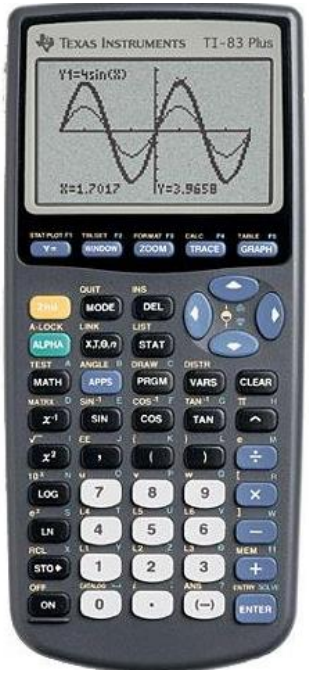
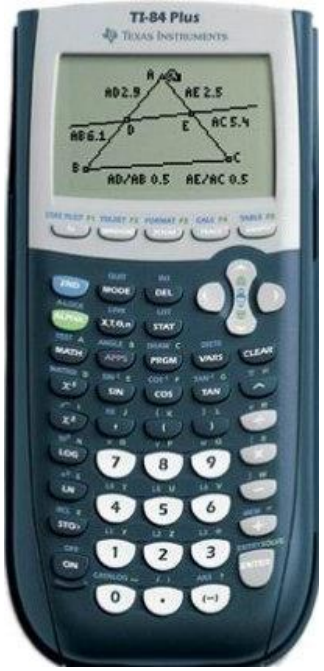


How to Use the TI 83/84 for Stats

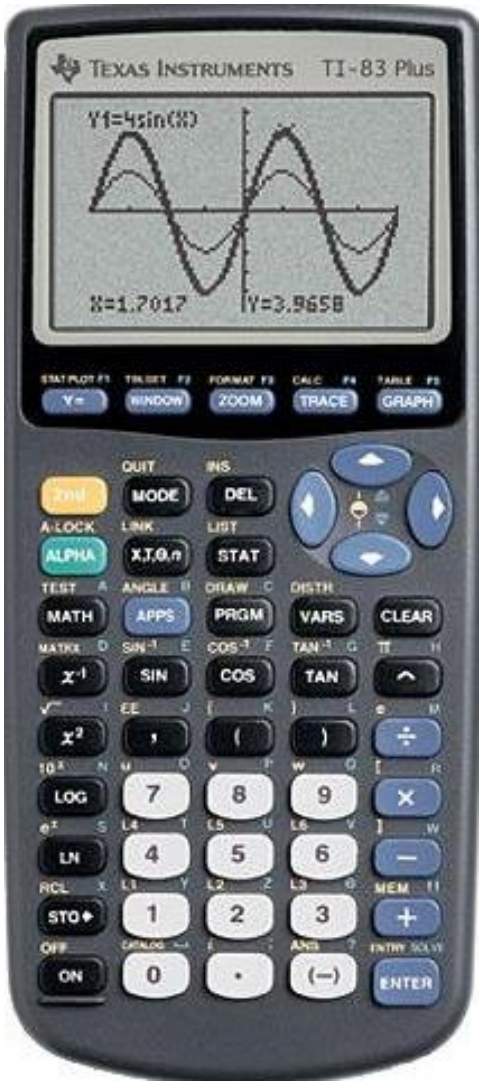


Mary Stangler
Center for Academic Success

A Few Notes

- The pictures go left to right (not all steps have pictures)
- Your calculator's screen might look a little different than the pictures

