MA 111 - PRECALCULUS
Internet – Section 602
Summer II 2009
North Carolina State University
Department of Mathematics

GENERAL INFORMATION

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Office Hours: By appointment only
Class Will Meet: Lectures available on the internet at http://courses.ncsu.edu/ma111/common/media/

GOALS AND OBJECTIVES

Students will study real numbers, polynomial, rational, exponential, logarithmic, trig functions and graphs, and analytic trigonometry in order to prepare for Calculus I. This course also fulfills the university's General Education Requirement (GER) and therefore seeks to impart the following objectives for a GER mathematics course: students should be able to improve and refine mathematical problem-solving abilities; and develop logical reasoning skills. To help meet these objectives students will, by the end of the semester, be able to analyze real world problems by using mathematical models and use appropriate techniques for solving various types of equations.

TEXTBOOK:

Precalculus: Concepts Through Functions, A Right Triangle Approach to Trigonometry 1st edition, by Sullivan and Sullivan, Prentice Hall Publishers, 2007
The student solutions manual is bundled with the book at no additional charge.
(**ISBN: 0132388383** – This ISBN is for the book together with the solutions manual and some lectures by the author.)

LECTURES:

Lectures available on the internet at http://courses.ncsu.edu/ma111/common/media/

COURSE GRADE:

The final grade is based on 2 tests (50%), WebAssign (20%), and the final exam (30%). The lowest test grade will be replaced by the Final Exam grade (if it is higher) before determining your semester average. As per the NCSU requirement, the plus/minus grading system will be in effect.

100-98 A+	92-97 A	90-91 A-
88-89 B+	82-87 B	80-81 B-
78-79 C+	72-77 C	70-71 C-
68-69 D+	62-67 D	0-61 D-
0-59 F		

NO CURVES. NO RETESTS. NO EXAM EXEMPTIONS.

HOMEWORK:

Graded homework is assigned via WebAssign, (http://webassign.ncsu.edu) a web-based homework system. There is a fee to use WebAssign. This may be paid on the website with a check card or a credit card. You may be allowed to use WebAssign for a few days without paying, but you will be denied access to assignments if payment is not made by the due date listed on WebAssign. Assignments will be available beginning on the first day of class. You have 5 submissions for each question. The final submission is the grade you receive on the assignment.

I will set up discussion boards in WebAssign for each assignment. You may post questions about exercises and give answers or hints to each other. I will chime in occasionally as needed, but this is primarily your opportunity to help each other out.

WebAssign problems make up a large portion of your final grade, so do not fall behind or skip ANY of these. There is no make-up available for missed assignments, so keep track of the due dates and START WORK EARLY on the problems. **Mathematics is not a spectator sport**! You must work regularly in order to understand and master the concepts. Test questions will often relate to the WebAssign problems, however remember to work problems from the book as well. These are good pencil and paper practice for the tests.

TESTS:

Tests will be given on the following dates from 5:30 – 6:30 p.m. Tests and the final exam will be given in 3242 SAS Hall.

Test 1: July 8 (1.1-.6, 2.4, 2.6, regions Bounded by Curves, Calculus Related Factoring, 3.1 – 3.3) *Lectures 1-14*

Test 2: July 22 (4.1-4.9, 5.1–5.3) *Lectures 15-26*

Final Exam: Monday, August 3, 2009 from 1 - 4 p.m. (All sections above plus 5.4-5.8, 6.1, 6.2, 6.4, 6.5, 6.7, 6.8, 7.1,7.2 and 7.3) *Lectures 1-42*

Those students who live more than 50 miles away from the university may use a remote proctor for testing. These proctors must be set up in advance through the Distance Education office. It can take up to 1 week to verify a proctor and set up all needed contact info, so please do this early! The deadline for arranging a remote proctor for SSII 2009 is July 1, 2009. Please visit the remote proctor website at (http://distance.ncsu.edu/students/remoteproctor.html) to set up this service. Also, send me an email to let me know that you will be using a remote proctor for testing.

