Calculator Instructions for Statistics Using the TI-83, TI-83 plus, or TI-84

I. General

Use the arrows to move around the screen.
Use **ENTER** to finish calculations and to choose menu items.
Use **2nd** to access the yellow options above the keys
Use **ALPHA** to access the green options above the keys
2nd QUIT will back you out of a menu.

To use the previous result of a calculation, type **2nd ANS**. For example, 5+8 **ENTER** gives an answer of 13. 7+**2nd ANS** gives a result of 20.

To edit the previous calculation, type **2nd ENTRY** (above the **ENTER** key). This allows you to bring back the previous sequence of keystrokes and edit it with the arrow keys.

II. Data Entry

Press **STAT**, then choose *Edit*. In one of the lists, enter data using the **ENTER** key.
You can remove one item at a time by typing **DEL** and you can insert a line at a time by typing **INS**.
You can clear a column by highlighting the column name and typing **CLEAR** and then **ENTER**.
You can clear all the data by typing **2nd +**, then choose *ClrAllLists*.

III. To calculate mean, median, standard deviation, etc.

Press **STAT**, then choose *CALC*, then choose *1-Var Stats*.
Press **ENTER**, then type the name of the list (for example, if your list is L3 then type **2nd 3**). If your data is in L1 then you do not need to type the name of the list.

IV. The Binomial Distribution

If X is a binomial random variable and we want to compute P(X=k):
Press **2nd VARS** and choose *binompdf(*
Input n, p, x separated by commas (the comma key is the key above the 7)
Press **ENTER**

If X is a binomial random variable and we want to compute P(X≤k):
Press **2nd VARS** and choose *binomcdf(*
Input n, p, x separated by commas (the comma key is the key above the 7)
Press **ENTER**

Note: If you leave out the 'x' parameter, the calculator will print out the entire list of probabilities for x=0, 1, 2, 3, …, n

VI. Normal Distribution

Press **2nd VARS** and choose *normalcdf(* from the menu
Enter the lower bound and upper bound, separated by a comma (the comma key is the key above the 7).
For ∞, use a large number like 9999 or 1 **EE** 99.
Similarly for -∞, use –9999 or –1 **EE** 99.

Note: The lower bound needs to be listed first before the upper bound. Switching the order will result in a negative probability.

VII. Inverse Normal Distribution

Press **2nd VARS** and choose *invNorm(* from the menu.
Enter the probability.
Display shows the number which has the requested area TO THE LEFT of x.

VIII. Confidence Intervals

For μ when σ is known or n is large:
Press **STAT**, arrow over to *TESTS* and choose *ZInterval*
If summary statistics are given, choose *Stats*, input summary statistics, input confidence level as a decimal, and choose *Calculate.*
If data is given, choose *Data*, input σ, the name of the list that holds the data, *Freq* should be 1 to indicate that each entry in the list counts as one observation, input confidence level as a decimal, and choose *Calculate.*

For μ when σ is unknown and n is small:
Press **STAT**, arrow over to *TESTS* and choose *TInterval*
Follow same directions as for *ZInterval.*

For p:
Press **STAT**, arrow over to *TESTS* and choose *1-PropZInt*
Enter the parameters and choose *Calculate*

IX. One-Sample Hypothesis Testing

For μ when σ is known or n is large:

Press **STAT**, arrow over to *TESTS* and choose *ZTest*

If summary statistics are given, choose *Stats*, input summary statistics, input confidence level as a decimal, and choose *Calculate.*

If data is given, choose *Data*, input σ, the name of the list that holds the data, *Freq* should be 1 to indicate that each entry in the list counts as one observation, input confidence level as a decimal, and choose *Calculate.*

For μ when σ is unknown and n is small:

Press **STAT**, arrow over to *TESTS* and choose *Ttest*

Follow same directions as for *ZTest.*

For p:

Press **STAT**, arrow over to *TESTS* and choose *1-PropZTest*

Enter the parameters and choose *Calculate*

X. Chi-Square

To input the matrices:

You should input the observed matrix into matrix [A] and the expected matrix into matrix [B]

Press **MATRIX** and choose **EDIT.** Note: if you have the TI-83 plus or TI-84 the **MATRIX** key is found at $\mathbf{2^{nd}\ x^{-1}}$

Choose the matrix you want to use and hit **ENTER**

Enter the number of rows, press **ENTER**

Enter the number of columns, press **ENTER**

Enter the data row by row, pressing **ENTER** after each value.

The data is then stored in matrix [A].

Once you have entered the observed and expected matrices:

Press **STAT** and choose *TESTS*, then arrow to X^2*-Test.*

Tell it where to find the observed matrix ([A] is the default) and the expected matrix ([B] is the default)

Choose *Calculate*.

XI. Two sample hypothesis tests

Press **STAT** and choose *TESTS*.

For a test of two proportions, choose *2-PropZTest* and enter the information as prompted.

For a test of two means where either σ_1 and σ_2 are known or n_1 and n_2 are BOTH large, choose *2-SampZTest* and enter the information as prompted.

For a test of two means where σ_1 and σ_2 are unknown and either of n_1 and n_2 is small, choose *2-SampTTest* and enter the information as prompted. Always use *Yes* for 'Pooled.'

XII. Least-Squares Regression and Correlation

Set up to display correlation coefficient (you only have to do this once):

Press **2nd 0** for 'Catalog'.

Scroll down to *Diagnostic On*, then press **ENTER** twice.

To calculate least-squares linear regression:

Enter data, default is x into L1 and y into L2.

Press **STAT**, arrow over to *CALC* and then down to either *LinReg(ax+b)* or *LinReg(a+bx)* –both will give you the same answer.

Press **ENTER**. Enter the two list names separated by a comma (if your data is in L1 and L2 you don't need to enter the list names)

Press **ENTER** again.

To graph a scatterplot with the regression equation (after you've already run the regression):

Press **2nd Y=** and select *Plot1*. Select *On* by highlighting it and pressing **ENTER**. Select the first graph option under 'Type' (it looks like a scatterplot).

If Xlist and Ylist differ from the ones shown, then use the yellow list names to change the defaults.

If you'd like to see the data graphed without the regression line then go directly to the last step.

Press **Y=** and clear out any other lines that are entered there. Move the cursor to the space following $\backslash Y_1=$, and from there press **VARS**, choose *Statistics*, then *EQ* and *RegEQ*. Press **ENTER**. The regression equation should appear after $\backslash Y_1=$.

Now press **ZOOM** and choose *ZoomStat*. You should see the scatterplot with the regression line.

To run a significance test on the regression line:

Press **STAT**, go to *TESTS*, and choose *LinRegTTest.* Enter parameters as prompted. Leave 'RegEQ:' blank.