8·000 000	0·125 000	0·000,244 141
65	4 225	274 625	17850625	1160290625	8·062 258	0·124 035	0·000,236 686
66	4 356	287 496	18974736	1252332576	8·124 038	0·123 091	0·000,229 568
67	4 489	300 763	20 151 121	1350125107	8·185 353	0·122 169	0·000,222 767
68	4 624	314 432	21 381 376	1453933568	8·246 211	0·121 268	0·000,216 263
69	4 761	328 509	22 667 121	1 564 031 349	8·306 624	0·120 386	0·000,210 040
70	4900	243 000	24 010 000	1680700000	8·366 000	0·119 523	0·000,204 082
71	5041	357 911	25 411681	1 804 229 351	8·426 150	0·118 678	0·000,198 373
72	5 184	373 248	26 873 856	1 934 917 632	8·485 281	0·117 851	0·000,192 901
73	5 329	389 017	28398241	2 073 071 593	8·544 004	0·117 041	0·000,187 652
74	5 476	405 224	29 986 576	2219006624	8·602 325	0·116 248	0·000,182 615
75	5 625	421 875	31 640 625	2 373 046 875	8·660 254	0·115 470	0·000,177 778
76	5 776	438 976	33 362 176	2535525376	8·717 798	0·114 708	0·000,173 130
77	5 929	456 533	35 153 041	2706784157	8·774 964	0·113 961	0·000,168 663
78	6 084	474 552	37015056	2887 174368	8·831 761	0·113 228	0·000,164 366
79	6 241	493 039	38 950 081	3077056399	8·888 194	0·112 509	0·000,160 231
80	6 400	512 000	40 960 000	3 276 800 000	8·944 272	0·111 803	0·000,156 250
81	6 561	531 441	43 046 721	3486784401	9·000 000	0·111 111	0·000,152 416
82	6 724	551 368	45212176	3707398432	9·055 385	0·110 432	0·000,148 721
83	6 889	571 787	47 458 321	3 939 040 643	9·110 434	0·109 764	0·000,145 159
84	7 056	592 704	49 787 136	4182119424	9·165 151	0·109 109	0·000,141 723
85	7 225	614 125	52 200 625	4 437 053 125	9·219 544	0·108 465	0·000,138 408
86	7 396	636 056	54 700 816	4 704 270 176	9·273 618	0·107 833	0·000,135 208
87	7 569	658 503	57 289 761	4984209207	9·327 379	0·107 211	0·000,132 118
88	7 744	681472	59 969 536	5277319168	9·380 832	0·106 600	0·000,129 132
89	7 921	704 969	62742241	5 584 059 449	9·433 981	0·106 000	0·000,126 247
90	8 100	729 000	65 610 000	5904900000	9·486 833	0·105 409	0·000,123 457
91	8 281	753 571	68 574 961	6240321451	9·539 392	0·104 828	0·000,120 758
92	8 464	778 688	71639 296	6590815232	9·591 663	0·104 257	0·000,118 147
93	8 649	804 357	74 805 201	6956883693	9·643 651	0·103 695	0·000,115 620
94	8 836	830 584	78 074 896	7339040224	9·695 360	0·103 142	0·000,113 173
95	9 025	857 375	81450 625	7737809375	9·746 794	0·102 598	0·000,110 803
96	9 216	884 736	84934656	8153726976	9·797 959	0·102 062	0·000,108 507
97	9 409	912 673	88529281	8587340257	9·848 858	0·101 535	0·000,106 281
98	9 604	941 192	92236816	9039207968	9·899 495	0·101 015	0·000,104 123
99	9 801	970 299	96 059 601	9509900499	9·949 874	0·100 504	0·000,102 030
100	10000	1000000	10 000 000	10000000000	10·000 000	0100 000	0·000,100 000

TABLE 11 RECIPROCALs, ROOTs, FACTORIALS AND FACTORS

No. x	RECIPROCAL 1/x	CUBE ROOT $\sqrt[3]{x}$	FOURTH ROOT $\sqrt[4]{x}$	FIFTH ROOT $\sqrt[5]{x}$	FACTORIALS *x!	PRIME FACTORS
0		0400000	0-000 000	0-000 000	1	1
1	1-000 000 0	1-000 000	1-000 000	1-000 000	1	1
2	0-500 000 0	1-259 921	1-189 207	1-148 698	2	2
3	0-333 333 3	1-442 250	1-316 074	1-245 731	6	3
4	0-250 000 0	1-587 401	1-414 214	1-319 508	24	2
5	0-200 000 0	1-709 976	1-495 349	1-379 730	120	5
6	0-166 666 7	1-817 121	1-565 08-5	1-430 969	720	2-3
7	0-142 857 1	1-912 931	1-626 577	1-475 773	5 040	7
8	0-125 000 0	2-000 000	1-681 793	1-515 717	40 320	2 ³
9	0-111 111 1	2-080 084	1-732 051	1-551 846	362 880	3 ²
10	0-100 000 0	2-154 435	1-778 279	1-584 893	3-628 800	2-5
11	0-090 909 1	2-223 980	1-821 160	1-615 394	3-991 680	11
12	0-083 333 3	2-289 428	1-861 210	1-643 752	4-790 016	2 ³ ·3
13	0-076 923 -1	2-351 335	1-898 829	1-670 278	6-227 021	13
14	0-071 428 6	2-410 142	1-934 336	1-695 218	8-717 829	2-7
15	0-066 666 7	2-466 212	1-967 990	1-718 772	1-307 674	3-5
16	0-062 500 0	2-519 842	2-000 000	1-741 101	2-092 279	2
17	0-058 823 5	2-571 282	2-030 543	1-762 340	3-556 874	17
18	0-055 555 6	2-620 741	2-059 767	1-782 602	6452 374	2-3
19	0-052 631 6	2-668 402	2-087 798	1-801 983	1-216 451	19
20	0-050 000 0	2-714 418	2-114 743	1-820 564	2-432 902	2 ³ ·5
21	0-047 619 0	2-758 924	2-140 695	1-838 416	5-109 094	3-7
22	0-045 454 5	2-802 039	2-165 737	1-855 601	1-124 001	2-11
23	0-043 478 3	2-843 867	2-189 939	1-872 171	2-585 202	23
24	0-041 666 7	2-884 499	2-213 364	1-888 175	6-204 484	2 ³ ·3
25	0-040 000 0	2-924 018	2-236 068	1-903 654	1-551 121	5
26	0-038 461 5	2-962 496	2-258 101	1-918 645	4-032 915	2-13
27	0-037 037 0	3-000 000	2-279 807	1-933 182	1-088 887	3 ³
28	0-035 714 3	3-036 589	2-300 327	1-947 294	3-048 883	2 ³ ·7
29	0-034 482 8	3-072 317	2-320 596	1-961 009	8-841 762	29
30	0-033 333 3	3-107 233	2-340 347	1-974 350	2-652 529	2-3·5
31	0-032 258 1	3-141 381	2-359 611	1-987 341	8-222 839	31
32	0-031 250 0	3-174 802	2-378 414	2-000 000	2-631 308	2 ⁵
33	0-030 303 0	3-207 534	2-396 782	2-012 347	8-683 318	3-11
34	0-029 411 8	3-239 612	2-414 736	2-024 397	2-952 328	2-17
35	0-028 571 4	3-271 066	2-432 299	2-036 168	1-033 315	5-7
36	0-027 777 8	3-301 927	2-449 490	2-047 673	3-719 933	2 ³ ·3 ²
37	0-027 027 0	3-332 222	2-466 326	2-058 924	1-376 37-5	37
38	0-026 315 8	3-361 975	2-482 824	2-069 935	5-230 226	2-19
39	0-025 641 0	3-391 211	2-498 999	2-080 717	2-039 788	3-13
40	0-025 000 0	3-419 952	2-514 867	2-091 279	8-169 153	2 ³ ·5
41	0-024 390 2	3-448 217	2-530 440	2-101 632	3-345 253	41
42	0-023 809 5	3-476 027	2-545 730	2-111 786	1-405 006	2-3·7
43	0-023 255 8	3-503 398	2-560 750	2-121 747	6-041 526	43
44	0-022 727 3	3-530 348	2-575 510	2-131 526	2-658 272	2 ² ·1
45	0-022 222 2	3-556 893	2-590 020	2-141 127	2-196 222	3 ² ·5
46	0-021 739 1	3-583 048	2-604 291	2-150 560	5-502 622	2-23
47	0-021 276 6	3-608 826	2-618 330	2-159 830	2-586 232	47
48	0-020 833 3	3-634 241	2-632 148	2-168 944	1-241 392	2 ⁴ ·3
49	0-020 408 2	3-659 306	2-645 751	2-177 906	6-082 819	7
50	0-020 000 0	3-684 031	2-659 148	2-186 724	3-041 409	2-5

*If x is greater than 9, multiply by 10^c, where c is the characteristic of log x!

TABLE 11 RECIPROCALs, ROOTs, FACTORIALs AND FACTORs — *Contd*

	RECIPROCAL	CUBE Root $\sqrt[3]{x}$	FOURTH Root $\sqrt[4]{x}$	FIFTH Root	FACTORIALS	PRIME FACTORS
50	0.020 000 0	3.684 031	2·659 148	2.186 724	3·041 409	2.5
51	0·019 607 8	3.708 430	2.672 345	2·195 402	1.551 119	3.17
52	0.019 230 8	3.732 511	2.685 350	2.203 945	8.065 818	2 ³ ·13
53	0.018 867 9	3.756 286	2.698 168	2.212 357	4·274 883	53
54	0·018 518 5	3.779 763	2·710 806	2.220 643	2·308 437	2.3
55	0.018 181 8	3·802 952	2.723 270	2·228 807	1·269 640	5.11
56	0.017 857 1	3.825 862	2.735 565	2·236 854	7.109 986	2 ³ ·7
57	0·017 543 9	3·848 501	2·747 696	2·244 786	4·052 692	3.19
58	0·017 2414	3.870 877	2.759 669	2.252 608	2.350 561	2.29
59	0·016 949 2	3·892 996	2·771 488	2.260 322	1·386 831	59
60	0·016 666 7	3·914 868	2.783 158	2.267 933	8.320 987	2 ³ ·3.5
61	0.016 393 4	3·936 497	2.794 682	2·275 443	5.075 802	61
62	0·016 129 0	3.957 892	2.806 066	2.282 855	3.146 997	2.31
63	0·015 873 0	3.979 057	2.817 313	2.290 172	1·982 608	3 ³ ·7
64	0·015 625 0	4·000 000	2.828 427	2.297 397	1·268 869	2
65	0.015 384 6	4.020 726	2.839 412	2·304 532	8.247 651	5.13
66	0.015 151 5	4·041 240	2.850 270	2311 579	5443 449	2.3.11
67	0.014 925 4	4.061 548	2.861 006	2.318 542	3.647 111	67
68	0.014 705 9	4.081 655	2.871 622	2.325 422	2.480 036	2 ³ ·17
69	0·014 492 8	4·101 566	2.882 121	2.332 222	1·711 225	3.23
70	0.014 285 7	4.121 285	2.892 508	2.338 943	1·197 857	2.5.7
71	0.014 084 5	4.140 818	2·902 783	2.345 588	8.504 786	71
72	0·013 888 9	4.160 168	2.912 951	2·352 158	6·123 446	2 ³ ·3 ³
73	0·013 698 6	4·179 339	2.923 013	2.358 656	4·470 115	73
74	0·013 513 5	4·198 336	2.932 972	2.365 083	3·307 885	2.37
75	0.013 333 3	4.217 163	2.942 831	2·371 441	2.480 914	3.5
76	0.013 157 9	4.235 824	2.952 592	2377 731	1·885 495	2 ³ ·19
77	0.012 987 0	4·254 321	2·962 257	2.383 956	1·451 831	7.11
78	0·012 820 5	4·272 659	2.971 828	2.390 116	1·132 428	2.3.13
79	0·012 658 2	4·290 840	2.981 308	2.396 213	8.946 182	79
80	0·012 500 0	4.308 869	2.990 698	2·402 249	7·156 946	2 ⁴ ·5
81	0·012 345 7	4.326 749	3·000 000	2·408 225	5·797 126	3 ⁴
82	0.012 195 1	4.344 481	3·009 217	2.414 142	4.753 643	2.41
83	0·012 048 2	4.362 071	3·018 349	2·420 001	3.945 524	83
84	0011 904 8	4·379 519	3.025 400	2·425 805	3.314 240	2 ³ ·3.7
85	0·011 7647	4.396 830	3.036 370	2·431 553	2.817 104	5.17
86	0·011 627 9	4.414 005	3.045 262	2·437 248	2.422 710	2.43
87	0.011 494 3	4.431 048	3.054 076	2442 890	2·107 757	3.29
88	0·011 363 6	4447 960	3·062 814	2·448 480	1·854 826	2 ³ ·11
89	0·011 236 0	4·464 745	3.071479	2.454 019	1·650 796	89
90	0·011 111 1	4.481 405	3·080 070	2.459 509	1·485 716	2.3 ³ ·5
91	0010 989 0	4.497 941	3·088 591	2.464 951	1·352 002	7.13
92	0·010 869 6	4.514 3.57	3.097 041	2.470 345	1·243 841	2 ³ ·23
93	0·010 752 7	4.530 655	3·105 423	2.475 692	1.156 773	3.31
94	0·010 638 3	4.546 836	3.113 737	2480 993	1·087 366	2.47
95	0·010 526 3	4.562 903	3.121 986	2.486 250	1·032 998	5.19
96	0.010 416 7	4.578 857	3.130 169	2.491 462	9·916 779	2 ³ ·3
97	0·010 309 3	4.594 701	3·138 289	2.4% 631	9.619 276	97
98	0.010 204 1	4.610 436	3.146 346	2.501 758	9·426 890	2.7
99	0.010 101 3	4.626 065	3·154 342	2.506 842	9·332 622	3 ³ ·11
100	0·010 000 0	4·641 589	3.162 278	2.511 886	9.332 622	2 ³ ·5 ³

*Multiply by 10^c, where c is the characteristic of log x!

TABLE 12 MATHEMATICAL CONSTANTS

CONSTANT	NUMBER	LOG	CONSTANT	NUMBER	LOG
π	3·141 592 7	0.497 15	$\frac{1}{\pi}$	0·318 309 9	9·502 85
2π	6.283 185 3	0·798 18	$\frac{1}{2\pi}$	0·159 154 9	9.201 82
$\frac{\pi}{2}$	1·570 796 3	0·196 12	$\frac{2}{\pi}$	0·636 619 8	9·803 88
$\frac{\pi}{4}$	Q·785 398 2	1 9.895 09	$\frac{4}{\pi}$	1.273 239 5	0·104 91
$\frac{4\pi}{3}$	4·188 790 2	0·622 09	$\frac{3}{\sqrt{4\pi}}$	0·620 350 5	9.792 64
π^2	9·869 604 4	0.994 30	$\frac{1}{\pi^2}$	0.101 321 2	9·005 70
$\sqrt{\pi}$	1·772 453 8	0.248 57	$\frac{1}{\sqrt{\pi}}$	0·564 189 6	9.751 42
$\sqrt{2\pi}$	2·506 628 3	0·399 09	$\frac{1}{\sqrt{2\pi}}$	0.398 942 3	9.600 91
$\sqrt{\frac{\pi}{2}}$	0·886 226 9	9·947 54	$\frac{2}{\sqrt{\pi}}$	1.128 379 2	0·052 46
$\sqrt{\frac{\pi}{2}}$	1·253 314 1	0·098 06	$\sqrt{\frac{2}{\pi}}$	0.797 884 6	9.901 94
e	2·718 281 8	0.434 29	e^{-1}	0·367 879 4	9·565 71
e^2	7.589 056 1	0·868 59	e^{-2}	0·135 335 3	9.131 41
$\sqrt{e}$	1.648 721 3	0·217 15	$e^{-\frac{1}{2}}$	0·606 530 7	9.782 85
$e\pi$	23.140 692 6	1·364 38	$e^{-\pi}$	0·043 213 9	8.635 6:
$\frac{\pi}{e^2}$	4.810 477 4	0·682 19	$\frac{-\pi}{e^2}$	0.207 879 6	9.317 81
$\sqrt{2}$	1·414 213 6	0·150 51	$\sqrt{\frac{1}{2}}$	0·707 106 8	9.849 49
$\sqrt{3}$	1.732 050 8	0·238 56	$\sqrt[3]{10}$	2·154 434 7	0·333 33
$\sqrt{10}$	3.162 277 6	0·500 00	$\sqrt[3]{100}$	4·641 588 8	0.666 67
$M=\log e$	0·434 294 5	9.637 78	$\frac{1}{M}=\ln 10$	2.302 585 1	0.362 22
γ	0.577 215 7	9.761 33	$\ln \pi$	1·144 729 9	...
1 radian	57.295 779	1.758 12	1°	0·017 453 3	8.241 88
„	3 437'·746 77	3·536 27	$1'$	0·000 290 9	6463 73
„	2 062 641·181	5·314 42	$1''$	0·000 004 8	4.685 57

*For actual values of log for fractions, subtract 10.

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SECTION 2
PHYSICAL AND CHEMICAL TABLES
(TABLES 13-3 I)

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TABLE 13 EARTH, SUN AND MOON

	MEAN RADIUS cm	DENSITY	MASS g	MASS (EARTH = 1)	GRAVITY AT EQUATOR (EARTH = 1)
E a r t h	6 368 × 10 ⁵	5·52	5·977 x 10 ²⁷	1	1
Moon	1 738 × 10 ⁵	3·33	7·180	$\frac{1}{81\cdot5}$	$\frac{1}{6\cdot04}$
Sun	6·963 5 x 10 ¹⁰	1·408 9	1·993 x 10 ³³	3·3 × 10 ⁶	2·741 0 x 10 ⁴ cm/s ²

Distance of Earth from Sun =147 to 152=10⁶ km. Distance of Moon from Earth=384 700 km.

Mean solar second= $\frac{1}{86\,400}$ of mean solar day.

Sidereal day =23 h 56 m 4·1 s.

Mean **synodical** or lunar month =29·531 mean solar days.