Stats Important keys



STAT

Arrow Keys

VARS
DISTR

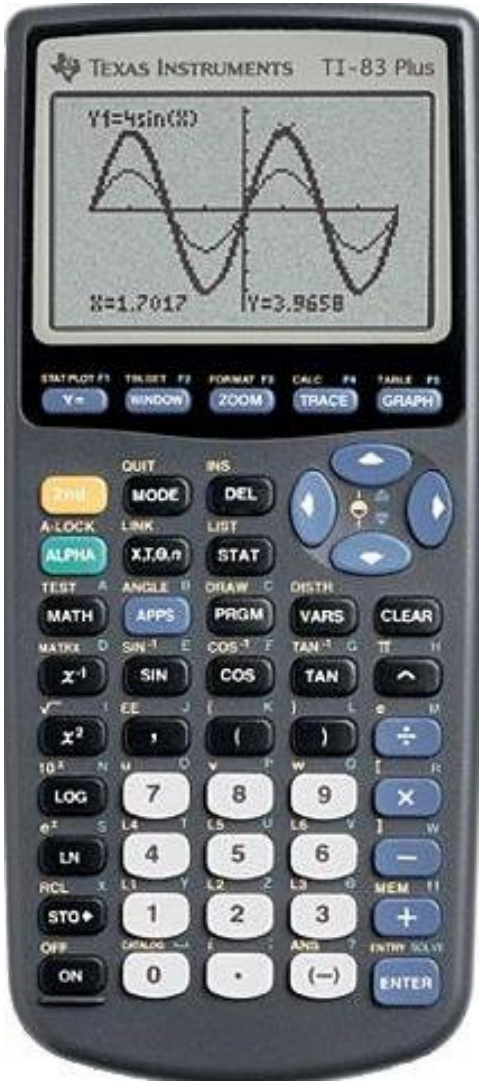
, (comma)
EE

parenthesis

L1 *L2*

Options in *italics* means you need to press the 2nd key first

Plotting Points Important keys



STATPLOT

ZOOM

WINDOW

GRAPH

x

STAT

Arrow Keys

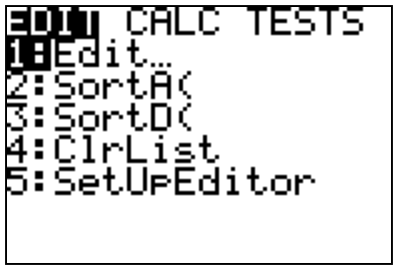
Options in *italics* means you need to press the 2nd key first

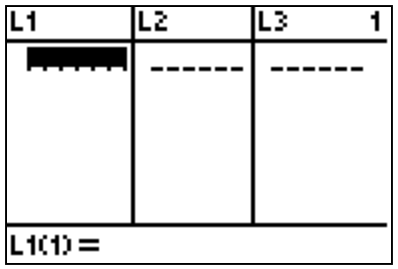
Making Graphs

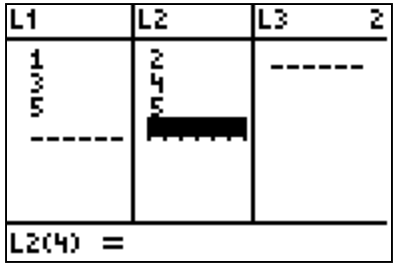
You can make scatter plots, box plots, and histograms following these steps

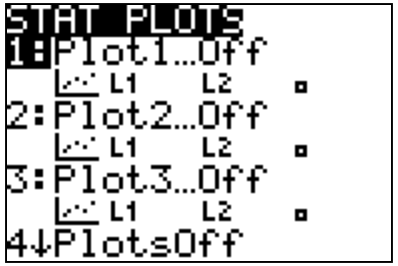
1. Press STAT
2. Press Enter
3. Type in x values in L1 and y values in L2. Press Enter after each value. Use the left and right arrow keys to move between the lists.
4. Press 2nd y= (STATPLOT)
5. Press Enter
6. Make sure the cursor (flashing) is over the on, then press enter.
7. Press the down arrow
8. Move the cursor so it is on the kind of graph you want and press enter
9. Press Graph

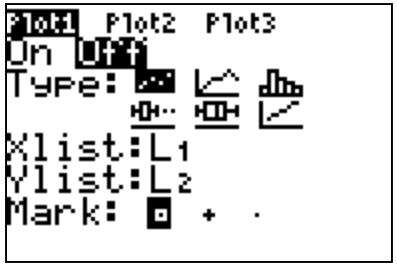
Note: Use 2nd Mode (QUIT) to Exit out of the Lists