If you are local and cannot take a test during the time listed, a local proctor is available through Distance Education at the DE-Delta offices in Suite 267, Venture III Building, Centennial Campus. For information please visit the Local Proctor website at (http://distance.ncsu.edu/students/localproctor.html). The available time slots fill up fast, so sign up early! Let me know when you plan to use this service.

NOTE: All tests **must** be taken on the date listed on the syllabus. If you will be out of town or cannot make the time listed, you must set up a time with a proctor in your location to take your test on that day!

**I expect all students to adhere to the University's regulations on academic integrity (i.e. No cheating or plagiarizing!). Talking during a test is not permitted for any reason. If a student talks or disrupts the test in any manner, that student's paper will be confiscated and he or she will be given a 0 on the test. If a student is cheating, then the matter will be referred to the Office of Student Conduct for further action.*

TEST MAKE-UP POLICY:

Test make-up policy is in accordance with the University policy (http://www.ncsu.edu/policies/academic_affairs/pols_regs/REG205.00.4.php)

– All anticipated absences must be excused in advance of the test date. These include University duties or trips (certified by an appropriate faculty or staff member), required court attendance (certified by the Clerk of Court), or religious observances (certified by the Department of Parent and Family Services 515-2441). Emergency absences must be reported within one week of returning to class and must be appropriately documented. (illness by an attending physician or family emergencies by Parent and Family Services).

-Students who miss a test *and have a university approved excuse* must fill out a Request for Makeup form (found on my website) and submit it as soon as possible to me with the appropriate documentation. All make-up grades will come from the final exam.

-Make-ups for oversleeping, car trouble, or any other excuse *not* approved by the university may ONLY be given ON THE DAY OF THE TEST!

CORRECTIONS TO GRADING:

If you feel that an error was made in the grading of a test, present and explain the error in writing on the outside of the test to the instructor within 2 class periods after the test is returned.

EXPECTATIONS:

Please know that I have the highest expectations for ALL of my students. As far as I am concerned, you are all starting my class as A students. You CAN do well in here, but ….

YOU MUST TAKE RESPONSIBILITY FOR SEEKING HELP WHEN NEEDED

Communcation with your instructor is essential to your success. I want to help. Please make use of my office hours and feel free to email or call me at any time with questions. Also, the Multi-Media Center (HA244) has video taped lectures of MA111, computer assisted tutorials and tutoring on a limited basis.

I have placed copied of old tests, quizzes, worksheets, etc. on my webpage. Many students find these helpful when studying for a test.

DISABLITY SERVICES:

Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, students must register with Disability Services for Students at 1900 Student Health Center, Campus Box 7509, 515-7653. For more information on NC State's policy on working with students with disabilities, please see the Academic Accommodations for Students with Disabilities Regulation (REG02.20.1). Students must have appropriate documentation from Disability Services (http://www.ncsu.edu/dss/) **AND** must meet with me to discuss accommodations **PRIOR** to a test or quiz date.

Lecture	Sections from Book	Topics Covered
1	Calculus Related Factoring Worksheet Section 1.1 (Definition of a Function and Function Notation)	-How to factor a common type of expression found in calculus problems -How to define a function -Representations of functions (set correspondences, points, tables of value, etc.) -Function notation and it's meaning
2	Section 1.1 (Evaluating a function, Difference Quotient, Find the Domain of a Function)	-How to evaluate a function -How to simplify the difference quotient. -How to find the domain of functions -Review of interval notation
3	Section 1.1 (Sum, Difference, Product and Quotient of Functions) Section 1.2 (Graphs of Functions)	-How to add, subtract, multiply and divide two functions. -How to graph a function. -Vertical line test. -How to determine if a given graph is a function. -Determine the domain and range of a function from the graph.
4	Section 1.3 (Properties of Functions) Section 1.4 (Library of Functions)	-Determine where functions are increasing, decreasing, and constant. -Finding the local maximum and minimum values of functions when given a graph. -Learn basic graphs (ones to memorize!)
5	Section 1.4 (Piecewise Defined Functions)	-How to graph a piecewise defined function How to find the formula for a piecewise defined function -Word problems involving piecewise defined funcions
6	Section 1.5 (Transformations of Graphs)	-Transformation Worksheet -Moving graphs -Moving points on graphs -Rewriting the formula so that you can see the transformations
7	Worksheet on Section 1.1 – 1.5	-Review sections 1.1-1.5
8	Section 1.6 (Word Problems – Mathematical Models – Only Setting Up Models – No solving)	-Setting up word problems -Finding mathematical models for word problems
9	Section 1.6 (More Word	-Completing the Square