Tropical and civil year =365·242 195 7 mean solar days.

TABLE 14 GRAVITATION

Acceleration (g) due to Gravity and Length (**L**) of Seconds Pendulum

	LATITUDE	g cm/s ²	L cm		LATITUDE	g cm/s ²	L cm
Equator	0° 0′	978·030	99·094	hfontreal	45° 30′·3	980·672	99·363
Madras	13° 4′·1	978·277	99·12	Paris	48° 50′·2	980·943	99·390
Calcutta	22 32′·8	978·815	99·175	Greenwich	51° 28′·6	981·188	99·415
Sydney	—33° 51′·7	978·684	99·161	London	51° 31′·1	981·199	99·416
Tokyo	35 42′·6	978·801	99·275	Cambridge	52 12′·9	981·25	99·419
Mellbourne	-37 49′·9	979·987	99·293	Dublin	53 23′·2	981·36	99·433
Washington	38° 53′·2	980·112	99·206	Liverpool	53° 24′·1	981·35	99·431
New York	40 48′·5	980·247	99·320	Glasgow	55° 51′·5	981·605	9 9 . 4 5 8
Wellington (N.Z.)	—41° 17′·1	980·27	99·322	Edinburgh	55 57′·4	981·584	99·455
Chicago	41 50′·0	980·283	99·323	Aberdeen	57 9	981·68	99·460
Toronto	43 39′·6	980·46	99·341	Leningrad	59 6′·5	981·929	99·490
	45° 0′	980·616	99·357	North Pole	90 0	983·216	99·620

Attraction of two masses. each 1 gram, concentrated at points 1 centimetre apart (G) — 6·658 × 10⁻⁸ dynes.

Mass which, concentrated 1 centimetre apart from equal mass, will give attraction of 1 dyne — 3 872 grams.

TABLE 15 PROPERTIES OF ELEMENTS

ELEMENT SYMBOL	DENSITY (g/cm³)	ATOMIC WEIGHT (1961)	ATOMIC No.	FIRST VALENCY IONIZA- TION POTENTIAL	ELECTRO- CHEMICAL EQUIVALENT (g/kilo- coulomb)	MELTING POINT (°C)	BOILING POINT AT 760 mmHg (°C)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Aluminium	Al	2.698 9 (20%)	26.981 5	13	5.96	3	0.093 16	659.7	2 057
Antimony	Sb	6.691 (20%)	121.75	51	8.5	3, 5	{ 0.420 59 35	630.5	I 380
Argon	Ar	0.001 78 (3°C)	39.948	18	15.68	0	x s:: .93	-189.2	-185.7
Arsenic	AS	5.73 (15°C)	74.921 6	33	10.5	3, 5	{ 0.258 76 0.152 54	814	615 (sublimes)
Barium	Ba	3.5 (25°C)	137.34	56	5.19	2	0.711 71	725	I 140
Beryllium	Be	1.848	9.012 2	4	8.00	2	0.046 74	1 278 ± 5	2 970
Bismuth	Bi	9.747	208.980	83	8.00	3, 5	{ 0.721 93 0.433 16	271.3	1 560 ± 5
Boron	B	2.37	10.811	5	8.257		0.037 37	2300	2 550
Bromine	Br	3.12	79.909	35	11.80	I, 3.35, 7	0.828 15	-7.2	58.78
Cadmium	Cd	8.65 I (20°C)	112.40	48	8.976	2	0.582 44	320.9	767 ± 2
Cesium	CS	873 (20°C)	132.905	55	3.87	I	1.377 31	28.5	670
Calcium	Ca	1.55	40.08	20	6.09	2	0.207 67	842	1240
Carbon	C	2.22	12.011 15	6	11.217	2, 4	{ 0.031 11 0.062 23	> 3 500	4200
Cerium	Ce	6.47	140.12	58	6.54	3, 4	{ 0.484 04 0.363 4	804	1 400
Chlorine	Cl	0.003 22	35.453	17	12.952	I, 3, 5, 7	0.367 43	-103 ± 5	-34.6
Chromium	Cr	6.92 (22°C)	51.996	24	6.74	2.3.6	0.179 65	1 890	2 480
Cobalt	co	8.9	58.933 2	27	7.81	2.3	0.089 83 0.305 39	I 495	2900
Columbium (Niobium)	Cb	8.5	92.906	41	—	5	0.204 1 0.192 56	2 500 ± 50	3700
Copper	cu	8.96	63.54	29	7.68	1, 2	0.658 76 0.329 38	1083	2 336
Dysprosium	Dy	8.53	162.50	66	6.8	3	0.560 69	—	—
Erbium	Er	9.05	167.26	68	—	3	0.579 07	—	—
Europium	Eu	5.259	151.96	63	5.64	3	0.525 04	1 150 ± 50	—
Fluorine	F	0.001 69	18.998 4	9	17.34	1	0.196 89	-22.3	-188
Gadolinium	Gd	7.895	157.25	64	6.7		0.541 79	—	—
Gallium	Ga	5.907	69.72	31	5.97	233	0.240 83	29.78	1 983
Germanium	Ge	5.323	72.59	32	8.09		0.188 08	958.5	(2 700)
Gold	Au	19.32	196.967	79	9.18	If3	2.043 52 0.681 17	1063	2 600
Hafnium	Hf	13.29	178.49	72	—	4	0.462 69	1700 (computed)	7 320
Helium	He	0.000 179 at 0°C (colour gas)	4.002 6	2	24.46	0	0.041 47	-272 (26 atm)	-268.9
Holmium	Ho	8.803	164.930	67	—	3	0.569 74	—	—
Hydrogen	H	0.000 089 9/ 0° (gas)	1.007 97	1	13.527	1	0.010 446	-259.14	-252.8
Indium	In	7.31	114.82	49	5.76	3	0.396 41	—	2 000 ± 10
Iodine	I	4.93	126.904 4	53	10.6	1, 3, 5, 7	1.315 23	113.7	184.35
Iridium	Ir	22.42	192.2	77	—	3, 4	0.500 26	2 454	> 4 800
Iron	Fe	7.74	55.847	26	7.83	2, 3	0.289 38 0.192 91	I 535	3000
Krypton	Kr	0.003 73/0°	83.80	36	13.936	. 0	0.867 36	-156.6	-152.9
Lanthanum	La	6.15	138.91	57	—		0.479 86	826	—
Lead	Pb	11.35	207.19	82	5.88	234	I 073 63 0.536 81	327.43	I 620
Lithium	Li	0.534	6.939		5.363	1	0.071 92	186	1 336 ± 5
Lutetium (Cassiopeium)	LO	9.872	174.97	71	—	3	0.604 46	—	—
Magnesium	Mg	1.738	24.312	12	—	2	0.126 01	651	I 107
Manganese	Mn	7.21 to 7.44	54.938 0	25	7.61	2, 3, 4, 6, 7	0.284 61 0.184 230	I 260	I 900
Mercury	Hg	13.546	200.59	80	10.39	1, 2	2.078 86 1.039 43	-38.87	356.58

(Continued)

TABLE 15 PROPERTIES OF ELEMENTS — *Contd*

ELEMENT	SYMBOL	DENSITY (g/cm ³)	ATOMIC WEIGHT (1961)	ATOMIC No.	ATOMIC FIRST IONIZA- TION POTEN- TIAL	VALENCY	ELECTRO- CHEMICAL EQUIVALENT (g/kilo- coulomb)	MELTING POINT (°C)	BOILING POINT AT 760 mmHg. (°C)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Molybdenum	Mo	10.22	95.94	42	7.35	3, 4, 6	0.248 7 0.165 80	2 620 ± 10	4800
Neodymium	Nd	6.80	144.24	60	6.3	3	0.498 34	840	—
Neon	Ne	0.000 9	20.183	10	21.47	0	0.209 15	-248.67	-245.9
Nickel	Ni	8.902	58.71	28	7.61	2, 3	0.304 09 0.202 7	1 455	2 922
Niobium	Nb (see (Colum- bium))	—	—	—	—	—	—	—	—
Niton	Rn (see Radon)	—	—	—	—	—	—	—	—
Nitrogen	N	0.001 25	14.006 7	7	14.48	3, 5	0.048 387 0.029 032	-209.86	-195.8
Osmium	Os	22.57	190.2	76	(8.71	2, 3, 4, 6, 8	0.496 11	2700	> 5 30p
Oxygen	O	0.001 44	15.999 4	8	13.55	2	0.082 902	-218.4	-182.86
Palladium	Pd	12.02	106.4	46	8.3	2, 4, 6	0.552 8 0.276 42	1 549.4	2200
Phosphorus	P	1.82	30.973 8	15	—	3, 5	0.107 1 0.064 21	44.1	280
Platinum	Pt	21.45	195.09	78	8.88	3, 4	0.505 78	1 773.5	4300
Potassium	K	0.862	39.102	19	4.318	1	0.405 14	62.3	760
Praseodymium	Pr	6.782	140.907	59	5.8	3	0.486 77	940	—
Proto-actinium	Pa	15.37	231	91	—	—	0.598 45	—	—
Radium	Ra	—	226	88	5.252	2	1.172 24	700	1 140
Radon (Niton)	Rn	0.009 73	222	86	10.698	—	2.300 52	-71	-61.8
Rhenium	Re	21.02	186.2	75	—	—	0.275 81	3	167 ± 60
Rhodium	Rh	—	102.905	45	7.7	3	0.266 61	1 966 ± 3	> 2 500
Rubidium	Rb	1241 1.532	85.47	37	4.159	1	0.885 80	38.5	700
Ruthenium	Ru	12.41	101.07	44	7.7	3, 4, 6, 8	0.263 47	2 450	2 700
Samarium	Sm	7.536	150.35	62	6.6	2, 3	0.519 62	> 1 300	—
Scandium	Sc	2.992	44.956	21	6.7	3	0.155 79	1 200	2 400
Selenium	Se	4.8	78.96	34	9.70	2, 4, 6	0.136 37	217	688
Silicon	Si	2.33	28.086	14	8.12	4	0.072 69	1 420	2600
Silver	Ag	10.503	107.87	47	7.542	1	1.117 93	960.8	1950
Sodium	Na	0.971	22.989 8	11	5.12	1	0.238 3i	97.5	880
Strontium	Sr	2.54	87.62	38	5.667	2	0.454 04	774	1 150
Sulphur	S	2.07	32.064	16	10.30	2, 4, 6	0.166 11 0.083 05 0.055 37	112.8 to 119.25	444.6
Tantalum	Ta	16.6	180.948	73	—	5	0.374 88	2 996 ± 50	Ca4 100
Tellurium	Te	—	127.60	52	8.96	2, 4, 6	0.220 40	452	1 390
Terbium	Tb	6.24 827	158.924	65	6.7	3	0.549 91	327 ± 5	—
Thallium	Tl	11.85	204.37	81	6.07	1, 2	0.706 01	362	1 457 ± 10
Thorium	Th	11.30	232.038	90	—	4	0.601 35	1 845	4 500
Thulium	Tm	9.33	168.934	69	—	3	0.585 15	—	—
Tin	Sn	7.31	118.69	50	7.30	2, 4	0.615 03	231.89	2 270
Titanium	Ti	4.54	47.90	22	6.81	3, 4	0.124 01	1 800	> 3 000
Tungsten	W	19.3 (20°C)	183.85	74	8.1	6	0.317 79	3 370	5900
Uranium	u	18.95	238.03	92	—	4, 6	0.411 17	1 132 ± 1	3 818
Vanadium	Ve	6.11	50.942	23	6.71	0	0.105 60	1 710	3 000
Xenon	Yb	0.005 6977 85	131.30	54	12.08	2, 3	0.507 1.360 72 62	-112	-107.1
Ytterbium	—	—	173.04	70	7.1	—	—	1 800	—
Yttrium	Y	4.4s	88.905	39	6.5	3	0.307 15	—	2 500
Zinc	Zn	7.133	65.37	30	9.36	2	—	1 490.47	907
Zirconium	Zr	6.53	91.22	40	6.92	4	0.236 0.338 76 32	1 857	> 2 900

TABLE 16 PROPERTIES OF SOLIDS

SUBSTANCE	DENSITY* g/cm ³	SPECIFIC HEAT* cal/g/°C	MELTING POINT (°C)	LATENT HEAT OF FUSION cal/g	COEFFI- CIENT OF LINEAR EXPANSION ×10 ⁴	THERMAL CONDUCTI- VITY* cal/cm ² s/ (°C/cm)	ELECTRICAL RESIST- ANCE* MICRO OHM	TEM- PERATURE COEFFI- CIENT OF RESIST- ANCE*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Aluminium	2.699	0.214	659.7	76.8	0.225	0.492 (100°C)	2.828	39 (18°C)
Antimony	6.618	0.051 3 (100°C)	630.5	39	0.115	0.040 (100°C)	41.7	36
Bismuth	9.80	0.029 4	271.3	12.64	0.157	0.016 1 (100°C)	120	40
Brass	8.44 to 8.7	0.091 7 (20°C- 100°C)	905 to 1030	—	0.178	0.246 (0°C)	7 (0°C)	20
Carbon (Graphite)	2.25	0.17	> 3 500	—	0.079	0.012	—	—
Cobalt	8.71 (21°C)	0.100 1	1 495	58	0.123	—	9.8	33 (0°C)
Constantan	8.88	0.102	1 280	—	0.145	0.064 (100°C)	48	0.02 (25°C)
Copper	8.92	0.092 1	1083	42	0.167	0.908 (100°C)	1.692	43.3
Cork	0.22 to 0.26	0.49	—	—	—	0.000 13 to 0.00072	—	—
German Silver	8.30 to 8.45	0.094 (0°C)	1100	—	0.184	0.089 (100°C)	33	4
Glass	2.4 to 2.8	0.161 (100°C-50°C)	1100	—	0.093 to 0.002 5	—	—	—
Gold	19.3	0.31 6	1 063	15.8	0.142	0.703 (100°C)	2.44	34
Ice	0.917	0.530 (-10°C)	0	—	—	0.002 2	—	—
Indian Rubber	0.91 to 0.93	0.481 (+100°C)	—	—	—	0.000 45	—	—
Invar	8.0	0.12 (15°C-100°C)	—	—	0.009	—	81	20
Iron (Cast)	7.03 7.73	0.118 9 (20°C-100°C)	—	—	0.004	0.108 (100°C)	—	—
Iron (Wrought)	7.8 to 7.9	0.115 2 (15°C-100°C)	1 535	—	0.119	0.143 (100°C)	—	—
Lead	11.347	0.306	327.43	5.86	0.28	0.082 (100°C)	22	43
Magnesium	2.00 to 2.50	—	—	—	—	—	—	—
Manganin	2.6 to 2.84	0.95 0.21 (0°C-100°C)	651	—	—	0.631 0.007 1	44	0.01
Marble	—	—	—	—	—	—	—	—
Naphthalene	—	0.313	—	—	—	—	—	—
Nickel	8.60 to 8.90	0.105	1 455	73.8	0.128	0.138 (100°C)	7.8	60 (0°C)
Paraffin Wax	0.87 to 0.91	0.693 9 (0°C-20°C)	55	42.3	—	0.000 23 (0°C)	—	—
Phosphor Bronze	8.7 to 8.80	—	750	—	—	—	10.5	40 (0°C)
Platinoid	—	—	—	—	—	—	—	—
Platinum	21.37	0.324 (20°C)	1 773.5	27.2	0.089	0.177 3 (100°C)	10	30
Quartz	2.65	0.188 (12°C-188°C)	—	—	—	0.030 parallel to axis —0.16 per- pendicular to axis	—	—
Silver	10.503	0.055 8	960.8	21.07	0.19	0.992 (100°C)	1.59	38
Sodium	0.971 2	0.295	97.5	31.7	0.61	1.000	4.3 (0°C)	—
Sulphur (Rhombic)	2.0 to 2.1	\$176 (15°C-96°C)	112.8	13.2	0.66	0.36	—	—
Tin	7.3	0.057 7 (100°C)	231.89	14.0	0.22	0.145 (100°C)	11.5	42
Zinc	7.13	0.092 5	419.47	28.13	0.26	0.261 9 (100°C)	5.75	37

*The values are at 20°C or at other temperatures indicated.

TABLE 17 PROPERTIES OF LIQUIDS

SUBSTANCE	DEN- SITY (g/cm ³)	SUR- FACE TENSION WITH AIR* (Dynes per cm)	VISCO- SITY* per sq cm per unit vel. grad	SPECIFIC HEAT* (cal ₁₈ /g/°C)	BOIL- ING POINT (°C)	LATENT HEAT OF VAPORI- ZATION AT bp cal/g	FREEZ- ING POINT (°C)	COEFFI- CIENT OF CUBICAL EXPANSION	THERMAL CONDUCT- IVITY* cal/cm ² s/ (°C/cm)	ELEC- TRICAL RESIST- ANCE (ohms/ cm ²)	INDEX OF REFRACTION
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Alcohol (ethyl)	0.791	22.75	0.012 00	0.406 (90°C)	78.3	204	-114.6	0.001 120	0.000 423	—	1.36
Benzene or (benzole)	0.899 (0°C)	28.85	0.006 52	0.260 (80°C)	80.2	94.3	5.56	0.001 199	0.000 333 (5°C)	—	1.501 12
Bromine	3.12	41.5	0.009 95 (19.5°C)	0.055 (19°C)	63.1	43.7	-7.2	0.001 237	—	—	—
Carbon bi- sulphide	1.261	32.33	0.003 63	0.157 (80°C)	46.2	84.9	-111.8	0.001 218	0.000 343 (9°-15°C)	—	1.629 50 (18°C)
Chloro- form	1.489	27.14	0.005 8	0.234	61.2	61	-63.5	0.001 273	0.000 288 (9°-15°C)	—	1.446 43 (18°C)
Ether (ethyl)	0.736 (0°C)	17.01	0.002 332	0.461 9 (27°C)	34.6	83.9	-116.3	0.001 656	0.000 303 (9°-15°C)	—	1.349 7 (24.8°C)
Glycerine	1.260 (0°C)	63.4	14.90	0.669 (100°C)	291	—	17.9	0.000 505	0.000 637 (9°-15°C)	—	1.472 9
Hydrochlo- ric acid	1.639 (0°C)	—	—	0.964 (18°C)	—	—	-112	—	—	—	1.256
Mercury	13.6	487 (15°C)	0.015 54	0.033 25	356.9	65	-38.87	0.000 181	—	0.000 783 (20°C)	—
Nitric acid	1.502	42.7 (11.6°C)	0.017 70 (10°C)	0.963 (18°C)	86	114.9	-42	—	—	—	1.397 (16.4°C)
Nitro- benzene	1.21	43.9	0.020 3	0.339 (30°C)	—	—	5.7	—	—	—	1.552 91
Olive oil	0.918 (15°C)	32	0.840	0.471 (6.6°C)	—	—	—	0.000 721	0.000 395	—	—
Sulphuric acid	1.834	55.1	0.254	0.956 (21°C)	330	122.1	8.62	0.000 558	—	—	1.429
Turpentine	0.87	—	0.014 87	0.411 (0°C)	159	—	—	0.000 973	0.000 325	—	—
Water	1.00	72.75	0.010 050	0.998 83	100	539.55	0	0.000 15 (10°-20°C)	0.001 44 (15°C)	—	1.333

*The values given are at 20°C or at other temperatures indicated.