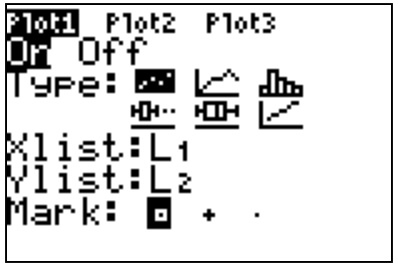


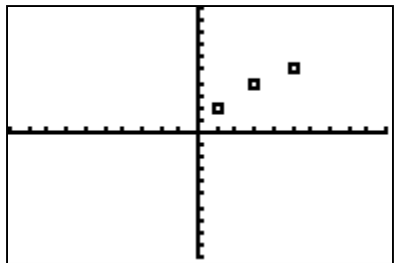










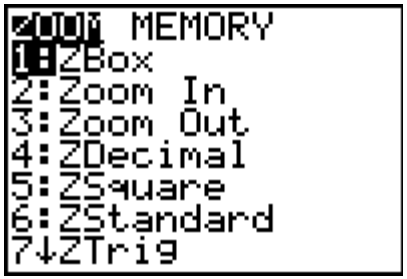


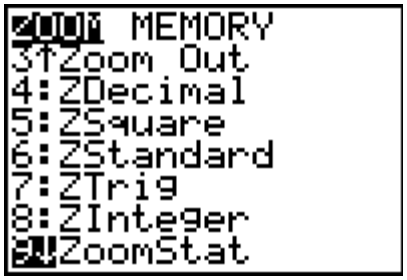
Adjusting the Window for Stats

If you cannot see the graph, you might need to adjust the window.

1. Press ZOOM
2. Scroll down to ZoomStat (number 9) and press enter

   Your graph should now appear



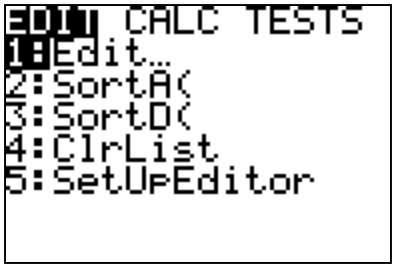


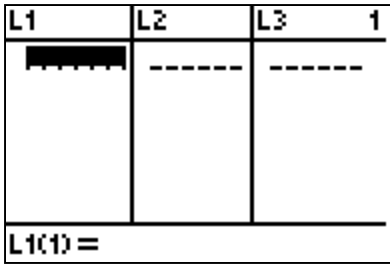
Important Numbers: One Variable

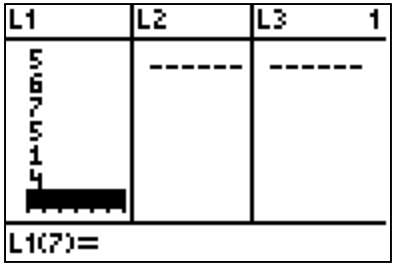
We can find the minimum, maximum, median, quartiles, standard deviation, and mean all in the same place.

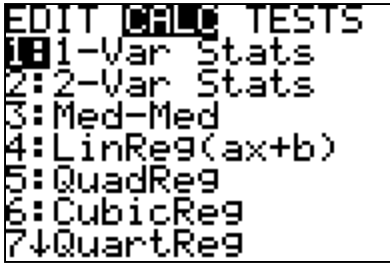
1. Press STAT
2. Press Enter
3. Enter the data into L1. Press enter after each number
4. Press STAT
5. Go over (with the arrow) to Calc
6. Press enter (or hit number 1) for 1-var stats
7. Press Enter again
8. The important numbers appear. To see more, scroll down with the down arrow.

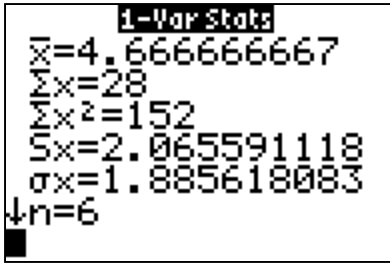
For details on what everything means in 1-var stats, see next page.