	Problems) Section 2.3 (Quadratic Functions) 	-Graphing Form for parabolas -Finding the Vertex of a parabola -Finding x-intercepts and y-intercepts of a parabola
10	Section 2.3 (Quadratic Functions) Section 2.4 (Word Problems using Quadratic Functions) Regions Bounded by Curves	-Finding the equation of a quadratic function when given the vertex and a point on the graph. -Finding the equation of a quadratic function when given the graph of the function. -Finding maximum and minimum values of quadratic functions -Finding the maximum and minimum values of word problems -Sketching the region bounded by two curves. -Finding the intersection points of two curves algebraically
11	Section 3.1 (Polynomials)	-State the definition of a polynomial function -Determine end behavior for polynomials by using a power function -Find the equation of a polynomial if you are given its graph. -Find the equation of a polynomial given a point on the graph and the zeros -Sketch the graph of a polynomial if given the polynomial in factored form. -State all real zeros of a polynomial and their multiplicities
12	Section 3.2 and 3.3 (Rational Functions)	-Find vertical and Horizontal asymptotes (of a rational function -Find any "holes' that may be present in a rational function.
13	Section 3.2 and 3.3 (Rational Functions)	-Find Horizontal asymptotes -Find Oblique asymptotes -Graph Rational Functions
14	Section 3.2 and 3.3 (Rational Functions)- at the beginning The remainder of the lecture is review for at test. Some webassign homework is discussed.	-Given the graph of a rational function, find f(x) - the solution for the gas problem in section 1.4 webassign homework is given..
15	Section 4.1 (Composition of	-Definition of Composition of Functions

	Functions)	-Finding compositions of functions when the function is given as a table of values or a formula -Finding the domain of a composition of functions -Given a function, find two less complicated functions that can be composed to get the original function
16	Section 4.2 (Inverses)	-An Example of a Rational Function that has a "hole" in its graph -Definition of an Inverse function - Domains and Ranges of Inverse Functions -One-to-one functions -The Horizontal Line Test
17	Section 4.2 (Inverses)	-Inverse notation -Finding the inverse of a function when given the graph -Finding the inverse of a function when given the formula -Determining when two functions are inverses of each other
18	Section 4.3 (Exponential Functions)	-Homework Questions -Definition of an Exponential Function -Graphs of Exponential Functions -Determining when data is exponential in nature
19	Section 4.3 (Exponential Functions) Section 4.4 (Logarithmic Functions)	-Natural Exponential Functions (base = e) -Switching bases of exponential functions -Solving exponential equations -Find the function for a given graph -Definition of Logarithms -Logarithmic Form and Exponential Form -Evaluating Logarithms -Graphs of Logarithms
20	Section 4.4 (Logarithmic Functions) Section 4.5 (Properties of Logarithms)	-Solving Logarithmic Equations -Properties of Logarithms -Evaluating Logarithmic Expressions -Expanding Logarithmic Expressions -Rewriting a logarithmic expression in terms of one logarithm
21	Section 4.6 (Logarithmic Equations)	-Change of Base Formula -Solving logarithmic Equations -Solving Exponential Equations by using Logarithms