TABLE 18 PROPERTIES OF GASES AND VAPOURS

(Where not otherwise specified the various columns refer to gases at 0°C and 760 mmHg pressure)

	DEN- SITY g/litre	MEAN VELO- CITY OF MOLE- CULES cm/s	MEAN FREE PATH OF MOLE- CULES AT 750 mmHg cm	No. OF COL I- SIONS PER SECOND 20°C	VISCOSITY IN DYNES PER SQ cm PER UNIT VEL. GRAD (η)	CRIT- ICAL TEMP. (°C) θ	CRIT- ICAL PRES- SURE AT NTP (p_c)	CRITI- CAL VOLUME (v_c) AT 0°C	BOIL- ING POINT °C	SOLI- DIFI- CATION TEMP. °C	HEAT OF VAPORI- ZATION cal/g	SPECI- FIC HEAT (CONST- ANT PRES- SURE) cal/g	RATIO OF SPECI- FIC HEATS 15°C	THER- MAL CON- DUCTI- VITY $\times 10^{-4}$	INDEX OF REFRA- CTION FOR D LINES ($\lambda = 5893$ $\times 10^{-8}$ cm)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Acetylene	1.173	—	—	—	—	36	62.0	0.006 9	-83.6	-81.8	—	0.411 9	1.26	0.45	1.000 606
Air	1.292 9	44700	8.3×10^{-6}	5.386×10^6	0.000×10^{-2}	-140.7	37.2	0.004 68	-190	—	50.97	0.24	1.40	—	1.000292 6
Ammonia	0.771 0	58 300	5.92×10^{-6}	9.150×10^6	0.096×10^{-1}	132.4	111.5	0.004 81	-33.35	-77.6	327.1	0.523 2	1.31	0.48	1.000 373 to 1.000 379
Argon	1.783 7	38 100	8.98×10^{-6}	4.000×10^6	0.211×10^{-1}	-122	48	0.004 04	-185.7	-189.2	37.6	0.133	1.668	0.388	1.000 281
Carbon Di- oxide	1.976 9	36 200	5.56×10^{-6}	4.540×10^6	0.139×10^{-1}	31.1	73.0	0.006 6	-78.5	-56.6	55	0.184	1.304	0.332	1.000 448 to 1.000 454
Carbon Monoxide	1.250 4	45 400	8.46×10^{-6}	6.120×10^6	0.163×10^{-3}	-139.0	35.0	0.005 05	-190	-20.7	50.4	0.259	1.404	0.542	1.000 335
Chlorine	3.214	28 200	4.6×10^{-6}	6.130×10^6	$0.129 7 \times 10^{-3}$	144	76.1	0.006 15	-34.6	-103 ± 5	6 7	0.114 9	1.355	0.17	1.000 773
Cyanogen	2.335	33 300	4.0×10^{-6}	8.320×10^6	0.107×10^{-1}	128	59	0.009 24	-20.7	-35	—	0.409 5	—	—	1.000 784 to 1.000 825
Ethylene	1.260 4	48 800	5.47×10^{-6}	8.921×10^6	$0.096 1 \times 10^{-3}$	9.7	50.9	0.007 52	-103.9	-169.4	—	0.364	1.255	0.395	1.006 74
Helium	0.178 47	120 800	25.25×10^{-6}	4.540×10^6	0.204×10^{-1}	-267.9	2.26	0.002 99	-268.9	-272	6	1.25	1.66	3.3	1.000 036
Hydrogen	0.089 88	169 600	16.00×10^{-6}	10.060×10^6	$0.085 7 \times 10^{-1}$	-239.9	12.8	0.002 64	-252.8	-259.14	108	3.41	1.41	4.16	1.000 132
Hydrogen Chloride	1.639 2	43 000	6.86×10^{-6}	6.269×10^6	0.001 38	51.4	81.6	0.005 2	-84.1	-112	98	0.194	1.40	—	1.000 444
Hydrogen Sulphide	1.539	44 400	5.9×10^{-6}	7.525×10^6	0.118×10^{-3}	100.4	88.9	0.005 78	-61.8	-82.9	131.9	0.245	1.32	0.287	1.000 623
Methane (Marsh Gas- Fire Damp)	0.716 8	59 700	8.0×10^{-6}	7.462×10^6	0.104×10^{-3}	-82.5	45.8	0.004 88	-161.5	-184	—	0.53	1.31	0.72	1.000 444
Nitric Oxide	1.340 2	47 600	9.06×10^{-6}	5.254×10^6	0.179×10^{-3}	-9.4	65	0.003 47	-151.8	-163.6	—	0.232	1.40	0.46 (8°C)	1.000 297
Nitrous Oxide	1.977 8	39 200	6.1×10^{-6}	6.427×10^6	0.135×10^{-1}	36.5	71.7	0.004 36	-88.49	-102.4	67 (-20°C)	0.213	1.303	0.353	1.000 516
Nitrogen	1.250 55	45 400	8.5×10^{-6}	5.070×10^6	0.167×10^{-3}	-147.1	335	0.005 17	-195.8	-209.86	48	0.256	1.404	0.568	1.000 296 to 1.000 298
Oxygen	1.429 04	42 500	9.05×10^{-6}	4.430×10^6	0.192×10^{-1}	-118.8	49.7	0.004 26	-182.96	-218.4	51	0.22	1.401	0.57	1.000 271 to 1.000 272
Sulphur Dioxide	2.926 9	29 700	4.3×10^{-6}	6.907×10^6	0.130×10^{-3}	-157.3	77.7	0.007 45	-1.0	-75.46	94.9	0.15	1.29	0.18	1.000 660
Steam at 100°C	0.581	—	—	—	0.132×10^{-3}	374	218.0	0.002 48	100	—	539	0.47	1.31	0.519	—
Water Vapour (0°C)	—	56 600	5.9×10^{-6}	9.592×10^6	0.094×10^{-3}	—	—	—	—	—	—	—	—	—	1.000 249 to 1.000 259

NOTE — The coefficient of expansion at constant pressure for all gases may be taken as $1/273$ or $0.003 662$.

TABLE 19 CONVERSION OF GASEOUS VOLUMES TO NTP

$$V_0 = V \cdot \frac{p}{760} \cdot \frac{1}{1 + 0.00367t}$$

PRES- SURE (p) mmHg	$\text{Log}_{10} \frac{p}{760}$									
	0	1	2	3	4	5	6	7	8	9
700	1.964 3	0.965 0	0.965 6	0.966 3	0.966 9	0.967 5	0.968 1	0.968 7	0.969 3	0.969 9
710	1.970 5	0.971 1	0.971 7	0.972 3	0.972 9	0.973 5	0.974 1	0.974 7	0.975 3	0.975 9
720	1.976 5	0.977 1	0.977 7	0.978 3	0.978 9	0.979 5	0.980 1	0.980 7	0.981 3	0.981 9
730	1.982 5	0.983 1	0.983 7	0.984 3	0.984 9	0.985 5	0.986 1	0.986 7	0.987 3	0.987 8
740	1.988 4	0.989 0	0.989 6	0.990 2	0.990 8	0.991 4	0.992 0	0.992 6	0.993 2	0.993 8
750	1.994 3	0.994 9	0.995 5	0.996 1	0.996 6	0.997 2	0.997 8	0.998 3	0.998 9	0.999 5
760	0.000 0	0.000 6	0.001 2	0.001 8	0.002 3	0.002 9	0.003 5	0.004 0	0.004 6	0.005 2
770	0.005 7	0.006 3	0.006 9	0.007 4	0.008 0	0.008 6	0.009 1	0.009 7	0.010 2	0.010 8

TEMPE- RATURE °C	$\text{Log}_{10} (1 + 0.00367t)$									
	0	1	2	3	4	5	6	7	8	9
0	0.000 0	0.001 6	0.003 2	0.004 8	0.006 4	0.008 0	0.009 6	0.011 1	0.012 7	0.014 2
10	0.015 7	0.017 2	0.018 7	0.020 2	0.021 7	0.023 2	0.024 7	0.026 2	0.027 7	0.029 2
20	0.030 7	0.032 2	0.033 7	0.035 2	0.036 7	0.038 2	0.039 7	0.041 1	0.042 6	0.044 0
30	0.045 7	0.046 8	0.048 2	0.049 6	0.051 0	0.052 4	0.053 8	0.055 2	0.056 6	0.058 0
40	0.059 4	0.060 8	0.062 2	0.063 6	0.065 0	0.066 4	0.067 8	0.069 2	0.070 6	0.072 0
50	0.073 3	0.074 7	0.076 0	0.077 3	0.078 6	0.079 9	0.081 2	0.082 5	0.083 8	0.085 1
60	0.086 4	0.087 7	0.089 0	0.090 3	0.091 6	0.092 9	0.094 2	0.095 5	0.096 8	0.098 1
70	0.099 3	0.100 6	0.101 8	0.103 1	0.104 3	0.105 6	0.106 8	0.108 1	0.109 3	0.110 6
80	0.111 8	0.113 0	0.114 2	0.115 4	0.116 6	0.117 8	0.119 0	0.120	0.121 4	0.122 6
90	0.123 8	0.125 1	0.126 3	0.127 5	0.128 7	0.129 9	0.131 1	0.132 3	0.133 5	0.134 7
100	0.135 8	0.137 0	0.138 1	0.139 3	0.140 4	0.141 6	0.142 7	0.143 9	0.145 0	0.146 1

TABLE 20 ELASTIC CONSTANTS

SUBSTANCE	YOUNG'S MODULUS (dynes per cm ²) x 10 ¹¹	RIGIDITY MODULUS (dynes per cm ²) x 10 ¹¹	BULK MODULUS (dynes per cm ²) x 10 ¹¹	POISSON'S RATIO	BREAKING STRES: FOR WIRES (dynes per cm ²) x 10 ⁸
Aluminium	6.9-7.2	2.4-2.7	7.3-7.7	0.33-0.35	17-20
Brass	9.0-10.2	3.4-3.5	8.0-11.0	0.3 -0.4	31-39
Constantan	16.2-16.4	6.0-6.2	15.4-15.6	0.31-0.38	
Copper	11.0-12.9	3.4-4.6	13.0-14.3	0.25-0.35	28-46
German Silver	11.0-11.6	4.3-4.7	14.9-15.1	0.36-0.38	44-48
Gold	7.8-8.2	2.7-2.9	16.5-16.7	0.41-0.43	25-27
Iron (Cast)	10-13	3.5-5.3	9.5-9.7	0.23-0.31	8-23
Iron (Wrought)	19.0-22.0	7.7-8.3	14.6-16.0	0.27-0.29	46-62
Lead	1.5-1.7	0.5-0.7	4.0-5.0	0.43-0.46	2.0-2.2
Manganin	12.3-12.5	4.6-4.8	12.0-12.2	0.32-0.34	—
Phosphor Bronze	11.9-12.1	4.3-4.5		0.37-0.39	69-108
Platinoid	13.5-13.7	3.5-3.7	—	0.36-0.38	—
Platinum	16.8	6.1	24.7	0.368	33
Silver	7.7-7.9	2.8-3.0	10.8-11.0	0.37-0.39	27-31
Steel (Mild)	21.0-23.0	8.0-8.9	16.0-19.0	0.25-0.31	100-120
Tin	5.3-5.5	1.9-2.1	5.1-5.5	0.32-0.34	2.4-2.6
Zinc	8.0-11.0	3.6-3.8	3.0-6.0	0.20-0.30	11-15
Glass (Crown)	6.0-7.8	2.6-3.2	4.0-5.9	0.20-0.27	3-9
India Rubber	0.048-0.052	0.000 16	—	0.46-0.49	—

TABLE 21A PERCENTAGE HUMIDITIES WITH WET AND DRY BULB HYGROMETER

DIFFERENCE IN °C DRY AND WET BULB THERMO- METER	READING OF DRY BULB THERMOMETER °C									
	0	5	10	15	20	25	30	35	40	40
1"	81	87	88	89	90	92	93	93	94	94
2"	64	72	76	80	82	85	86	87	88	88
3"	46	59	66	71	74	77	79	81	82	82
4"	29	45	55	62	66	70	73	75	76	76
5°	13	33	44	53	59	63	67	70	72	72
6"	—	21	34	44	52	57	61	64	66	66
7"	—	9	25	36	45	50	55	59	61	61
8"	—	—	15	28	38	44	50	54	56	56
9"	—	—	6	20	30	38	44	50	52	52
10°	—	—	—	13	24	33	39	44	48	48

TABLE 21B PRESSURE OF SATURATED WATER VAPOUR
(IN MILLIMETRES OF MERCURY COLUMN)

°C	0	1	2	3	4	5	6	7	8	9
-10	2.16	2.32	2.51	2.71	2.93	3.17	3.40	3.67	3.96	4.26
0	4.58	4.92	5.29	5.68	6.10	6.54	7.01	7.51	8.04	8.61
10	9.21	9.84	10.51	11.23	11.98	12.79	13.64	14.53	15.48	16.48
20	17.54	18.65	19.83	21.07	22.38	23.76	25.22	26.75	28.36	30.05
30	31.83	33.71	35.67	37.74	39.91	42.19	44.58	47.08	49.71	52.46
40	55.34	58.36	61.52	64.82	68.28	71.90	75.67	79.62	83.74	88.05
50	92.54	97.24	102.1	107.2	112.6	118.1	123.9	129.9	136.2	142.7
60	149.5	156.5	163.8	171.5	179.4	187.6	196.2	205.1	214.3	223.9
70	233.8	244.1	254.8	265.9	277.4	289.3	301.6	314.4	327.6	341.3
80	355.5	370.1	385.2	400.9	417.1	433.8	451.1	468.9	487.3	506.4
90	526.0	546.3	567.2	588.8	611.0	634.0	657.7	682.1	707.3	733.2
100	760.0	787.6	—	—	—	906.1	—	—	—	—

TABLE 22 ATMOSPHERE

Atmosphere:

Percentage composition of dry
air at sea level{ By volume, nitrogen 78.03, oxygen 20.99, argon 0.94 }
{ (By weight, nitrogen 75.5, oxygen 23.2, argon 1.3) }Hydrogen — 0.01
Neon — 0.001 23
Helium — 0.000 4Density at 0°C and 76 cm = 0.001293 g/cm³

Standard pressure = 760 mm of mercury at 0°C, lat. 45°, and sea level

= 1033 gf/cm²= 1.013 2 × 10⁶ dynes per cm² = 1013.2 millibars

TABLE 23 LIGHT — STANDARDS FOR MEASUREMENT

Velocity of Light	2.998 6 x 10 ¹⁰ cm/s
Candela (cd)	is the unit of luminous intensity
Luminous Flux	is the time rate of flow of luminous energy
Lumen (lm)	is the unit of <i>luminous flux</i> and is the flux emitted within unit solid angle (one steradian) by a point source having a uniform intensity of one <i>candela</i>
Illumination	of a surface is the <i>luminous flux</i> it receives per unit area
Lux (lx)	is the unit of <i>illumination</i> and is the illumination produced by <i>luminous flux</i> of one <i>lumen</i> uniformly distributed over one square metre
Luminous Efficiency	of a source of light is the ratio of total <i>luminous flux</i> to the total power consumed
Lumens per Watt (lm/W)	is the unit of measurement of <i>luminous efficiency</i>

TABLE 24 REFRACTIVE INDICES (AGAINST AIR) FOR MEAN D LINES ($\lambda=5\ 893\ \times\ 10^{-8}\ \text{cm}$)

Canada Balsam	1.530	Calcite (ord)	1.658
Crown Glass	1.500	Calcite (ext)	1.486
Diamond	2.417	Quartz (ord)	1.504
Felspar	1.524	Quartz (ext)	1.553
Flint Glass	1.560	Rock Salt	1.544 2
Fluorspar	1.433 9	Ruby	1.764
Ice	1.310	Sylvine (KCl)	1.490 3

TABLE 25 WAVELENGTHS OF IMPORTANT SPECTRAL LINES

LINE	WAVELENGTH IN ANGSTROM UNITS*	LINE	WAVELENGTH IN ANGSTROM UNITS*
(1)	(2)	(1)	(2)
K red	7 664.91	Mg green (B ₁)	5 183.62
0 red (A)	7 593.97	(B ₂)	5 172.70
(B)	6 869.00	(B ₃)	5 167.33
Li red	6 707.86	Cd green	5 285.82
Ho red (C)	6 562.82	H blue green	4 861.33
Cd red	6 438.47	Cd blue	4 799.91
Li orange	6 103.64	Sr blue	4 607.33
Na (D ₁)	5 889.95	Li blue	4 602.99
(D ₂)	5 895.92	Hr blue (G)	4 340.47
He yellow (D ₃)	5 375.62	Fe and Ca blue (G)	4 307.75
Tl green	5 350.47	Ca blue (G)	4 226.74
Fe and Ca green (E)	5 269.56	K violet	4 047.16

*One Angstrom unit: 10⁻⁸ cm.