22	Worksheet on Exponential and Logarithmic Equations Section 4.7 (Compound Interest)	-Solving Compound Interest Word Problems
23	Section 4.7 (Compound Interest) Section 4.8 (Exponential Growth and Decay)	-Solving continuously compounded interest problems -Zero-coupon bond problems -Uninhibited growth and decay word problems
24	Section 4.8 (Newton's Law of Cooling; Logistics Model) Worksheet – Exponential and Logarithmic Word Problems	-Solving Newton's Law of Cooling Problems -Solving Logistic Model problems -Solving Various Word Problems
25	Section 5.1 (Angles and Their Measures)	-Degree measure of angles -Radian measure of angles -Finding the arc length -Finding the area of a sector of a circle
26	Section 5.2 (Right Triangle Trigonometry) Section 5.3 (Compute the value of Trigonometric Functions of Acute Angles)	-Definition of all six trig functions (SOHCAHTOA) -45-45-90 Triangles -30-60-90 Triangles -Using your calculator to find the value of trigonometric functions -Solving Right Triangle Word Problems
27	Section 5.4 (Trig Functions of General Angles)	-Definition of Trig functions of General angles -Finding the value of all six trig functions of an angle when given a point on the terminal side of the angle -Finding a reference angle
28	Section 5.4 (Trig Functions of General Angles)	-Finding the remaining trig functions of an angle when given the quadrant the angle is in and one trig value of the angle -Finding the exact value of trig functions of various angles (in particular ones that have a reference angle of 30, 45, or 60 degrees.
29	Section 5.5 (Unit Circle)	-Finding the value of a trigonometric function of an angle by using the unit circle -Given a point on the unit circle, find all six trigonometric values of the angle with

		a terminal side through that point. -How to find a trig function of a real number
30	Section 5.6 (Graphs of Trig Functions)	-How to graph the basic Sine, Cosine graphs -Finding the period, amplitude, and length of a subinterval
31	Section 5.7 (Graphs of Tangent, Secent, Cosecent, and Cotangent) Section 5.8 (Phase Shift)	-How to graph the basic Tangent function -finding the period and asymptotes for the tangent function -How to graph the basic Secent, Cosecent and Cotangent graphs -How to dermine the phase shift of a sine, cosine, or tangent graph
32	Section 5.6,5.7 and 5.8 (More graphing)	-Graphing Trig functions -Finding an equation for a trig function when given a graph
33	Section 6.1 (Inverses of Trig Functions)	-WebAssign question: How to find trig functions of an angle when you are given a line parallel to the terminal side of the angle -Define inverses of Trig Functions -Find the exact values of the inverse trig functions
34	Section 6.2 (More Inverses of Trig Functions)	-Using a calculator to find inverse trig functions -Evaluating compositions of functions involving inverse trig functions -Use triangles to determine the exact value of inverse trig functions
35	Section 6.4 and 6.5 (Trigonometric Formulas)	-Use the Sum formulas to find the exact value oftrig func tions -Use the Difference Formulas to find the exact value of trig functions -Use the Double Angle Formulas to find the exact value of trig functions
36	Section 6.4 and 6.5 Group Work Assignment on Trig Material	-Using the Half-Angle Formula Review of sections 5.3-6.2
37	Sections 6.7 and 6.8 (Trigonometric Equations)	-Solving Trigonometric Equations
38	Sections 6.7 and 6.8 (Trigonometric Equations)	-More Solving Trigonometric Equations
39	Section 7.1 (Applications Involving Right Triangles)	-Solving word problems that involve right triangles by using trigonometry

40	Section 7.2 (Law of Sines)	-Homework Questions -Solving Triangles by using the Law of Sines
41	Section 7.2 (Law of Sines)	-Solving Triangles by using the Law of Sines (The Ambiguous Case)
42	Section 7.3 (Law of Cosines)	-Solving Triangles by using the Law of Cosines

Suggested problems: MA 111 Precalculus
Book: Precalculus; Concepts Through Functions; A Right Triangle Approach

Section	Topic	Exercises
1.1	Determine whether a relation is a function	Pg. 51-52 #15, 17, 31, 35
	Evaluate a function	Pg. 52 #39, 45
	Simplify the Difference Quotient	Pg. 52 #75, 78
	Find the domain of a function	Pg. 52 #47, 49, 51, 55, 57
	Form the sum, difference, product and quotient of function	Pg. 52 #61, 69, 71
	Find the domain of the sum, difference, product, and quotient function.	Pg. 52 #61, 69
	Use function notation in mathematical models for word problems	Pg. 53 #89, 91
1.2	Identify the graph of a function	Pg. 59-60 #11, 13, 15, 17, 19, 21 parts (a) and (b)
	Use the graph of a function to find the domain, range, function values, x-intercepts, etc.	Pg. 59 #9, 37
1.3	Use a graph to determine where a function is increasing, decreasing, or constant	Pg. 71-72 #1-16, 21c, 25c
	Use a graph to locate local maxima and minima	Pg. 71-72 #17-20, 29c
1.4	Graph the functions listed in the Library of functions	Pg. 82 #9-24
	Determine the value of a piecewise-defined function	Pg. 82 #25
	Graph Piecewise-defined functions	Pg. 82 #29c, 33c, 37c
	Given the graph of a piecewise-defined function, f, find f(x)	Pg. 83 #41
	Find a piecewise-defined function that models a given word problem	Pg. 83-84 #47, 51
1.5	Graphing functions using shifts, reflections, stretches, and compressions	Pg. 94-96 #7-18, 35, 41, 43, 57, 65, 73
	Finding a point on the graph of a transformed function given a point on the original function.	Pg. 95 #31, 33, 69
	Determine the function obtained from a series of transformations	Pg. 95 #19-25 odd, 27,
1.6	Construct a mathematical model for word problems	Pg. 102-105 #1, 7(a), 7(b), 9(a), 9(b), 15(a), 15(b), 27(a)

2.4	Write a quadratic function in graphing form	Pg. 153 #27, 47
	Find the vertex of a quadratic function	Pg. 153 #41a, 51a
	Graph a quadratic function	Pg. 153 #29, 43
	Find a formula for the graph of a quadratic function	Pg. 152 #11-18, 55
	Find the maximum or minimum value of a quadratic function	Pg. 153 #61, 65
2.6	Solving word problems by using quadratic models.	Pg. 163-165 #7(a), 7(b), 7(c), 13(a), 13(b), 13(c), 21
3.1	Identify the degree of a polynomial	Pg. 199-200 #11, 19, 21
	Identify a power function that models the end behavior of a polynomial	Pg. 201 #65(c), 69(c), 77(c)
	Find the real zeros (and their multiplicities) of polynomials that are factored into a product of linear and quadratic factors	Pg. 200 #45(a), #53(a)
	Determine whether the graph crosses or touches the x-axis at a given zero	Pg. 200 #45(b), #53(b), 65(b), 69(b), 77(b)
	Sketch the graph of a polynomial	Pg. 201 #45(f), 65(f), 69(f), 77(f)
	Find a formula for a polynomial function when given its graph	Pg. 200-201 #58, 63
	Find a formula for a polynomial function when given it's zeros and their multiplicities	Pg. 200 #39, 43
3.2	Find the domain of a rational function	Pg. 211 #21,
	Find the x-intercept(s) and y-intercept of a rational function	Pg. 212 #41, 45, 47
	Find the vertical asymptote(s) of a rational function	Pg. 212 #41, 43, 44, 45
	Find the horizontal asymptote of a rational function	Pg. 212 #41, 43, 44, 45
	Find the oblique asymptote of a rational function	Pg. 212 #41, 43, 44, 45
	Find any "holes" in the graph of a rational function	Pg. 212 #41, 43, 44, 45
3.3	Graph a rational function	Pg. 227-228 #7, 29, 33
	Given the graph of a rational function find f(x)	Pg. 228 #45, 47
4.1	Evaluate a composite function given a table of values	Pg. 269 #7a, 7b, 7e
	Evaluate a composite function given a formula	Pg. 269 #11a, 11c
	Find a composite function	Pg. 270 #34a, 34c, 42a
	State the domain of a composite function	Pg. 269 #23 Pg. 270 #42a
	Find the components of a composite function	Pg. 270 #53, 57