TABLE 26 MAGNETIC ELEMENTS

STATION	EARTH'S HORIZONTAL INTENSITY GAUSS	ANGLE OF DIP IN DEGREES N. POLE DOWN	DECLINATION IN DEGREES
Allahabad	0.355	35	
Bangalore	0.376	11	1.7 w
Bombay	0.367	22	0.3 w
Calcutta	0.369	31	1.2 E
Dacca	0.367	33	0.1 w
Dehra Dun	0.331	43	2.0 E
Delhi	0.347	38	1.4 E
Hyderabad	0.374	20	1.0 w
Madras	0.379	11	1.9 w
Peshawar	0.306	49	3.8 E
Trichinopoly	0.379	6	2.2 w
Vizagapatam	0.380	20	1.0 w

TABLE 27 INSULATORS AND DIELECTRICS

K = dielectric constant (vacuum = 1)

SUBSTANCE	K	SUBSTANCE	K	SUBSTANCE	K
Ebonite	2.7	Ethyl Alcohol (20%)	25.8	Air (0°C)	1.000 594
Glass	7.6	Benzene (20%)	2.283	Airs (20°C)	1.000 528
Ice (-2°C)	93.9	Ether (20°C)	4.34	Carbon Dioxide (25%)	1.000 904
Mica	6.0	Glycerin ($\lambda=200$)(15°C)	39.1	Carbon Monoxide (25°C)	1.000 634
Paraffin	2.1	Turpentine	2.2-2.3	Hydrogen (0°C)	1.000 265
Shellac	3.2	Vaseline Oil	1.9	Helium (25°C)	1.000 067
Sulphur	3.9	Water	81	Sulphur Dioxide (22%)	1.008 18

TABLE 28 ELECTROMOTIVE FORCE OF CELLS

Bichromate cell	2.0 volts	Secondary cell	2.2 to 1.9 volts
Bunsen cell	1.8 volts	Leclanché cell	1.50 volts
Daniell cell	1.08 volts	Lessing	1.5 volts
Grove	1.8-1.9	Obach	1.5 volts
Standard cadmium (Weston) cell	1.018 3 volts (at 20°C)	Clark (Standard)	1.432 8 volts (at 15%)

TABLE 29 STANDARD DIAMETERS AND RESISTANCES OF WIRE

STANDARD Dia	AREA OF CROSS SECTION	COPPER (AT 20°C)	ALUMINIUM (AT 20°C)	RESISTANCE ohm/km			
				Eureka or Constantan (at 0°C)	German Silver (at 20°C)	Manganin (at 20°C)	Platinoid (at 18°C)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
mm	mm ²						
0-200	00314	548-8	905-7	14 039	10 505	14 007	10 951
0-300	0.070 7	243.9	402-5	6 239	4 669	6 225	4 867
0-450	0-159 0	108-4	178-9	2 774	2 076	2 767	2 164
0-750	0441%	39.02	64.39	998-1	746-9	995-9	778-6
0.850	0.567 5	30-38	50-13	777-1	581-5	775-4	606-2
1-060	0-882 S	19-54	32.24	499-8	374-0	498-7	389.9
1-120	0-985 2	17-50	28-88	447-7	335-0	446.6	349-2
1400	1-539	11-20	18-48	286-5	214.4	285-9	223-5
1.700	2.270	7-596	12-53	194.3	145-4	193-9	151-6
1-800	2-545	6.775	11-18	173.3	129-7	172.9	135-2
2060	3.333	5-173	8-54	132.3	99-02	132-0	103.2
2-240	3-941	4-375	7-22	111-9	83-74	111-7	87.30
2-500	4909	3-512	5-80	87-84	67.22	89-63	700%
2-650	5-516	3.126	5-16	79.96	59-83	79.77	62.37
2800	6-157	2-800	4.62	71.62	53.60	71.46	55-87
3000	7.069	2439	402	62.39	46.69	62.25	48-67
3-350	8.814	1-956	3-23	so04	37-44	49.93	39-03

TABLE 30 VELOCITY OF SOUND

SUBSTANCE	VELOCITY IN METRES PER SECOND	TEM- PERATURE
(1)	(2)	(3)
Air	332	0°C
Hydrogen	1 262	0°
Oxygen	316	0°
Water	1447	20°
Alcohol	1 275	15°
Copper	3 560	20°
Iron	s 130	20°
Wood	3 000-5 000	10°-20°
Glass	5000	20°

NOTE — The velocity of sound increases with temperature at the following rates: Air 0.61, Carbon dioxide 0.47, Nitrogen 0.61 and Oxygen 0.60 metres per second per 1 deg rise of temperature.

TABLE 31 SCALE OF MINERAL
HARDNESS

1. Talc	6. Felspar
2. Rock-salt	7. Quartz
3. Calcite	8. Topaz
4. Fluorite	9. Corundum
5. Apatite	10. Diamond

NOTE 1 — Bodies scratched by fingernail have a hardness number less than 2.5.

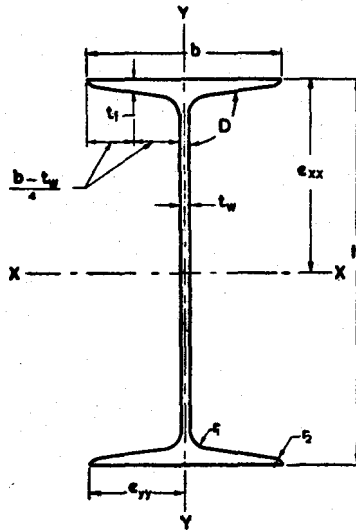
NOTE 2 — Bodies scratched by penknife have a hardness number less than 6.5.

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SECTION 3
ENGINEERING TABLES
(TABLES 32-46)

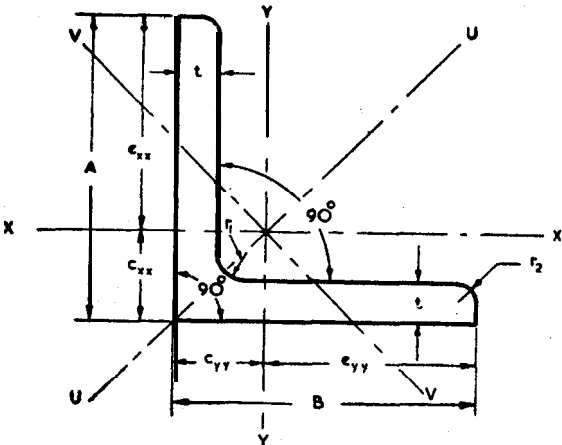
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TABLE 32 ROLLED STEEL BEAMS



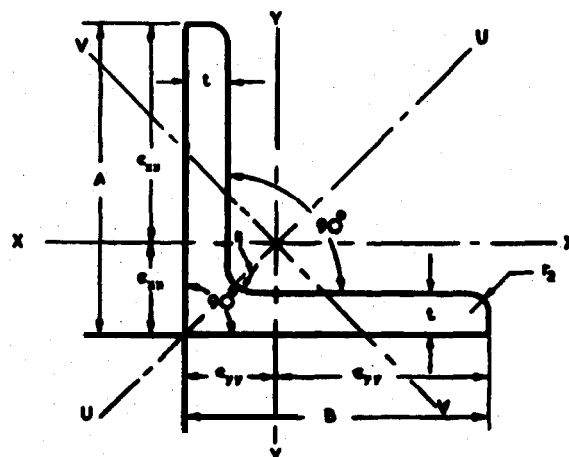
DESIGNATION (1)	DEPTH OF BEAM (h) (2) mm	WIDTH OF FLANGE (b) (3) mm	THICK- NESS OF WEB (t_w) (4) mm	THICK- NESS OF FLANGE (t_f) (5) mm	WEIGHT PER m (w) (6) kg	SEC- TIONAL AREA (a) (7) cm ²	MOMENTS OF INERTIA		MODULI OF SECTION	
							Z_{xx} (8) cm ⁴	I_{yy} (9) cm ⁴	Z_{xx} (10) cm ³	Z_{yy} (11) cm ³
ISLB 75	75	50	3.7	5.0	6.1	7.71	72.7	10.0	19.4	4.0
ISLB 100	100	50	4.0	6.4	8.0	10.21	168.0	12.7	33.6	5.1
ISLB (P) 100	100	50	4.3	7.0	8.6	10.97	178.4	13.2	35.7	5.3
ISLB 125	125	75	4.4	6.5	11.9	15.12	406.8	43.4	65.1	11.6
ISLB 150	150	80	4.8	6.8	14.2	18.08	688.2	55.2	91.8	13.8
ISLB 175	175	90	5.1	6.9	16.7	21.30	1 096.2	79.6	125.3	17.7
ISLB (P) 175	175	80	5.3	7.7	16.7	21.32	1 072.0	57.3	122.5	14.3
ISLB 200	200	100	5.4	7.3	19.8	25.27	1 696.6	115.4	169.7	23.1
ISLB (P) 200	200	100	5.6	8.0	21.1	26.85	1 803.5	112.8	180.3	22.6
ISLB 225	225	100	5.8	8.6	23.5	29.92	2 501.9	112.7	222.4	22.5
ISLB 250	250	125	6.1	8.2	27.9	35.53	3 717.8	193.4	297.4	30.9
ISLB 275	275	140	6.4	8.8	33.0	42.02	5 375.3	287.0	392.4	41.0
ISLB 300	300	150	6.7	9.4	37.7	48.08	7 332.9	376.2	488.9	50.2
ISLB (P) 300	300	140	7.0	11.6	41.5	52.89	8 133.9	414.3	542.3	59.2
ISLB 325	325	165	7.0	9.8	43.1	54.90	9 874.6	510.8	607.7	61.9
ISLB 350	350	165	7.4	11.4	49.5	63.01	13 158.3	631.9	751.9	76.6
ISLB 400	400	165	8.0	12.5	56.9	72.43	19 306.3	716.4	965.3	86.8
ISLB 450	450	170	8.6	13.4	65.3	83.14	27 536.1	853.0	1 223.8	100.4
ISLB 500	500	180	9.2	14.1	75.0	95.50	38 579.0	1 063.9	1 543.2	118.2
ISLB 550	550	190	9.9	15.0	86.3	109.97	53 161.6	1 335.1	1 933.2	140.5
ISLB 600	600	210	10.5	15.5	99.5	126.69	72 867.6	1 821.9	2 428.9	173.5
ISMB 100	100	75	4.0	7.2	11.5	14.60	257.5	40.8	51.5	10.9
ISMB (P) 100	100	70	4.5	7.5	11.5	14.70	252.0	35.4	50.4	10.1
ISMB 125	125	75	4.4	7.6	13.0	16.60	449.0	43.7	71.8	11.7
ISMB (P) 125	125	70	4.8	8.0	13.2	16.81	443.1	38.4	70.9	11.0
ISMB 150	150	80	4.8	7.6	14.9	19.00	726.4	52.6	96.9	13.1
ISMB (P) 150	150	75	5.0	8.0	15.0	19.07	717.6	46.8	95.7	12.5
ISMB 175	175	90	5.5	8.6	19.3	24.62	1 272.0	85.0	145.4	18.9
ISMB (P) 175	175	85	5.8	9.0	19.5	24.87	1 262.4	76.7	144.3	18.0
ISMB 200	200	100	5.7	10.8	25.4	32.33	2 235.4	150.0	223.5	30.0
ISMB 225	225	110	6.5	11.8	31.2	39.72	3 441.8	218.3	305.9	39.7
ISMB 250	250	125	6.9	12.5	37.3	47.55	5 131.6	334.5	410.5	53.5
ISMB 300	300	140	7.5	12.4	44.2	56.26	8 603.6	453.9	573.6	64.8
ISMB 350	350	140	8.1	14.2	52.4	66.71	13 630.3	537.7	778.9	76.8
ISMB 400	400	140	8.9	16.0	61.6	78.46	20 458.4	622.1	1 022.9	88.9
ISMB 450	450	150	9.4	17.4	72.4	92.27	30 390.8	834.0	1 350.7	111.2
ISMB 500	500	180	10.2	17.2	86.9	110.74	45 218.3	1 369.8	1 808.7	152.2
ISMB 550	550	190	11.2	19.3	103.7	132.11	64 893.6	1 833.8	2 359.8	193.0
ISMB 600	600	210	12.0	20.8	122.6	156.21	91 813.0	2 651.0	3 060.4	252.5

TABLE 34 STEEL EQUAL ANGLES



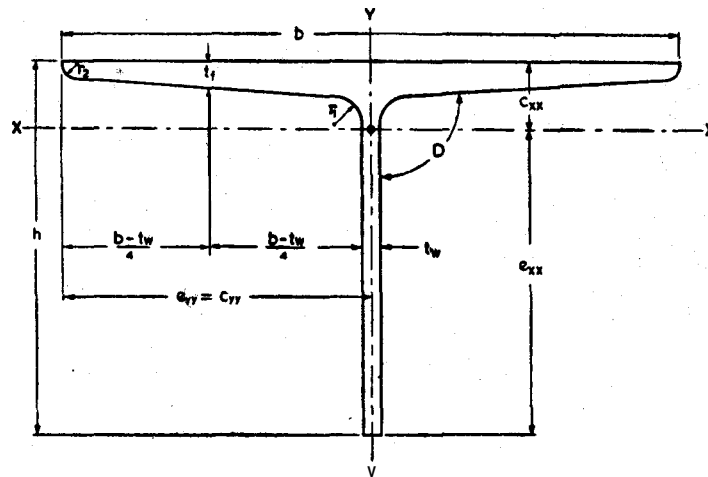
DESIGNATION	SIZE (A × B)	THICK- NESS (t)	SEC- TIONAL AREA (a)	WEIGHT PER m (w)	MOMENTS OF INERTIA			MODULI OF SECTION	
					I_{xx}	I_{yy}	I_{zz}	Z_{xx}	Z_{yy}
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	mm × mm	mm	cm ²	kg	cm	cm ⁴	cm ⁴	cm ³	cm ³
ISA 2020	20 × 20	3.0	1.12	0.9	0.4	0.6	0.4	0.3	0.3
		4.0	1.45	1.1	0.5	0.8	0.5	0.4	0.4
ISA 2525	25 × 25	3.0	1.41	1.1	0.8	1.2	0.8	0.4	0.4
		4.0	1.84	1.4	1.0	1.6	1.0	0.6	0.6
		5.0	2.25	1.8	1.2	1.8	1.2	0.7	0.7
ISA 3030	30 × 30	3.0	1.73	1.4	1.4	2.2	1.4	0.6	0.6
		4.0	2.26	1.8	1.8	2.8	1.8	0.8	0.8
		5.0	2.77	2.2	2.1	3.4	2.1	1.0	1.0
ISA 3535	35 × 35	3.0	2.03	1.6	2.3	3.6	2.3	0.9	0.9
		4.0	2.66	2.1	2.9	4.7	2.9	1.2	1.2
		5.0	3.27	2.6	3.5	5.6	3.5	1.4	1.4
		6.0	3.86	3.0	4.1	6.5	4.1	1.7	1.7
ISA 4040	40 × 40	3.0	2.34	1.8	3.4	5.5	3.4	1.2	1.2
		4.0	3.07	2.4	4.5	7.1	4.5	1.6	1.6
		5.0	3.78	3.0	5.4	8.6	5.4	1.9	1.9
		6.0	4.47	3.5	6.3	10.0	6.3	2.3	2.3
ISA 4545	45 × 45	3.0	2.64	2.1	5.0	8.0	5.0	1.5	1.5
		4.0	3.47	2.7	6.5	10.4	6.5	2.0	2.0
		5.0	4.28	3.4	7.9	12.6	7.9	2.5	2.5
		6.0	5.07	4.0	9.2	14.6	9.2	2.9	2.9
ISA 5050	50 × 50	3.0	2.95	2.3	6.9	11.1	6.9	1.9	1.9
		4.0	3.88	3.0	9.1	14.5	9.1	2.5	2.5
		5.0	4.79	3.8	11.0	17.6	11.0	3.1	3.1
		6.0	5.68	4.5	12.9	20.6	12.9	3.6	3.6
ISA 5555	55 × 55	5.0	5.27	4.1	14.7	23.5	14.7	3.7	3.7
		6.0	6.26	4.9	17.3	27.5	17.3	4.4	4.4
		8.0	8.18	6.4	22.0	34.9	22.0	5.7	5.7
		10.0	10.02	7.9	26.3	41.5	26.3	7.0	7.0
ISA 6060	60 × 60	5.0	5.75	4.5	19.2	30.6	19.2	4.4	4.4
		6.0	6.84	5.4	22.6	36.0	22.6	5.2	5.2
		8.0	8.96	7.0	29.0	46.0	29.0	6.8	6.8
		10.0	11.00	8.6	34.8	54.9	34.8	8.4	8.4
ISA 6565	65 × 65	5.0	6.25	4.9	24.7	39.4	24.7	5.2	5.2
		6.0	7.44	5.8	29.1	46.5	29.1	6.2	6.2
		8.0	9.76	7.7	37.4	59.5	37.4	8.1	8.1
		10.0	12.00	9.4	41.0	71.3	45.0	9.9	9.9

(Continued)