4.2	Determine whether a function is one-to-one by using the horizontal line test	Pg. 281 #19, 21
	Find the inverse of a function when you are given a table of values or a list of ordered pairs	Pg. 281 #29
	Sketch the graph of f^{-1} given the graph of f	Pg. 282 #33
	Find $f^{-1}(x)$ given $f(x)$	Pg. 282 #51, 63
	Find $f^{-1}(x)$ when f is a domain restricted function	Pg. 282 #53
4.3	Determine whether a set of data points represents an exponential function	Pg. 295 #21, 22
	Find $f(x)$ given a set of data points that represent an exponential function	Pg. 295 #23
	Find $f(x)$ given a graph of an exponential function	Pg. 297 #87, 89
	Sketch the graph of an exponential function by using transformations	Pg. 296 #39, 43, 44, 51
	Find the domain and range of an exponential function	Pg. 296 #43, 51
	Find the equation of the horizontal asymptote of an exponential function.	Pg. 296 #43, 51
	Solve an exponential equation	Pg. 296 #69, 75
	Make predictions using exponential models	Pg. 298 #97a, 101a, 101c
4.4	Change exponential expressions to logarithmic expressions	Pg. 308 #11
	Change logarithmic expressions to exponential expressions	Pg. 308 #19, 23
	Evaluate a logarithmic expression	Pg. 308 #25, 31, 35
	Graph a logarithmic function	Pg. 309 #71, 85
	State the domain and range of a logarithmic function	Pg. 309 #71, 85
	State the equation of the vertical asymptote of a logarithmic function	Pg. 309 #71, 85
	Solve a logarithmic equation	Pg. 309 #87, 93, 99, 103
	Make predictions given a logarithmic model	Pg. 310 #121b, d, e
4.5	Write a logarithmic expression as a sum or logarithms	Pg. 318 #27, 39
	Write a logarithmic expression as a single logarithm	Pg. 319 #53, 63
	Use the change of base formula to evaluate logarithms	Pg. 319 #65
4.6	Solve a Type I logarithmic equation (all logarithms)	Pg. 323 #7, 47
	Solve a Type II logarithmic equation (mixed)	Pg. 323 #13, 15
	Solve an exponential equation	Pg. 323 #23, 27, 49
	Solve an exponential equation by factoring	Pg. 323 #21

4.7	Determine the future value of a lump sum of money	Pg. 332-333 #11, 33, 37
	Determine the present value of a lump sum of money	Pg. 332-333 #17, 51a
	Determine the time required for a deposit to grow to a desired amount	Pg. 332-333 #33
4.8	Use the law of uninhibited growth and decay to model word problems and make predictions	Pg. 343 #1, 3, 7, 9
	Find the growth (decay) constant k in Newton's Law of Heating or Cooling	Pg. 344 #15
	Use Newton's Law of Heating or Cooling to make predictions	Pg. 344 #15
	Use a given Logistics Model to make growth and decay predictions	Pg. 344-345 #23
5.1	Convert angle measures in decimal degree form to degree/minute/second form	Pg. 371 #23, 29
	Convert angles measured in degrees to radians	Pg. 371 #43
	Convert angles measured in radians to degrees	Pg. 371 #49
	Find angles that are coterminal to a given angle	Pg.
	Find the arc length	Pg. 372 #71
	Use the arc length formula to find the radius of the circle	Pg. 372 #73
	Use the arc length formula to find to find the central angle θ (in degrees or radians)	Pg. 372 #75
	Find the area of a sector of a circle	Pg. 372 #79
	Find the area of a sector of a circle given that the central angle is measured in degrees	Pg. 372 #85
	Use the formula for the area of the sector of a circle to find the central angle (in radians or degrees)	Pg. 372 #83
	Use the formula for the area of a sector of a circle to find the length of the radius	Pg. 372 #81
	Solve word problems involving arc length and area of a sector of a circle	Pg. 372 #91, 95
5.2	Find the trigonometric functions of an acute angle in a right triangle.	Pg. 383 #11, 19
	Given the value of sin θ and cos θ, find the value of tan θ, csc θ, sec θ, and cot θ.	Pg. 384 #23
	Find the exact value of a Trigonometric expression using identities.	Pg. 384 #37, 39
	Given the value of sin θ find the remaining trigonometric functions of θ	Pg. 384 #25
	Given the value of cos θ find the remaining trigonometric functions of θ	Pg. 384 #27
	Given the value of tan θ find the remaining trigonometric functions of θ	Pg. 384 #29