TABLE 34 STEEL EQUAL ANGLES — *Contd*

DESIGNATION	SIZE (A × B)	THICK- NESS (t)	SEC- TIONAL AREA (a)	WEIGHT PER m (w)	MOMENTS OF INERTIA			MODULI OF SECTION	
					I_{xx}	I_{uu}	I_{yy}	Z_{xx}	Z_{yy}
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	mm × mm	mm	cm ²	kg	cm ⁴	cm ⁴	cm ⁴	cm ³	cm ³
ISA 7070	70 × 70	5.0	6.77	5.3	31.1	49.8	31.1	6.1	6.1
		6.0	8.06	6.3	36.8	58.8	36.8	7.3	7.3
		8.0	10.58	8.3	47.4	75.5	47.4	9.5	9.5
		10.0	13.02	10.2	57.2	90.7	57.2	11.7	11.7
ISA 7575	75 × 75	5.0	7.27	5.7	38.7	61.9	38.7	7.1	7.1
		6.0	8.66	6.8	45.7	73.1	45.7	8.4	8.4
		8.0	11.38	8.9	59.0	94.1	59.0	11.0	11.0
		10.0	14.02	11.0	71.4	113.3	71.4	13.5	13.5
ISA 8080	80 × 80	6.0	9.29	7.3	56.0	89.6	56.0	9.6	9.6
		8.0	12.21	9.6	72.5	115.6	72.5	12.6	12.6
		10.0	15.05	11.8	87.7	139.5	87.7	15.5	15.5
		12.0	17.81	14.0	101.9	161.4	101.9	18.3	18.3
ISA 9090	90 × 90	6.0	10.47	8.2	80.1	128.1	80.1	12.2	12.2
		8.0	13.79	10.8	104.2	166.4	104.2	16.0	16.0
		10.0	17.03	13.4	126.7	201.9	126.7	19.8	19.8
		12.0	20.19	15.8	147.9	234.9	147.9	23.3	23.3
ISA 100100	100 × 100	6.0	11.67	9.2	111.3	178.1	111.3	15.2	15.2
		8.0	15.39	12.1	145.1	231.8	145.1	20.0	20.0
		10.0	19.03	14.9	177.0	282.2	177.0	24.7	24.7
		12.0	22.59	17.7	207.0	329.3	207.0	29.2	29.2
ISA 110110	110 × 110	8.0	17.08	13.4	196.8	312.7	196.8	24.6	24.6
		10.0	21.12	16.6	240.2	381.5	240.2	30.4	30.4
		12.0	25.08	19.7	281.3	446.4	281.3	35.9	35.9
		16.0	32.76	25.7	357.3	564.6	357.3	46.5	46.5
ISA 130130	130 × 130	8.0	20.28	15.9	331.0	526.3	331.0	34.9	34.9
		10.0	25.12	19.7	405.3	644.6	405.3	43.1	43.1
		12.0	29.88	23.5	476.4	757.1	476.4	51.0	51.0
		16.0	39.16	30.7	609.1	965.6	609.1	66.3	66.3
ISA 150150	150 × 150	10.0	29.21	22.9	633.5	1 007.4	633.5	58.0	58.0
		12.0	34.77	27.3	746.3	1 186.6	746.3	68.8	68.8
		16.0	45.65	35.8	958.9	1 522.5	958.9	89.7	89.7
		20.0	56.21	44.1	1 155.5	1 829.6	1 155.5	109.7	109.7
ISA 200200	200 × 200	12.0	46.94	36.9	1 826.3	2 905.4	1 826.3	125.0	125.0
		16.0	61.82	48.5	2 366.2	3 764.1	2 366.2	163.8	163.8
		20.0	76.38	60.0	2 875.0	4 568.6	2 875.0	201.2	201.2
		25.0	94.13	73.9	3 470.2	5 501.5	3 470.2	246.0	246.0

TABLE 35 STEEL TEE BARS



DESIGNATION (1)	SIZE NOMINAL (2) mm x mm	THICKNESS OF WEB (3) mm	WEIGHT (4) kg/m	SECTIONAL AREA (5) cm ²	MOMENTS OF INERTIA		MODULI OF SECTION	
					I_{xx} (6) cm ⁴	I_{yy} (7) cm ⁴	Z_{xx} (8) cm ³	Z_{yy} (9) cm ³
ISNT 20	20×20	4.0	1.1	1.45	0.5	0.2	0.3	0.2
ISNT 30	30×30	4.0	1.8	2.26	1.8	0.8	0.8	0.5
ISNT 40	40×40	6.0	3.5	4.45	6.1	2.9	2.1	1.5
ISNT 50	50×50	6.0	4.4	5.66	12.3	5.7	3.4	2.3
ISNT 60	60x 60	6.0	5.4	6.85	21.4	9.7	4.8	3.2
ISNT 75	75x is	9.0	10.0	12.69	62.0	29.2	11.4	7.8
ISNT 100	100x 100	10.0	14.9	18.97	163.9	76.8	22.2	15.4
ISNT 150	150×150	10.0	22.7	28.88	541.1	250.3	47.5	33.4

TABLE 56 STEEL FLATS

WIDTH mm	WEIGHT IN kg PER METRE LENGTH FOR THICKNESS, mm												I 40
	3.0	4.0	5.0	6.0	8.0	10.0	12	16	18	20	25	32	
10	0.2	0.3	0.4	0.5	—	—	—	—	—	—	—	—	—
15	0.4	0.5	0.6	0.7	0.9	—	—	—	—	—	—	—	—
20	0.5	0.6	0.8	0.9	1.3	1.6	—	—	—	—	—	—	—
25	0.6	0.8	1.0	1.2	1.6	—	2.4	—	—	—	—	—	—
30	0.7	0.9	1.2	1.4	1.9	2.0	2.8	3.8	—	—	—	—	—
35	0.8	1.1	1.4	1.6	2.2	2.4	3.3	5.0	5.0	6.3	—	—	—
40	0.9	1.3	1.6	1.9	2.5	3.1	3.8	5.6	5.6	7.1	—	—	—
45	1.1	1.4	1.8	2.1	2.8	3.5	4.2	5.6	6.4	—	—	—	—
50	1.2	1.6	2.0	2.4	3.1	3.9	4.7	6.3	7.1	7.8	9.8	—	—
55	1.3	1.7	2.2	2.6	3.4	4.3	5.2	6.9	7.8	8.6	10.8	—	—
60	1.4	1.9	2.4	2.8	3.8	—	5.6	7.5	8.5	9.4	—	15.1	—
65	—	—	—	3.1	4.1	4.7	6.1	8.2	9.2	10.2	11.8	16.3	20.4
70	—	—	—	3.3	4.4	5.5	6.6	8.8	9.9	11.0	13.7	17.6	22.0
75	—	—	—	3.5	4.7	5.9	7.1	9.4	10.6	11.8	14.7	18.8	23.6
80	—	—	—	3.8	5.0	6.3	8.5	11.3	12.7	14.1	17.7	22.6	28.3
90	—	—	—	4.2	5.6	7.1	—	—	—	14.1	17.7	22.6	28.3
100	—	—	—	4.7	—	7.8	9.4	—	—	15.7	19.6	25.1	31.4
110	—	—	—	5.2	6.8	8.6	10.4	12.6	14.1	17.3	21.6	27.6	34.5
120	—	—	—	5.6	7.5	9.4	—	12.6	14.1	17.3	21.6	27.6	34.5
130	—	—	—	—	8.2	10.2	12.2	14.3	16.4	19.4	23.6	30.1	37.7
140	—	—	—	—	8.8	11.0	13.2	15.6	18.4	20.4	25.5	32.7	40.8
150	—	—	—	—	9.4	11.8	14.1	16.8	19.8	22.0	27.5	35.2	44.0
200	—	—	—	—	—	15.7	18.8	25.1	28.3	31.4	39.2	50.2	62.8
250	—	—	—	—	—	19.6	23.6	31.4	35.3	39.2	49.1	62.8	78.5
300	—	—	—	—	—	—	28.3	37.7	42.4	47.1	58.9	75.4	94.2
400	—	—	—	—	—	—	—	50.2	56.5	62.8	78.5	100.5	125.6

NOTE — The sign '—' given in the table indicates that the flat of the concerned width-thickness combination is not manufactured in the country.

TABLE 37 ROUND AND SQUARE STEEL BARS

Round Bars			
DESIGNATION	DIAMETER	CROSS-SECTIONAL AREA	WEIGHT PER METRE
	mm	cm ²	kg
ISRO 5	5.0	0.20	0.2
ISRO 6	6.0	0.28	0.2
ISRO 8	8.0	0.50	0.4
JSRO 10	10.0	0.79	0.6
ISRO 12	12	1.13	0.9
ISRO 16	16	2.01	1.6
ISRO 20	20	3.14	2.5
ISRO 25	25	4.91	3.8
ISRO 28	28	6.16	4.8
ISRO 32	32	8.04	6.3
ISRO 36	36	10.18	8.0
ISRO 40	40	12.57	9.9
ISRO 45	45	15.90	12.5
ISRO 50	50	19.64	15.4
ISRO 56	56	24.63	19.3
ISRO 63	63	31.17	24.5
ISRO 71	71	39.59	31.1
ISRO 80	80	50.26	39.5
ISRO 90	90	63.62	49.9
ISRO 100	100	78.54	61.7
ISRO 110	110	95.03	74.6
ISRO 125	125	122.72	96.3
ISRO 140	140	153.94	120.8
ISRO 160	160	201.06	157.8
ISRO 180	180	254.47	199.8
ISRO 200	200	314.16	246.6

Square Bars

DESIGNATION	SIDE WIDTH	CROSS-SECTIONAL AREA	WEIGHT PER METRE
	mm	cm ²	kg
ISSQ 5	5.0	0.25	0.2
ISSQ 6	6.0	0.36	0.3
ISSQ 8	8.0	0.64	0.5
ISSQ 10	10.0	1.00	0.8
JSSQ 12	12	1.44	1.1
ISSQ 16	16	2.56	2.0
ISSQ 20	20	4.00	3.1
ISSQ 25	25	6.25	4.9
ISSQ 32	32	10.24	8.0
ISSQ 40	40	16.00	12.6
ISSQ 50	50	25.00	19.6
ISSQ 63	63	39.69	31.2
ISSQ 80	80	64.00	50.2
ISSQ 100	100	100.00	78.5

TABLE 38 STEEL RAIL SECTIONS

STANDARD WEIGHTS+	STANDARD WEIGHTS*
kg metre	kg metre
24.8	44.6
29.8	51.9
37.1	

*Conform to IRS No. T-12.64 'Indian Railway Standard Specification for flat bottom railway rails.

TABLE 39 STEEL CHEQUERED PLATES

STANDARD THICKNESS	*WEIGHT PER SQUARE METRE
mm	kg
5	39
6	47
7	55
8	63
10	78
12	94
14	110
16	126

*Conforms to the weights given in IS: 1730-1961 Dimensions for steel plate, sheet and strip for structural and general engineering purposes.

TABLE 40 MILD STEEL SHEETS

STANDARD NOMINAL THICKNESS AND WEIGHT		STANDARD SIZES	STANDARD SIZES
Thickness mm	Weight kg/m ²	m m x m m	m m x m m
4.00	31.4	1 800 × 600	2 800 × 600
3.55	27.9	750	750
3.15	24.8	900	900
2.30	22	1000	1 000
2.50	19.6	1100	1 100
2.24	17.6	1 200	1 200
2.00	15.7	1 250	1 250
1.80	14.2	1 400	1 400
1.60	12.6	1500	1500
1.40	11	2 000 × 600	3 200 × 600
1.25	9.8	750	750
1.12	8.8	900	900
1.00	7.9	1 000	1 000
0.90	7.0	1100	1 100
0.80	6.3	1200	1200
0.63	5.0	1 250	1 250
0.50	3.9	1400	1 400
0.40	3.2	1500	1 500
		2 200 × 600	3 600 × 600
		750	750
		900	900
		1 000	1 000
		1 100	1 100
		1 200	1 200
		1 250	1 250
		1400	1 400
		1500	1 500
		2 500 × 600	4 000 × 600
		750	750
		900	900
		1 000	1 000
		1 100	1100
		1200	1200
		1 250	1 250
		1400	1 400
		1500	1500

TABLE 41 NOMINAL WEIGHTS OF GALVANIZED PLAIN SHEETS

SIZE m x m	*ZINC COATING CLASS	THICKNESS OF SHEET									
		1.60 mm		1.25 mm		1.00 mm		0.80 mm		0.63 mm	
		Sheets/ bundle	Weight kg/ bundle	Sheets/ bundle	Weight kg/ bundle	Sheets/ bundle	Weight kg/ bundle	Sheets/ bundle	Weight kg/ bundle	Sheets/ bundle	Weight kg/ bundle
1.8×0.9	Class I	5	107.8	6	102.7	8	111.5	10	113.9	12	110.7
2.2×0.9		4	105.4	5	104.6	7	119.2	8	111.4	10	112.9
2.5×0.9		4	119.8	5	118.8	6	116.1	7	110.7	9	115.3
2.8×0.9		3	100.6	4	106.4	5	108.4	6	106.3	8	114.9
3.2×0.9		3	115.0	4	121.7	5	123.8	6	121.5	7	114.8
1.8×0.75	Class I	6	107.8	7	99.8	9	104.5	12	113.9	14	107.6
2.2×0.75		5	109.8	6	104.5	8	113.5	10	116.0	12	112.8
2.5 x 0.75		4	98.2	5	99.0	7	112.9	9	118.6	10	106.8
2.8 x 0.75		4	111.8	5	110.9	6	108.4	8	118.1	9	107.7
3.2×0.75		3	95.8	4	101.4	5	103.2	7	118.1	8	109.4
1.8×0.9	Class II	5	106.6	6	101.2	8	109.5	10	111.5	12	107.9
2.2×0.9		4	104.2	5	103.0	7	117.1	8	108.9	10	109.9
2.5 x 0.9		4	118.4	5	117.1	6	114.1	7	108.4	9	112.4
2.8×0.9		3	99.5	4	104.9	5	106.4	6	104.0	8	111.9
3.2×0.9		3	113.7	4	119.9	5	121.7	6	118.9	7	111.9
1.8×0.75	Class II	6	106.6	7	98.4	9	102.7	12	111.5	14	104.9
2.2×0.75		5	108.6	6	103.1	8	111.5	10	113.5	12	109.9
2.5 x 0.75		4	98.7	5	97.6	7	110.9	9	116.1	10	104.1
2.8 x 0.75		4	110.6	5	109.3	6	106.4	8	115.6	9	104.9
3.2×0.75		3	94.7	4	99.9	5	101.4	7	115.6	8	106.6
1.8×0.9	Class III	5	105.4	6	99.7	8	107.6	10	109.0	12	105.0
2.2×0.9		4	103.0	5	101.6	7	115.0	8	106.6	10	106.9
2.5 x 0.9		4	117.1	5	115.4	6	112.1	7	106.0	9	109.3
2.8 x 0.9		3	98.4	4	103.4	5	104.6	6	101.8	8	108.9
3.2×0.9		3	112.4	4	118.2	5	119.5	6	116.3	7	108.8
1.8×0.75	Class III	6	105.4	7	97.0	9	100.8	12	109.0	14	102.1
2.2×0.75		5	107.4	6	101.6	8	109.6	10	111.0	12	106.9
2.5×0.75		4	97.6	5	96.2	7	108.9	9	113.6	10	101.2
2.8 x 0.75		4	109.3	5	107.8	6	104.6	8	113.0	9	102.1
3.2×0.75		3	93.7	4	98.5	5	99.6	7	113.0	8	103.7
1.8×0.9	Class IV	5	104.8	6	99.1	8	106.6	10	107.9	12	103.4
2.2×0.9		4	102.5	5	100.9	7	114.0	8	105.5	10	105.3
2.5 x 0.9		4	116.5	5	114.6	6	111.0	7	104.9	9	107.7
2.8 x 0.9		3	97.8	4	102.7	5	104.0	6	100.7	8	107.3
3.2×0.9		3	111.8	4	117.4	5	118.4	6	115.1	7	107.2
3.6×0.9		—	—	—	—	—	—	—	—	—	—
1.8×0.75	Class IV	6	104.8	7	96.3	9	99.9	12	107.9	14	100.5
2.2×0.75		5	106.8	6	100.9	8	108.5	10	109.9	12	105.4
2.5×0.75		4	97.0	5	95.6	7	107.9	9	112.4	10	99.8
2.8 x 0.75		4	108.7	5	107.0	6	103.6	8	111.9	9	100.5
3.2×0.75		3	93.18	4	97.8	5	98.6	7	111.9	8	102.2
3.6 x 0.75		—	—	—	—	—	—	—	—	—	—

*See Table 42 for details of the class of zinc coating.

TABLE 42 NOMINAL WEIGHTS OF GALVANIZED CORRUGATED SHEETS

Size m	No. OF CORRU- GATIONS	THICKNESS OF SHEET									
		1.60 mm		1.25 mm		1.00 mm		0.80 mm		0.63 mm	
		Sheets/ bundle	Weight kg/ bundle	Sheets/ bundle	Weight kg/ bundle	Sheets/ bundle	Weight kg/ bundle	Sheets/ bundle	Weight kg/ bundle	Sheets/ bundle	Weight kg/ bundle
[Class I 750 g of Zinc (Spelter) Coating per Square Metre, Both Sides Inclusive]											
1.8	10	5	107.8	6	102.7	8	111.5	10	113.9	12	110.7
2.2	10	4	105.4	5	104.6	7	119.2	8	111.4	10	112.9
2.5	10	4	119.8	5	118.8	6	116.1	7	110.7	9	115.3
2.8	10	3	100.6	4	106.4	5	108.4	6	106.3	8	114.9
3.2	10	3	115.0	4	121.7	5	123.8	6	121.5	7	114.8
1.8	8	6	107.8	7	99.8	9	104.5	12	113.9	14	107.6
2.2	8	5	109.8	6	104.5	8	113.5	10	116.0	12	112.8
2.5	8	4	98.2	5	99.0	7	112.9	9	118.6	10	106.8
2.8	8	4	111.8	5	110.9	6	108.4	8	118.1	9	107.7
3.2	8	3	95.8	4	101.4	5	103.2	7	118.1	8	109.4
[Class II 600 g of Zinc (Spelter) Coating per Square Metre, Both Sides Inclusive]											
1.8	10	5	106.6	6	101.2	8	109.5	10	111.5	12	107.9
2.2	10	4	104.2	5	103.0	7	117.1	8	108.9	10	109.9
2.5	10	4	118.4	5	117.1	6	114.1	7	108.4	9	112.4
2.8	10	3	99.5	4	104.9	5	106.4	6	104.0	8	111.9
3.2	10	3	113.7	4	119.9	5	121.7	6	118.9	7	111.9
1.8	8	6	106.6	7	98.4	9	102.7	12	111.5	14	104.9
2.2	8	5	108.6	6	103.1	8	111.5	10	113.5	12	109.9
2.5	8	4	98.7	5	97.6	7	110.9	9	116.1	10	104.1
2.8	8	4	110.6	5	109.3	6	106.4	8	115.6	9	104.9
3.2	8	3	94.7	4	99.9	5	101.4	7	115.6	8	106.6
[Class III 450 g of Zinc (Spelter) Coating per Square Metre, Both Sides Inclusive]											
1.8	10	5	105.4	6	99.7	8	107.6	10	109.0	12	105.0
2.2	10	4	103.0	5	101.6	7	115.0	8	106.6	10	106.9
2.5	10	4	117.1	5	115.4	6	112.1	7	106.0	9	109.3
2.8	10	3	98.4	4	103.4	5	104.6	6	101.8	8	108.9
3.2	10	3	112.4	4	118.2	5	119.5	6	116.3	7	108.8
1.8	8	6	105.4	7	97.0	9	100.8	12	109.0	14	102.1
2.2	8	5	107.4	6	101.6	8	109.6	10	111.0	12	106.9
2.5	8	4	97.6	5	96.2	7	108.9	9	113.6	10	101.2
2.8	8	4	109.3	5	107.8	6	104.6	8	113.0	9	102.1
3.2	8	3	93.7	4	98.5	5	99.6	7	113.0	8	103.7
[Class IV 375 g of Zinc (Spelter) Coating per Square Metre, Both Sides Inclusive]											
1.8	10	5	104.8	6	99.1	8	106.6	10	107.9	12	103.4
2.2	10	4	102.5	5	100.9	7	114.0	8	105.5	10	105.3
2.5	10	4	116.5	5	114.6	6	111.0	7	104.9	9	107.7
2.8	10	3	97.8	4	102.7	5	104.0	6	100.7	8	107.3
3.2	10	3	111.8	4	117.4	5	118.4	6	115.1	7	107.2
3.6	10	—	—	—	—	—	—	—	—	—	—
1.8	8	6	104.8	7	96.3	9	99.9	12	107.9	14	100.5
2.2	8	5	106.8	6	100.9	8	108.5	10	109.9	12	105.4
2.5	8	4	97.0	5	95.6	7	107.9	9	112.4	10	99.8
2.8	8	4	108.7	5	107.0	6	103.6	8	111.9	9	100.5
3.2	8	3	93.18	4	97.8	5	98.6	7	111.9	8	102.2
3.6	8	—	—	—	—	—	—	—	—	—	—

TABLE 43 BARE COPPER CONDUCTORS

STANDARD DIAMETER	CALCULATED AREA ON STANDARD DIAMETER	STANDARD RESISTANCE AT 20°C PER km	STANDARD WEIGHT PER km	STANDARD DIAMETER	CALCULATED AREA ON STANDARD DIAMETER	STANDARD RESISTANCE AT 20°C PER km	STANDARD WEIGHT PER km
(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
mm	mm ²	ohm	kg	mm	mm ²	ohm	kg
1·36*	1.453	12·21	12.91	4·25*†	14.19	1.248	126.1
1·60*	2·011	8.823	17.87	4·50†	15·90	1·113	141.4
1·70*	2.270	7.815	2018	4·75*	17.72	0.998 7	157·5
2·12*	3.530	5.025	31·38	5·00*	19·63	0·901 4	174.6
2·65*	5·515	3.215	49.03	5·30*†	22.06	0·801 9	196·1
3·00*	7.069	2·507	62·84	5·60*	24.63	0.718 1	219.0
3·25*†	8.296	2·136	73.75	6·50†	33.18	0.532 7	295.0
3·35*	8.814	2.010	78.36	7·10†	39.59	0.446 3	352.0
3·55*†	9.898	1.790	87.99	7·50†	44.18	0·399 8	392.7
3·65*	10.46	1.693	93·02	9·50†	70·88	0.248 8	630·1
3·75*	11·04	1.604	98.10				

*Standard sizes recommended for stranded conductors.

†Standard sizes recommended for use as solid conductors.

TABLE 44 COMPARISON TABLE FOR WIRES AND CABLES

NUMBER AND DIAMETER OF WIRES	NOMINAL CROSS- SECTIONAL AREA	WEIGHT PER km	STANDARD RESISTANCE OF CONDUCTORS (AT 20°C) PER km	MAXIMUM ALLOWABLE RESISTANCE OF EACH CONDUCTOR PER km (AT 20°C)	
				Single Core and Flat Cables	Twin and Multi-Core Cables
(1)	(2)	(3)	(4)	(5)	(6)
mm	mm ²	kg	ohm	ohm	ohm
1/1·12	1·0	8.76	17·50	18·02	18.38
1/1·40	1·5	13.68	11.20	11.54	11.77
1/1·80	2·5	22.62	6.775	6.978	7.118
3/1·06	—	23·08	6.644	6.777	6.913
1/2·24	4·0	35.03	4.375	4.506	4.596
7/0·85	—	34.72	4414	4·502	4.592
7/2·80	6	54.74	2·800	2.884	2.942
7/1·06	—	53.99	2.83 9	2.895	2.954
7/1·40	10	97.47	1.627	1·660	1.693
7/1·70	16	143.7	1.104	1.126	1·149
7/2·24	25	249.8	0.635 7	0.648 4	0·661 4
7/2·50	35	310.7	0.510 3	0·520 5	0530 9
19/1·80	50	437.9	0363 3	0370 6	0378 0
19/2·24	70	678·2	0234 6	0.239 3	0244 1
19/2·50	95	844.8	0·188 3	0·192 1	0·195 9
37/2·06	120	1118	0142 5	0·145 4	0148 3
37/2·24	150	1 321	0.120 5	0122 9	0125 4
37/2·50	185	1646	0·096 77	0·098 71	0·10 9 7
61/2·24	240	2 179	0·073 13	0·074 59	0076 08
61/2·50	300	2 714	0.058 71	0.059 88	0.061 08
61/3·00	400	3 9 0 9	0.040 77	0041 59	0042 42

TABLE 45 UNEQUAL ANGLE%

DESIGNATION	SIZE	THICKNESS	WEIGHT PER METRE	DESIGNATION	SIZE	THICKNESS	WEIGHT PER METRE
(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
	mm x mm	mm	kg		mm x mm	mm	kg
ISA 3020	30x20	3·0 4·0 5·0	1·1 1·4 1·8	ISA 9060	90x60	6·0 8·0 10·0 12·0	6·8 8·9 11·0 13·0
ISA 4025	40x25	3·0 4·0 5·0 6·0	1·5 1·9 2·4 2·8	ISA 10065	100 x65	6·0 8·0 10·0	7·5 9·9 12·2
ISA 4530	45 x30	3·0 4·0 5·0 6·0	1·7 2·2 2·8 3·3	ISA 10075	100x75	6·0 8·0 10·0 12·0	8·0 10·5 13·0 15·4
ISA 5030	50x30	3·0 4·0 5·0 6·0	1·8 2·4 3·0 3·5	ISA 12575	125 x75	6·0 8·0 10·0	9·2 12·1 14·9
ISA 6040	60x40	5·0 6·0 8·0	3·7 4·4 5·8	ISA 12595	125 x95	6·0 8·0 10·0 12·0	10·1 13·4 16·5 19·7
ISA 6545	65 x45	5·0 6·0 8·0	4·1 4·9 6·4	ISA 15075	150 x75	8·0 10·0 12·0	13·7 17·0 20·2
ISA 7045	70 x45	5·0 6·0 8·0 10·0	4·3 5·2 6·7 8·3	ISA 150115	150x115	8·0 10·0 12·0 16·0	16·3 20·1 24·0 31·4
ISA 7550	75 × 50	5·0 6·0 8·0 10·0	4·7 5·6 7·4 9·0	ISA 200100	200 x 100	10·0 12·0 16·0	22·9 27·3 35·8
ISA 8050	80x50	5·0 6·0 1 %	4·9 5·9 9·4	ISA 200150	200 x 150	10·0 12·0 16·0 20·0	26·9 32·1 42·2 52·0

TABLE 46 BULB ANGLES

DESIGNATION	SIZE	THICK- NESS OF WEB	THICK- NESS OF FLANGE	WEIGHT PER METRE	DESIGNATION	SIZE	THICK- NESS OF WEB	THICK- NESS OF FLANGE	WEIGHT PER METRE
(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
	mm x mm	mm	mm	kg		mm x mm	mm	mm	kg
ISBA 100	100x65	6·0	6·0	8·6	ISBA 200	200x90	14·0	12·5	33·6
ISBX 100	100 x65	7·0	6·5	9·6	ISBA 22·5	225 x 90	11·0	11·0	31·4
ISBA 125	125 x75	7·0	7·0	12·2	ISBA 225	225 x 90	14·0	12·5	37·3
ISBA 125	125 x75	8·0	7·5	13·4	ISBA 250	250 x 90	11·0	11·0	34·9
ISBA 150	150 × 75	8·0	8·0	16·1	ISBA 250	250 x 90	13·0	12·0	39·2
ISBA 150	150x75	10·0	9·0	18·8	ISBA 27·5	275 x 90	12·0	12·0	40·9
ISBA 175	175 x90	8·0	9·0	20·0	ISBA 275	275 x 90	14·0	13·0	45·6
ISBA 175	175 x90	10·0	10·0	23·3	ISBA 300	300 x 90	13·0	13·0	47·5
ISBA 17·5	175 x90	12·0	11·0	26·5	ISBA 300	300x90	15·0	14·0	52·6
ISBA 200	200 x90	11·0	11·0	28·2					

AMENDMENT NO. 1 JANUARY 1973
TO
SP : 8-1970 ISI HANDBOOK OF
MATHEMATICAL, PHYSICAL, CHEMICAL AND
ENGINEERING TABLES

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AMENDMENT NO. 1 JANUARY 1973
TO
SP : 8 - 1970 ISI HANDBOOK OF MATHEMATICAL, PHYSICAL,
CHEMICAL AND ENGINEERING TABLES

Addenda

This amendment to the **ISI** Handbook of Mathematical, Physical, Chemical and Engineering Tables (SP : 8 - 1970) introduces two new tables, namely, **18A** and **25A** in Section 2 Physical and Chemical Tables; and three new tables, namely, **32A**, **37A** and **37B** in Section 3 Engineering Tables. Besides, four existing tables, namely, Tables 33, 34, 35 and 37, in Section 3, have been

enlarged to incorporate a column each giving data on centre of gravity, perimeter, etc. In another Table 45, the amount of data added is so substantial that the **revised** table replaces the existing Table 45 on page 162 of the Handbook.

The details of the contents of the amendment **are** as under, which should be read in conjunction with the Handbook (SP : 8 - 1970):

TABLE No.	TITLE	REMARKS
Section 2 Physical and Chemical Tables		
18A	Psychrometric Properties of Air	} These two are new tables introduced in the Handbook
25A	Some Physical Constants	
Section 3 Engineering Tables		
32A	Rolled Steel Heavy Beams	New table introduced
33	Rolled Steel Channels	Introduces data on Centre of Gravity in a new column No. 12 in Table 33 (P 154)
34	Steel Equal Angles	Introduces data on Centre of Gravity in a new column No. 11 in Table 34 (P 155)
35	Steel Tee Bars	Introduces data on Centre of Gravity Position in a new column No. 10 in Table 35 (P 157)
37	Round and Square Steel Bars	Introduces data on Perimeter in case of Round Bars only in a new column No. 5 in Table 37 (P 158)
37A	Indian Standard Rivets (Snap Head Rivets)	} New tables introduced
37B	Indian Standard Bolts and Nuts (Hexagon Head)	
45	Steel Unequal Angles	This table replaces Table 45 Unequal Angles (P 162) as it provides substantial additional data in eight more columns

TABLE 18A PSYCHROMETRIC PROPERTIES OF AIR*

NOTE — The values of enthalpy in columns 4, 5, 8 and 10 are measured from water at 0°C.

TEMPERATURE, °C	PROPERTIES OF WATER (OR ICE) AND STEAM					PROPERTIES OF DRY AIR AT A PRESSURE OF 76.00 cm Hg		PROPERTIES OF MIXTURE OF DRY AIR AND SATURATED STEAM AT A TOTAL PRESSURE OF 76.00 cm Hg		
	Saturation Pressure of Water and Steam		Enthalpy of Saturated Ice (-20° to 0°C)	Enthalpy of Saturated steam, kcal/kg	Specific Volume of Saturated Steam, m³/kg	Specific Volume, m³/kg	Enthalpy, kcal/kg	Volume of Mixture per kg of Dry Air, m³/kg	Enthalpy of Mixture per kg of Dry Air, kcal/kg	Specific Humidity per kg of Dry Air, 10⁻³ kg/kg
	cm Hg	10⁻³ gf/cm²	Enthalpy of Saturated Water (0° to 100°C), kcal/kg							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
-20	0.077 4	1.052	-89.39	588.5	1 132.4	0.716 5	-4.81	0.717 3	-4.433	0.633 5
-19	0.085 2	1.158	-88.89			0.719 8	-4.57	0.720 2	-4.153	0.697 3
-18	0.093 6	1.273	-88.42	589.4	1 862.0	0.722 2	-4.33	0.723 0	-3.873	0.766 9
-17	0.102 9	1.399	-87.94	589.8	788.3	0.725 1	-4.09	0.726 1	-3.588	0.842 8
-16	0.112 9	1.536	-87.50	590.3		0.727 9	-3.85	0.728 7	-3.306	0.918 2
-15	0.123 9	1.685	-87.00	590.7	721.0	0.730 8	-3.61	0.731 6	-3.006	1.015
-14	0.135 8	1.847	-86.54			0.733 6	-3.37	0.735 0	-2.706	1.113
-13	0.148 8	2.024	-86.06	591.2	605.3	0.736 5	-3.13	0.737 8	-2.402	1.220
-12	0.162 9	2.216	-85.56	592.0	554.9	0.739 3	-2.89	0.740 9	-2.092	1.336
-11	0.178 2	2.424	-85.11	592.5	509.2	0.742 2	-2.65	0.743 9	-1.776	1.462
-10	0.194 8	2.649	-84.61	592.9	467.5	0.744 9	-2.41	0.746 6	-1.456	1.597
-9	0.212 8	2.894	-84.11	593.3	429.6	0.747 8	-2.17	0.750 0	-1.126	1.746
-8	0.232 4	3.160	-83.61	593.8	395.0	0.750	-1.93	0.753 0	-0.792	1.907
-7	0.253 5	3.447	-83.13	594.2	363.4	0.753 3	-1.68	0.756 1	-0.444	2.081
-6	0.276 4	3.759	-82.67	594.7	334.6	0.756 3	-1.44	0.758 9	-0.093	2.269
-5	0.301 2	4.096	-82.17	595.1	308.1	0.759 2	-1.20	0.762 2	0.272	2.474
-4	0.327 9	4.459	-81.67	595.6	284.1	0.762 0	-0.96	0.765 6	0.642	2.695
-3	0.356 9	4.853	-81.17	596.0	262.1	0.764 9	-0.72	0.768 4	1.030	2.934
-2	0.388 2	5.279	-80.67	596.4	241.8	0.767 7	-0.48	0.771 7	1.422	3.192
-1	0.421 8	5.735	-80.17	596.8	223.3	0.770 5	-0.24	0.775 0	1.830	3.471
0	0.458 0	6.223	-79.67	597.2	206.3	0.773 4	0.00	0.777 8	2.256	3.771
1	0.492 4	6.694	0.00	597.6		0.776 2	0.24	0.781 2	2.666	4.057
2	0.529 1	7.19 3	1.01	598.0	192.7 180.0	0.779 0	0.48	0.784 5	3.090	4.362
3	0.568 1	7.72 3	2.01	598.5	168.2	0.781 9	0.72	0.787 9	3.526	4.686
4	0.609 7	8.289	3.02	599.0	157.3	0.784 7	0.96	0.791 3	3.978	5.031
5	0.653 9	8.890	4.04	599.4	147.2	0.787 5	1.20	0.794 7	4.439	5.400
6	0.701 0	9.530	5.03	599.8	137.8	0.790 4	1.44	0.798 0	4.919	5.793
7	0.751 0	10.210	6.03	600.2	129.1	0.793 2	1.69	0.801 4	5.411	6.210
8	0.804 1	10.932	7.03	600.7	121.0	0.796 0	1.93	0.804 8	5.918	6.654
9	0.860 5	11.699	8.04	601.1	113.4	0.798 9	2.17	0.808 2	6.449	7.127
10	0.920 4	12.513	9.04	601.6	106.4	0.8018	2.41	0.811 5	6.994	7.629
11	0.983 9	13.376	10.04	602.0	99.9	0.804 6	2.65	0.814 9	7.559	8.162
12	1.051 2	14.291	11.04	602.5	93.8	0.807 4	2.89	0.818 9	8.144	8.729
13	1.122 5	15.261	12.04	602.9	88.1	0.810 3	3.13	0.822 3	8.754	9.333
14	1.198 2	16.289	13.04	603.4	82.9	0.813 1	3.37	0.826 2	9.383	9.971
15	1.278 1	17.376	14.04	604.3	77.9	0.815 9	3.61	0.829 6	10.04	10.65
16	1.362 8	18.527	15.04	604.7	73.3	0.818 8	4.09 3.85	0.833 6	10.71	11.37
17	1.452 4	19.745	16.04	605.1	69.1	0.821 6		0.837 6	11.42	12.13
18	1.547	21.03	17.04	605.6	65.1	0.824 4	4.33	0.841 6	12.16	12.94
19	1.647	22.39	18.04	606.0	61.3	0.827 3	4.57	0.845 6	12.92	13.79

* Reproduced from ISI Handbook of quantities, conversion factors, formulae and tables.

(Continued)

TABLE 18A PSYCHROMETRIC PROPERTIES OF AIR—Contd

NOTE—The values of enthalpy in columns 4, 5, 8 and 10 are measured from water at 0°C.