	Use the Complementary Angle Theorem to rewrite trig functions and to find the exact value of an expression.	Pg. 384 #43 45, 57
5.3	Find the exact value of the trigonometric functions of 45°, 30°, and 60°	Pg. 393 #5, 6
	Find the exact solution of a trigonometric equation	Pg. 393 #19, 25
	Use a calculator to approximate the values of a trig function of an acute angle θ	Pg. 394 #29, 31, 45
	Solve word problems that can be modeled using right triangles	Pg. 394 – 395 #59, 63, 69, 73
5.4	Find the exact values of the six trigonometric functions of an angle when given a point on the terminal side of the angle.	Pg. 406 #17
	Use a coterminal angle to find the exact value of all six trigonometric functions	Pg. 406 #21, 23, 31
	Determine the sign of a trigonometric function of an angle in a given quadrant	Pg.
	Find the quadrant in which the terminal side of an angle lies.	Pg. 406 #33, 35
	Find the reference angle for a given angle	Pg. 406 #41, 49
	Use reference angles to find the exact value of a trigonometric function of an angle	Pg. 406 #59, 63, 79
	Find the exact value of the six trigonometric functions of an angle when given information about the angle.	Pg. 406 – 407 #89, 97
5.5	Find the exact value of the six trigonometric functions of special angles (those with reference angles of 30, 45, or 60 or quadrantal angles)by using the unit circle	Pg. 416 #21, 29, 49
	Find the exact value of the six trigonometric functions of an angle when given a point on the unit circle	Pg. 416 #13
	Find the exact value of expressions by using the unit circle	Pg. 416 #57
5.6 – 5.8	Sketch the graph of y = sin x	
	Sketch the graph of y = cos x	
	Sketch the graph of y = tan x	
	Sketch the graph of y = sec x	
	Sketch the graph of y = csc x	
	Sketch the graph of y = cot x	
	State the domain, range, x-intercepts, y-intercepts, period, and amplitude of y = sin x	
	State the domain, range, x-intercepts, y-intercepts, period, and amplitude of y = cos x	