TEMPERATURE, °C	PROPERTIES OF WATER (OR ICE) AND STEAM					PROPERTIES OF DRY AIR AT A PRESSURE OF 76.00 cm Hg		PROPERTIES OF MIXTURE OF DRY AIR AND SATURATED STEAM AT A TOTAL PRESSURE OF 76.00 cm Hg		
	Saturation Pressure of Water and Steam		Enthalpy of Saturated Ice (–20° to 0°C) Enthalpy of Saturated Water 0° to 100 °C), kcal/kg	Enthalpy of Saturated Steam, kcal/kg	Specific Volume of Saturated Steam, m ³ /kg	Specific Volume, m ³ /kg	Enthalpy kcal/kg	Volume of Mixture per kg of Dry Air, m ³ /kg	Enthalpy of Mixture per kg of Dry Air, kcal/kg	Specific Humidity per kg of Dry Air, 0–° kg/kg
	cm Hg	10 ^{–3} kgf/cm ²								
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
20	1.753	23.83	20.03	606.0	57.84	0.830 1	4.81	10.849 6	13.72	14.70
21	1.864	25.34	21.03	606.5	54.56	0.833 0	5.05	0.854 1	14.55	15.66
22	1.982	26.94	22.03	606.9	51.49	0.835 8	5.29	0.858 0	15.41	16.68
23	2.106	28.63	23.02	607.3	48.63	0.838 7	5.53	0.862 6	16.32	17.76
24	2.237	30.41	24.02	607.8	45.94	0.8415	5.77	0.867 0	17.25	18.89
25	2.375	32.29	25.02	608.2	43.41	0.844 4	6.01	0.871 5	18.23	20.09
26	2.520	34.26	26.01	608.6	41.04	0.847 2	6.25	0.875 9	19.76	21.37
27	2.673	36.34	27.01	609.1	38.82	0.850 0	6.49	0.881 1	20.33	22.72
28	2.834	38.53	28.01	609.5	36.73	0.852 9	6.73	0.885 8	21.45	24.14
29	3.003	40.83	29.00	610.0	34.77	0.855 7	6.97	0.890 8	22.62	25.65
30	3.181	43.25	30.00	610.4	32.93	0.858 5	7.21	0.895 8	23.83	27.23
31	3.369	45.80	31.00	610.8	31.20	0.861 3	7.45	0.901 4	25.11	28.91
32	3.565	48.47	32.00	611.3	29.58	0.864 2	7.69	0.907 0	26.45	30.69
33	3.772	51.28	32.99	611.7	28.05	0.867 1	7.94	0.912 7	27.85	32.56
34	3.989	54.23	33.99	612.1	26.61	0.869 9	8.18	0.918 3	29.32	34.53
35	4.217	57.33	34.99	612.5	25.25	0.872 8	8.42	0.923 9	30.85	36.63
36	4.455	60.57	35.99	613.0	23.97	0.875 6	8.66	0.930 1	32.46	38.83
37	4.706	63.98	36.98	613.4	22.77	0.878 4	8.90	0.936 4	34.15	41.17
38	4.969	67.55	37.98	613.9	21.63	0.881 3	9.14	0.942 9	35.92	43.63
39	5.244	71.29	38.98	614.3	20.56	0.884 1	9.38	0.949 6	37.78	46.26
40	5.531	75.20	39.98	614.7	19.55	0.886 9	9.62	0.956 3	39.72	48.97
41	5.833	79.30	40.98	615.2	18.60	0.889 7	9.86	0.963 7	41.77	51.87
42	6.149	83.60	41.97	615.6	17.70	0.892 6	10.10	0.971 5	43.92	54.93
43	6.480	88.09	42.97	616.0	16.85	0.895 4	10.34	0.978 7	46.17	58.17
44	6.825	92.79	43.97	616.4	16.04	0.898 3	10.58	0.987 2	48.54	61.58
45	7.187	97.71	44.96	616.8	15.28	0.901 1	10.82	0.995 1	51.03	65.19
46	7.564	102.84	45.96	617.2	14.56	0.904 0	11.06	1.000 0	53.66	69.01
47	7.959	108.21	46.96	617.7	13.88	0.906 8	11.30	1.013 0	56.42	73.04
48	8.372	113.82	47.95	618.1	13.24	0.909 7	11.54	1.022 3	59.33	77.31
49	8.802	119.67	48.95	618.5	12.63	0.912 5	11.78	1.031 8	62.39	81.81
50	9.252	125.78	49.95	619.0	12.05	0.915 3	12.02	1.042 5	65.61	86.57
51	9.754	132.16	50.95	619.4	11.50	0.918 2	12.27	1.053 1	69.02	91.61
52	10.210	138.81	51.95	619.8	10.98	0.921 0	12.51	1.063 7	72.61	96.95
53	10.721	145.75	52.94	620.2	10.49	0.923 8	12.75	1.075 6	76.39	102.6
54	11.253	152.98	53.94	620.6	10.02	0.926 6	12.99	1.087 7	80.39	108.6
55	11.806	160.51	54.94	621.0	9.584	0.929 5	13.23	1.100 6	84.62	114.9
56	12.383	168.35	55.94	621.5	9.164	0.932 3	13.47	1.114 1	89.10	121.7
57	12.985	176.53	56.94	621.9	8.764	0.935 2	13.71	1.127 9	93.84	128.8
58	13.611	185.04	57.94	622.3	8.385	0.938 0	13.95	1.142 8	98.86	136.4
59	14.262	193.90	58.94	622.7	8.025	0.940 9	14.19	1.158 5	104.2	144.5

(Continued)

TABLE 18A PSYCHROMETRIC PROPERTIES OF AIR—Contd

Note—The values of enthalpy in columns 4, 5, 8 and 10 are measured from water at 0%.

TEMPERATURE, °C	PROPERTIES OF WATER (OR ICE) AND STEAM				PROPERTIES OF DRY AIR AT A PRESSURE OF 76.00 cm Hg		PROPERTIES OF MIXTURE OF DRY AIR AND SATURATED STEAM AT A TOTAL PRESSURE OF 76.00 cm Hg			
	Saturation Pressure of Water and Steam		Enthalpy of Saturated Ice (−20° to 0°C) Enthalpy of Saturated Water (0° to 100°C), kcal/kg	Enthalpy of Saturated Steam, kcal/kg	Specific Volume of Saturated Steam, m³/kg	Specific Volume, m³/kg	Enthalpy, kcal/kg	Volume of Mixture per kg of Dry Air, m³/kg	Enthalpy of Mixture per kg of Dry Air, kcal/kg	Specific Humidity per kg of Dry Air, g/kg
	cm Hg	10⁻³ kgf/cm²								
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
60	14.94	203.1	59.94	623.2	7.682	0.943 7	1443	1.174 8	109.8	153.0
61	15.65	212.7	60.94	623.6	7.356	0.946 5	1467	1.192 2	115.8	162.2
62	16.38	222.7	61.94	624.0	7.046	0.949 4	14.91	1.210 2	122.2	171.9
63	17.14	233.0	62.94	624.4	6.752	0.952 2	15.15	1.229 5	128.9	182.3
64	17.93	243.8	63.94	624.8	6.473	0.955 0	15.39	1.250 3	136.2	193.3
65	18.76	255.0	64.93	625.2	6.206	0.957 9	15.63	1.271 6	143.9	205.1
66	19.61	266.6	65.93	625.6	5.951	0.960 7	15.87	1.295 2	152.2	217.9
67	20.50	278.7	66.93	626.0	5.709	0.963 7	16.12	1.319 8	161.0	231.3
68	21.42	291.2	67.93	626.4	5.478	0.966 4	16.36	1.345 9	170.4	245.9
69	22.38	304.2	68.93	626.9	5.258	0.969 2	16.60	1.374 1	180.6	261.5
70	23.37	317.7	69.93	627.3	5.048	0.972 1	16.84	1.404 0	191.4	278.3
71	24.40	331.7	70.93	627.7	4.848	0.974 9	17.08	1.436 4	203.2	296.5
72	25.47	346.3	71.93	628.1	4.658	0.977 8	17.32	1.470 9	215.8	316.1
73	26.58	361.3	72.93	628.5	4.476	0.980 6	17.56	1.508 2	229.5	337.2
74	27.72	376.9	73.94	628.9	4.302	0.983 4	17.80	1.548 5	244.4	360.3
75	28.91	393.1	74.94	629.3	4.136	0.986 3	18.04	1.5919	260.5	385.1
76	30.14	409.8	75.94	629.7	3.977	0.989 1	18.28	1.639 6	278.1	412.6
77	31.42	427.2	76.94	630.1	3.826	0.991 9	18.52	1.691 7	297.3	442.4
78	32.74	445.1	77.95	630.5	3.681	0.994 8	18.76	1.748 1	318.4	475.2
79	34.11	463.7	78.95	630.9	3.542	0.997 6	19.01	1.810 2	341.6	511.3
80	35.52	482.9	79.95	631.3	3.410	1.000 4	19.25	1.878 4	367.2	551.1
81	36.98	502.8	80.95	631.7	3.283	1.003 3	19.49	1.955 1	395.8	595.6
82	38.50	523.4	81.95	632.1	3.162	1.006 2	19.73	2.040 0	427.7	645.3
83	40.07	544.7	82.96	632.5	3.047	1.009 0	19.97	2.134 6	463.4	701.1
84	41.68	566.7	83.96	632.8	2.936	1.011 8	20.21	2.241 6	503.7	763.9
85	43.35	589.4	84.96	633.2	2.830	1.014 7	20.46	2.362 8	549.4	835.3
86	45.08	612.9	85.96	633.6	2.728	1.017 5	20.70	2.502 1	602.3	917.7
87	46.87	637.2	86.97	634.0	2.630	1.020 3	20.94	2.663 6	663.4	1013
88	48.72	662.3	87.97	634.4	2.537	1.023 1	21.18	2.851 4	734.7	1125
89	50.62	688.2	88.98	634.7	2.447	1.026 0	21.42	3.073 7	819.1	1256
90	52.59	714.9	89.98	635.1	2.361	1.028 8	21.66	3.339 8	920.2	1414
91	54.62	742.5	90.98	635.5	2.278	—	—	—	—	—
92	56.71	771.0	91.99	635.9	2.200	—	—	—	—	—
93	58.87	800.4	93.00	636.3	2.124	—	—	—	—	—
94	61.10	830.7	94.00	636.7	2.051	—	—	—	—	—
95	63.40	861.9	95.01	637.0	1.981	—	—	—	—	—
96	65.77	894.2	96.01	637.4	1.914	—	—	—	—	—
97	68.22	927.4	97.02	637.8	1.851	—	—	—	—	—
98	70.73	961.6	98.02	638.2	1.786	—	—	—	—	—
99	73.33	996.9	99.03	638.5	1.730	—	—	—	—	—
100	76.00	1033.2	100.04	638.9	1.675	—	—	—	—	—

TABLE 25A SOME PHYSICAL CONSTANTS*

SYMBOL	QUANTITY	VALUE	log ₁₀ (VALUE)
$a_0 = \frac{h^2}{4\pi^2 m e^2}$	First Bohr Radius	$5.291\,73 \times 10^{-9}$ cm	9.723 60
$\alpha = \frac{2\pi e^2}{hc}$	Fine Structure Constant	$7.297\,29 \times 10^{-3}$	3.863 16
α^{-1}		$1.370\,372 \times 10^3$	2.136 85
c	Velocity of Light	$2.997\,929 \times 10^{10}$ cm/s	10.476 82
$c_1 = 8\pi hc$	First Radiation constant	$4.991\,9 \times 10^{-15}$ erg cm	15.698 26
$c_2 = hc/k$	Second Radiation Constant	1.438 80 cm deg	0.158 00
e	Electronic charge	$4.802\,90 \times 10^{-10}$ esu	10.681 50
e/c		$1.602\,08 \times 10^{-20}$ emu	20.204 69
e/m	Charge to Mass Ratio of Electron	$5.273\,02 \times 10^{17}$ esu/g	17.722 06
e/mc		$1.758\,89 \times 10^7$ emu/g	7.245 25
$F = Ne/c$	Faraday Constant	$9.652\,1 \times 10^9$ emu (g-mole) ⁻¹	3.984 63
G	Gravitational Constant	6.670×10^{-8} g ⁻¹ cm ³ s ⁻²	8.824 13
h	Planck's constant	$6.625\,3 \times 10^{-27}$ erg s	27.821 21
$\hbar = h/2\pi$		$1.054\,45 \times 10^{-27}$ erg s	27.023 02
h/e		$1.379\,43 \times 10^{-16}$ s/esu	17.139 69
k	Boltzmann's Constant	$1.380\,47 \times 10^{-16}$ erg/deg	16.140 03
$\lambda_{ce} = h/mc$	Compton Wavelength of Electron	$2.426\,27 \times 10^{-10}$ cm	10.384 94
$\lambda_{cp} = h/m_p c$	Compton Wavelength of Proton	1.32141×10^{-13} cm	13.121 03
$\lambda_{cn} = h/m_n c$	Compton Wavelength of Neutron	$1.319\,59 \times 10^{-13}$ cm	13.120 44
$\lambda_{\max} T = b$	Wien-displacement-law Constant	0.289 782 cm deg	1.462 07
M_e	Atomic Mass of Electron	$5.487\,62 \times 10^{-4}$	4.739 38
M_H	Atomic Mass of Hydrogen	1.008 144	0.003 52
M_n	Atomic Mass of Neutron	1.008 983	0.003 89
M_p	Atomic Mass of Proton	1.007 595	0.003 29
M_p/M_e	Ratio of Proton to Electron Mass	$1.836\,12 \times 10^3$	3.263 89
m	Electron Rest Mass	$9.108\,5 \times 10^{-28}$ g	28.959 44
$m_n = M_n/N$	Neutron Rest Mass	$1.674\,73 \times 10^{-24}$ g	24.223 95
$m_p = M_p/N$	Proton Rest Mass	$1.672\,42 \times 10^{-24}$ g	24.223 34
$\mu = m M_p/M_H$	Reduced Mass of Electron in Hydrogen Atom	$9.103\,5 \times 10^{-28}$ g	28.959 20
μ_e	Magnetic Moment of Electron	$9.283\,9 \times 10^{-21}$ erg/gauss	21.967 73
$\mu_n = \hbar e/4\pi m_p c$	Nuclear Magnetron	$5.050\,4 \times 10^{-24}$ erg/gauss	24.703 33
$\mu_p = \hbar e/4\pi m c$	Bohr Magnetron	$9.273\,2 \times 10^{-21}$ erg/gauss	21.967 23
N	Avogadro's Number	$6.024\,8 \times 10^{23}$ mole ⁻¹	23.779 94
n_0	Loschmidt's Number	$2.687\,09 \times 10^{19}$ cm ⁻³	19.429 29
$R_0 = Nk$	Ideal Gas Constant	$8.317\,0 \times 10^7$ erg/mole deg	7.919 97
$R_H = \frac{R_\infty}{1 + \frac{M_p}{M_H}}$	Rydberg Constant for Hydrogen	$1.096\,78 \times 10^8$ cm ⁻¹	5.040 13
$R_\infty = \frac{2\pi^2 m e^4}{ch^3}$	Rydberg Constant for Infinite Mass	$1.097\,37 \times 10^8$ cm ⁻¹	5.040 36
r	Ratio of Physical to Chemical Scale of Atomic Weight	1.000 275	0.000 11
$r_0 = e^2/mc^2$	Classical Electron Radius	$2.817\,85 \times 10^{-13}$ cm	13.449 92
$\sigma = \frac{2\pi^5 k^4}{15c^2 h^3}$	Stefan-Boltzmann Constant	$5.669\,2 \times 10^{-5}$ erg/cm ² s deg ⁴	5.753 53
$V_0 = \frac{N}{n_0}$	Molar Volume	$2.242\,1 \times 10^4$ cm ³ /mole	4.350 66

*Reproduced from IS1 Handbook of quantities, conversion factors, formulae and tables.