	State the domain, range, x-intercepts, y-intercepts, and period of y = tan x	
	State the domain, range, x-intercepts, y-intercepts, and period of y = csc x	
	State the domain, range, x-intercepts, y-intercepts, and period of y = sec x	
	State the domain, range, x-intercepts, y-intercepts, and period of y = cot x	
	Determine the domain and range of functions of the form y = Asin(Bx + C)	Pg. 429 #39 (Use this function)
	Determine the domain and range of functions of the form y = Acos(Bx + C)	Pg. 429 #41 (Use this function)
	Determine the domain and range of functions of the form y = Atan(Bx + C)	Determine the domain and range of the function y = tan 3x
	Determine the period of a function of the form y = Asin (Bx + C)	Pg. 429 #39
	Determine the period of a function of the form y = Acos (Bx + C)	Pg. 429 #41
	Determine the period of a function of the form y = Atan (Bx + C)	Find the period of the function y = tan 3x
	Determine the amplitude of a function of the form y = Asin (Bx + C) or y = Acos (Bx + C)	Pg. 429 #39, 41, 43
	Determine the length of each subinterval for the graphs of functions of the form y = Asin (Bx + C), y = Acos (Bx + C), and y = Atan (Bx + C)	Pg. 429 #27, 33 Pg. 438 #27 Pg. 447 #3
	Determine the phase shift for functions of the form y = Asin (Bx + C), y = Acos (Bx + C), and y = Atan (Bx + C)	Pg. 429 #27, 33 Pg. 438 #27 Pg. 447 #3
	Sketch the graph of functions of the form y = Asin (Bx + C), y = Acos (Bx + C), and y = Atan (Bx + C)	Pg. 429 #27, 33 Pg. 438 #27 Pg. 447 #3
	Find the equation for a function with a sinusoidal graph.	Pg. 429 #47 - 56
	Find the equation of a sine function when given the amplitude, period, and phase shift	Pg. 448 #17
6.1 – 6.2	Find the exact value of and inverse sine or cosine function	Pg. 469 #15, 17
	Find the exact value of an inverse tangent function	Find $\tan^{-1}(1)$
	Find the exact value of a composition of trig functions involving special angles	Pg. 470 #45, 46, 47
	Find the exact value of the composition of trig functions	Pg. 476 #9, 23, 27

6.4	Use a sum formula to find an exact value of sin θ, cos θ, and tan θ	Pg. 492 #11, 17
	Use a difference formula to find an exact value of sin θ, cos θ, and tan θ	Pg. 492 #15
	Use a sum formula to find an exact value of an expression	Pg. 492 #21, 23
	Use a difference formula to find an exact value of an expression	Pg. 492 #27, 29
	Use sum and difference formulas to find the exact values of sin (α + β), sin (α - β), cos (α + β), cos (α - β), tan (α + β), tan (α - β) when given information about the trig values of α and β	Pg. 492 #31, 37
6.5	Use double angle formulas to find exact values of expressions	Find the exact value of 2sin15°cos15°
	Use double angle formulas to find the exact values of sin 2θ and cos 2θ when given information about sin θ and cos θ	Pg. 501 #7a, 7b
6.7	Solve trigonometric equations involving a single trig function over an interval	Pg. 510 #7, 19
	Solve trigonometric equations involving a single trig function over all real numbers	Pg 511 #31
	Solve a trigonometric equation involving 2θ or 3θ or kθ	Pg. 510 #13, 37
	Solve a trigonometric equation involving (θ + k) where k is a constant	Pg. 511 #27
6.8	Solve trigonometric equations that involve factoring	Pg. 518 #5, 7
	Solve trigonometric equations by using identities	Pg. 518 #13, 23
7.1	Solve a right triangle by using trigonometry	Pg. 531 #9, 19
	Solve a word problem by using a right triangle model	Pg. 531 #25, 27
7.2	Use the Law of Sines to solve a SAA Triangle	Pg. 540 #9
	Use the Law of Sines to solve an ASA Triangle	Pg. 540 #23
	Use the Law of Sines to solve a SSA Triangle with 0 triangles possible.	Pg. 540 #29
	Use the Law of Sines to solve a SSA Triangle with 1 triangle possible	Pg. 540 #25
	Use the Law of Sines to solve a SSA Triangle with 2 triangles possible	Pg 540 #35
	Solve a word problem by using a triangle model and the Law of Sines	Pg. 540-541 #37, 39
7.3	Use the Law of Cosines to solve a SSS triangle.	Pg. 547 #15
	Use the Law of Cosines to solve a SSA triangle.	Pg. 547 #21
	Solve a word problem by using a triangle model and the Law of Cosines	Pg. 548 #37