TABLE 32A ROLLED STEEL HEAVY BEAMS

DESIGNATION (1)	WEIGHT PER METRE w (2) kg	SECTIONAL AREA a (3) cm ²	DEPTH OF SECTION h (4) mm	WIDTH OF FLANGE b (5) mm	THICK- NESS OF FLANGE t_f (6) mm	THICK- NESS OF WEB A (7) mm	Momma of INERTIA		RADI OF GYRATION		MODULI OF SECTION	
							I_{xx}	I_{yy}	r_{xx}	r_{yy}	Z_{xx}	Z_{yy}
							(8) cm ⁴	(9) cm ⁴	(10) cm	(11) cm	(12) cm ³	(13) cm ³
ISHB 150	27.1	3448	150	150	9.0	5.4	1 455.6	431.7	6.50	3.54	194.1	57.6
ISHB 150	30.6	38.98	150	150	9.0	8.4	1540.0	460.3	6.29	3.44	205.3	60.2
ISHB 150	34.6	44.08	150	150	9.0	11.8	1 635.6	494.9	6.09	3.35	218.1	63.2
ISHB 200	37.3	47.54	200	200	9.0	6.1	3 608.4	967.1	8.71	4.51	360.8	96.7
ISHB 200	40.0	50.94	200	200	9.0	7.8	3 721.8	994.6	8.55	4.42	372.2	98.6
ISHB 225	43.1	54.94	225	225	9.1	6.5	5 279.5	1 353.8	9.80	4.96	469.3	120.3
ISHB 225	46.8	59.66	225	225	9.1	8.6	5 478.8	1 396.6	9.58	4.84	487.0	123.0
ISHB 250	51.0	64.96	250	250	9.7	6.9	7 736.5	1 961.3	10.91	5.49	618.9	156.9
ISHB 250	54.7	69.71	250	250	9.7	8.8	7 983.9	2 011.7	10.70	5.37	638.7	159.7
ISHB 300	58.8	74.85	300	250	10.6	7.6	12 545.2	2 193.6	12.95	5.41	836.3	175.5
ISHB 300	63.0	80.25	300	250	10.6	9.4	12 950.2	2 246.7	12.70	5.29	863.3	178.4
ISHB 350	67.4	85.91	350	250	11.6	8.3	19 159.7	2 451.4	14.93	5.34	1094.8	196.1
ISHB 350	72.4	92.21	350	250	11.6	10.1	19 802.8	2 510.5	14.65	5.22	1 131.6	199.4
ISHB 400	77.4	98.66	400	250	12.7	9.1	28 083.5	2 728.3	16.87	5.26	1 404.2	218.3
ISHB 400	82.2	104.66	400	250	12.7	10.6	28 823.5	2 783.0	16.61	5.16	1 444.2	221.3
ISHB 450	87.2	111.14	450	250	13.7	9.8	39 210.8	2 985.2	18.78	5.18	1 742.7	238.8
ISHB 450	92.5	117.89	450	250	13.7	11.3	40 349.9	3 045.0	18.50	5.08	1 793.3	242.1

TABLE 33 ROLLED STEEL CHANNELS

DESIGNATION (1)	CENTRE OF GRAVITY C_{yy} (12) cm	DESIGNATION (1)	CENTRE OF GRAVITY C_{yy} (12) cm
ISJC 100	1.40	ISMC 75	1.32
ISJC 125	1.64	ISMC 100	1.54
ISJC 150	1.67	ISMC 125	1.96
ISJC 175	1.75	ISMC 125	1.92
ISJC 200	1.97	ISMC 150	2.23
ISLC 75	1.35	ISMC 150	2.17
ISLC 100	1.62	ISMC 175	2.21
	2.04	ISMC 175	2.14
ISLC (25	1.87	ISMC 200	2.18
ISLC (P) 125	2.39	ISMC 200	2.11
ISLC 50			
ISLC (P) 150	2.24	ISMC 225	2.31
ISLC 175	2.40	ISMC 225	2.22
ISLC 200	2.36	ISMC 250	2.30
ISLC (P) 200	2.23	ISMC 250	2.23
ISLC 225	2.47	ISMC 250	2.19
ISLC 250	2.71	ISMC 300	2.37
ISLC 300	2.56	ISMC 300	2.26
ISLC (P) 300	2.32	ISMC 300	2.22
ISLC 350	2.42	ISMC 350	2.46
ISLC 400	2.37	ISMC 400	2.43

TABLE 34 STEEL EQUAL ANGLES

DESIGNATION	CENTRE OF GRAVITY $C_{xx} = C_{yy}$	DESIGNATION	CENTRE OF GRAVITY $C_{xx} = C_{yy}$
(1)	(11)	(1)	(11)
	cm		cm
ISA 2020	0.59 0.63	ISA 7070	1.89 1.94 2.02 2.10
ISA 2525	0.71 0.75 0.79	ISA 7575	2.02 2.06 2.14 2.22
ISA 3030	0.83 0.87 0.92	ISA 8080	2.18 2.27 2.34 2.42
ISA 3535	0.95 1.00 1.04 1.08	ISA 9090	2.42 2.51 2.59 2.66
ISA 4040	1.08 1.12 1.16 1.20	ISA 100100	2.67 2.76 2.84 2.92
ISA 4545	1.20 1.25 1.29 1.33	ISA 110110	3.00 3.09 3.17 3.32
ISA 5050	1.32 1.37 1.41 1.45	ISA 130130	3.50 3.59 3.67 3.82
ISA 5555	1.53 1.57 1.65 1.72	ISA 150150	4.08 4.16 4.31 4.46
ISA 6060	1.65 1.69 1.77 1.85	ISA 200200	5.39 5.56 5.71 5.90
ISA 6565	1.77 1.81 1.89 1.97		

TABLE 55 STEEL TEE BAR8

DESIGNATION	CENTRE OF GRAVITY POSITION C_{xx}	DESIGNATION	CENTRE OF GRAVITY POSITION C_{xx}
(1)	(10)	(1)	(10)
	cm		cm
ISNT 20		ISNT 60	1.56
ISNT 30	0.60 0.82	ISNT 75	2.04
ISNT 40	1.14	ISNT 100	2.62
ISNT 50	1.35	ISNT 150	3.61

TABLE 37 ROUND AND SQUARE STEEL BARS

Round Bars

DESIGNATION (1)	PERIMETER (5) c m	DESIGNATION (1)	PERIMETER (5) cm
ISRO 5	1.88	ISRO 45	14.1
ISRO 6	2.51	ISRO 50	15.7
ISRO 8		ISRO 56	17.6
ISRO 10	3.14	ISRO 63	19.8
ISRO 12	3.77	ISRO 71	22.3
ISRO 14	4.39	ISRO 80	25.1
ISRO 18	5.02	ISRO 90	28.3
ISRO 20	5.65	ISRO 100	31.4
ISRO 22	6.28	ISRO 110	34.6
ISRO 25	7.85	ISRO 125	39.3
ISRO 28	8.79	ISRO 140	44.0
ISRO 32	10.1	ISRO 160	50.3
ISRO 36	11.3	ISRO 180	56.6
ISRO 40	12.6	ISRO 200	62.8

TABLE 37A INDIAN STANDARD RIVETS (SNAP HEAD RIVETS)

[Calculated weight of rivets in kg/l 000 pieces (based on 7.85 kg/dm³)]

NOMINAL DIAMETER OF RIVETS, → D, mm LENGTH, l, mm ↓	10	12	16	20	22	24
	Weight of rivets in kg/l 000 pieces ~					
20	18.5	—	—	—	—	—
22	20.9 19.7	—	—	—	—	—
24	—	—	—	—	—	—
26	23.4 22.2	—	—	—	—	—
28	24.7	37.6	—	—	—	—
30	—	—	—	—	—	—
31.5	25.9	40.7	80	—	—	—
35	30	—	—	—	—	—
35.5	—	44.3	86.3	—	—	—
40	32.1	48.3	93.4	—	—	—
45	35.1	52.7	101	168	—	—
55	41.3 38.2	57.2	109	180	228	—
56	—	62.5	119	195	258	301
63	44.4	68.7	130 125	212 205	266	326 315
65	47.5	—	—	230	—	—
70	50.6	75.8 74.9	142 141	232	287 290	354 351
80	—	83.8	157	254	317	386
85	—	88.3	164	279	347	404
98	—	—	172	302	362	422
100	—	—	188	302	362	440
106	—	—	198	319	377	457
112	—	—	207	348	395	479
118	—	—	—	365	413	500
125	—	—	—	—	431	521
132	—	—	—	—	473 452	546
140	—	—	—	—	—	571
150	—	—	—	—	497	600
160	—	—	—	—	—	635
Weight per 1000 heads in kg ~	7.38	12.77	30.25	59.04	78.6	102.1
For each additional 10 mm length of shank add 1 000 pieces, kg ~ per	6.17	8.88	15.8	25.0	29.88	35.54

TABLE 37B INDIAN STANDARD BOLTS AND NUTS (HEXAGON HEAD)

[Calculated weight in kg/1000 pieces of bolts and nub (based on 7.85 kg/dm³)]

NOMINAL SIZE, d, mm→	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24	M27	M30	M33	M36	M39	M42	M45	M48	M52
	Weight of bolts in kg/1 000 pieces≈																		
LENGTH, l, mm ↓																			
16	7.43	15.9	32.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
20	8.12	17.1	34.1	48.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
25	8.97	18.7	36.6	52.5	66.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—
30	10.1	20.7	39.1	56.1	72.6	107	136	186	212	—	—	—	—	—	—	—	—	—	—
35	11.2	22.7	42.2	59.7	78.9	114	146	196	227	—	—	—	—	—	—	—	—	—	—
40	12.3	24.7	45.3	64.1	85.2	121	157	207	244	347	—	—	—	—	—	—	—	—	—
45	13.4	26.7	48.4	68.5	91.4	128	167	217	260	362	—	—	—	—	—	—	—	—	—
50	14.5	28.7	51.5	72.9	97.7	136	177	227	277	377	—	—	—	—	—	—	—	—	—
55	15.6	30.7	54.6	77.3	104	144	188	238	293	392	—	—	—	—	—	—	—	—	—
60	16.7	32.7	57.7	81.7	110	152	198	251	309	407	570	—	—	—	—	—	—	—	—
65	17.8	34.7	60.8	86.1	116	160	208	264	326	422	589	—	—	—	—	—	—	—	—
70	18.9	36.7	63.9	90.5	123	168	219	277	343	440	608	—	—	—	—	—	—	—	—
75	20.0	38.7	67.0	95	129	176	229	290	359	458	630	—	—	—	—	—	—	—	—
80	21.1	40.7	70.1	100	135	182	239	303	376	476	653	853	1080	—	—	—	—	—	—
90	23.3	44.7	76.3	109	148	198	260	329	407	511	698	908	1 150	—	—	—	—	—	—
100	25.5	48.7	82.5	118	160	214	280	355	436	547	743	963	1220	1520	1870	2 230	2660	—	—
110	—	52.7	88.7	127	172	230	301	381	469	583	788	1018	1285	1600	1965	2340	2 785	3 300	—
120	—	56.7	94.9	136	185	246	322	407	500	618	833	1070	1 350	1680	2060	2450	2 910	3 440	4 140
130	—	—	101	145	197	262	342	433	531	654	878	1 125	1415	1 750	2 155	2 560	3 035	3580	4 305
140	—	—	107	154	210	278	363	459	562	689	923	1180	1480	1 840	2250	2 670	3160	3 720	4 470
150	—	—	113	163	222	294	384	485	593	725	968	1230	1 550	1920	2 340	2780	3280	3860	4 635
160	—	—	119	172	235	310	404	501	624	760	1010	1290	1620	2000	2430	2890	3400	4000	4800
170	—	—	125	181	247	326	425	527	655	796	1055	1345	1685	2080	2 525	3000	3 525	4 140	4 935
180	—	—	131	190	260	342	445	553	686	831	1100	1 400	1 750	2 160	2 620	3 110	3650	4280	5130
190	—	—	137	199	272.0	358	466	579	717	867	1 145	1455	1815	2240	2 715	3 220	3 775	4 420	5 295
200	—	—	143	208	284	374	487	605	748	902	1190	1510	1880	2 320	2 810	3 330	3 900	4560	5 460
Weight of nuts in kg per 1 000 pieces≈	2.32	4.82	10.9	15.9	22.4	30.8	43.2	60.3	80.3	103	154	216	271	369	472	610	750	924	1 130
Weight of 10 mm of shank in kg per 1000 pieces≈	2.2	4	6	9	12.4	16	20.7	25	31.2	35.5	44.7	54.7	66	80	95	110	125	140	165

TABLE 45 STEEL UNEQUAL ANGLES

DESIGNATION	SIZE $A \times B$	THICKNESS t	SECTIONAL AREA a	WEIGHT PER METRE w	MOMENTS OF INERTIA			MODULI OF SECTION		CENTRE OF GRAVITY	
					I_{xx}	I_{yy} (Max)	I_{zz}	Z_{xx}	Z_{yy}	C_{xx}	C_{yy}
(1)	(2) mm x mm	(3) mm	(4) mm ²	(5) kg	(6) cm ⁴	(7) cm	(8) cm ⁴	(9) cm ³	(10) cm ³	(11) cm	(12) cm
ISA 3020	30x20	3.0	1.41	1.1	1.2	1.4	0.4	0.6	0.3	0.98	0.49
		4.0	1.84	1.4	1.5	1.8	0.5	0.8	0.4	1.02	0.53
		5.0	2.25	1.8	1.9	2.1	0.6	1.0	0.4	1.06	0.57
ISA 4025	40x25	3.0	1.88	1.5	3.0	3.3	0.9	1.1	0.5	1.30	0.57
		4.0	2.46	1.9	3.8	4.3	1.1	1.4	0.6	1.35	0.62
		5.0	3.02	2.4	4.6	5.1	1.4	1.8	0.7	1.39	0.66
		6.0	3.56	2.8	5.4	5.9	1.6	2.1	0.9	1.43	0.69
ISA, 4530	45x30	3.0	2.18	1.7	4.4	5.0	1.5	1.4	0.7	1.42	0.69
		4.0	2.86	2.2	5.7	6.5	2.0	1.9	0.9	1.47	0.73
		5.0	3.52	2.8	6.9	7.9	2.4	2.3	1.1	1.51	0.77
		6.0	4.16	3.3	8.0	9.2	2.8	2.7	1.3	1.55	0.81
ISA 5030	50x30	3.0	2.34	1.8	5.9	6.5	1.6	1.7	0.7	1.63	0.65
		4.0	3.07	2.4	7.7	8.5	2.1	2.3	0.9	1.68	0.70
		5.0	3.78	3.0	9.3	10.3	2.5	2.8	1.1	1.72	0.74
		6.0	4.47	3.5	10.9	11.9	2.9	3.4	1.3	1.76	0.78
ISA 6040	60x40	5.0	4.76	3.7	16.9	19.5	6.0	4.2	2.0	1.95	0.96
		6.0	5.65	4.4	19.9	22.8	7.0	5.0	2.3	1.99	1.00
		8.0	7.37	5.8	25.4	29.0	9.8	6.5	3.0	2.07	1.08
ISA 6545	65x45	5.0	5.26	4.1	22.1	25.9	8.6	5.0	2.5	2.07	1.08
		6.0	6.25	4.9	26.0	30.4	10.1	5.9	3.0	2.11	1.12
		8.0	8.17	6.4	33.2	38.7	12.8	7.7	3.9	2.19	1.20
ISA 7045	70x45	5.0	5.52	4.3	27.2	30.9	8.8	5.7	2.5	2.27	1.04
		6.0	6.56	5.2	32.0	36.3	10.3	6.8	3.0	2.32	1.09
		8.0	8.58	6.7	41.0	46.3	13.1	8.9	3.9	2.40	1.16
		10.0	10.52	8.3	49.3	55.4	15.6	10.9	4.8	2.48	1.24
ISA 7550	75x50	5.0	6.02	4.7	34.1	39.4	12.2	6.7	3.2	2.39	1.16
		6.0	7.16	5.6	40.3	46.4	14.3	8.0	3.8	2.44	1.20
		8.0	9.38	7.4	51.8	59.4	18.3	10.4	4.9	2.52	1.28
		10.0	11.52	9.0	62.3	71.2	21.8	12.7	6.0	2.60	1.36
ISA 8050	80x50	5.0	6.27	4.9	40.6	45.7	12.3	7.5	3.2	2.60	1.12
		6.0	7.46	5.9	48.0	53.9	14.4	9.0	3.8	2.64	1.16
		8.0	9.78	7.7	61.9	69.3	18.5	11.7	4.9	2.73	1.24
		10.0	12.02	9.4	74.7	83.3	22.1	14.4	6.0	2.81	1.32
ISA 9060	90x60	6.0	8.65	6.8	70.6	81.5	25.2	11.5	5.5	2.87	1.39
		8.0	11.37	8.9	91.5	105.3	32.4	15.1	7.2	2.96	1.48
		10.0	14.01	11.0	110.9	127.3	39.1	18.6	8.8	3.04	1.55
		12.0	16.57	13.0	129.1	147.5	45.2	22.0	10.3	3.12	1.63
ISA 10065	100x65	6.0	9.55	7.5	96.7	110.6	32.4	14.2	6.4	3.19	1.47
		8.0	12.57	9.9	125.9	143.6	41.9	18.7	8.5	3.28	1.55
		10.0	15.51	12.2	153.2	174.2	50.7	23.1	10.4	3.37	1.63
ISA 10075	100x75	6.0	10.14	8.0	100.9	124.0	48.7	14.4	8.5	3.01	1.78
		8.0	13.36	10.5	131.6	161.3	63.3	19.1	11.2	3.10	1.87
		10.0	16.50	13.0	160.4	196.1	76.9	23.6	13.8	3.19	1.95
		12.0	19.56	15.4	187.5	228.4	89.5	27.9	16.3	3.27	2.03
ISA 12575	125x75	6.0	11.66	9.2	187.8	208.9	51.6	22.2	8.7	4.05	1.59
		8.0	15.38	12.1	245.5	272.8	67.2	29.4	11.5	4.15	1.68
		10.0	19.02	14.9	300.3	332.9	81.6	36.3	14.2	4.24	1.76
ISA 12595	125x95	6.0	12.92	10.1	205.5	254.0	103.6	23.4	14.3	3.72	2.24
		8.0	17.04	13.4	268.3	331.4	134.7	30.9	18.8	3.80	2.32
		10.0	21.08	16.5	328.0	404.1	164.1	38.1	23.1	3.89	2.40
		12.0	25.04	19.7	384.8	473.6	191.8	45.1	27.3	3.97	2.48
ISA 15075	150 x 75	8.0	17.48	13.7	410.3	435.7	71.1	42.0	11.9	5.24	1.54
		10.0	21.62	17.0	502.2	532.7	86.3	51.9	14.7	5.33	1.62
		12.0	25.68	20.0	590.0	625.1	100.4	61.6	17.3	5.42	1.70

(Continued)

TABLE 45 STEEL UNEQUAL ANGLES — *Contd.*

DESIGNA- TION	SIZE $A \times B$	THICK- NESS t	SEC- TIONAL AREA a	WEIGHT PER METRE w	MOMENTS OF INERTIA			MODULI OF SECTION		CENTRE OF GRAVITY	
					I_{xx}	I_{yy} (Max)	I_{yy}	Z_{xx}	Z_{yy}	C_{xx}	C_{yy}
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	mm × mm	mm	m ²	kg	cm ⁴	cm ⁴	cm ⁴	cm ³	cm ³	cm	cm
ISA 150115	150x115	8.0	20.72			589.6	244.4	45.1	28.0	4.48	2.76
		10.0	25.66	20.1 169	474.4 501.8	722.6	298.8	55.8	34.5	4.57	2.84
		12.0	40.00	24.0	684.8	849.5	350.6	66.2	40.8	9.65	2.92
		10.0		31.4	878.5	1 085.9	446.8	86.2	53.0	4.81	3.07
ISA 200100	200x100		29.21	22.9	1 227.8	1 304.9	214.7	94.3		6.98	2.03
		12.0	34.77	27.3	1 449.2	1 539.0	251.5	112.1	31.9 26.9	7.07	2.11
		16.0	45.65	35.8	1 870.1	1 982.1	319.6	146.5	41.3	7.23	2.27
		10.0									
ISA 200150	200x150		34.29	26.9	1 409.2	1 729.6	688.9	100.8	60.2	6.02	3.55
		12.0	40.85	32.1	1 665.6	2 043.3	812.1	119.9	71.4	6.11	3.63
		16.0	53.73	42.2	2 155.2	2 638.6	1 044.9	157.0	93.2	6.27	3.79
		20.0	66.29	52.0	2 615.1	3 192.7	1 260.8	192.6	114.0	6.42	3.94