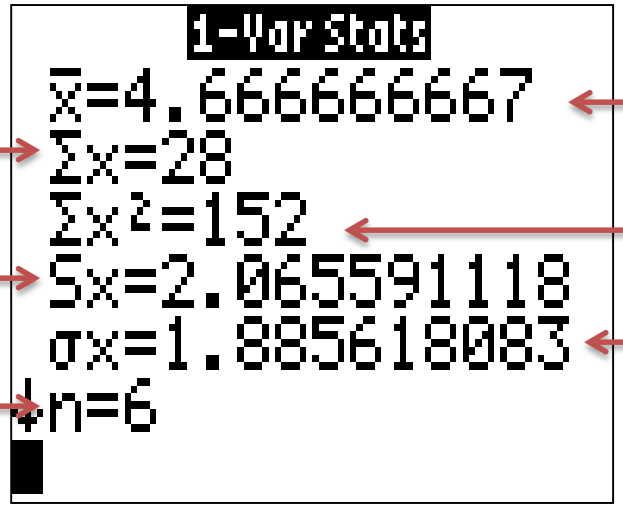








1-Var Stats continued



Sum

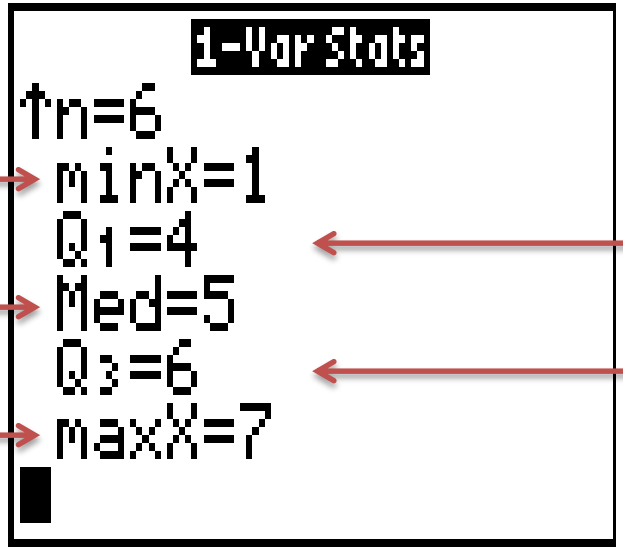
Mean

Sum of squares

Sample standard deviation

Population standard deviation (only use if the data consists of the entire population)

Number of data points (or sample size)



Minimum

First Quartile

Median

Third Quartile

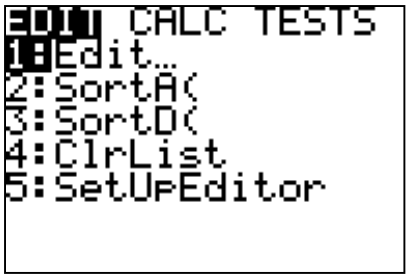
Max

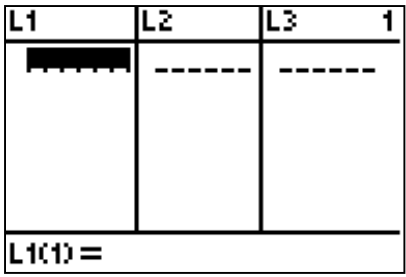
Note: the x means it is for the x variable)

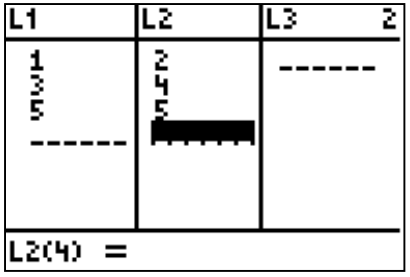
Important Numbers: Two Variables

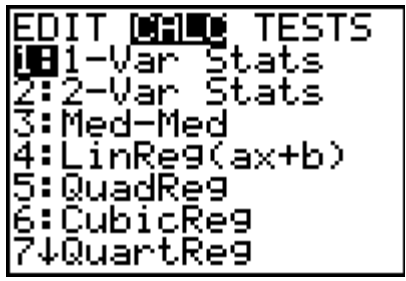
1. Press STAT
2. Press Enter
3. Type in x values in L1 and y values in L2. Press Enter after each value. Use the left and right arrow keys to move between the lists.
4. Press Stat
5. Go over to Calc
6. Scroll down to number 2 and press enter (or press 2)
7. Type 2^{nd} 1 (L1), then comma, 2^{nd} 2 (L2)
8. Press enter

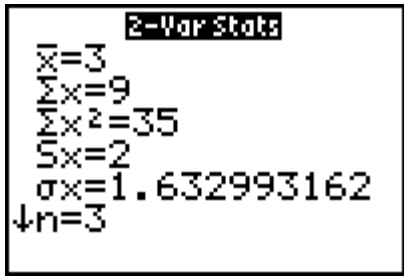
Some important numbers are then shown The x indicates the information is for the x variable and the y indicates the information is for the y variable







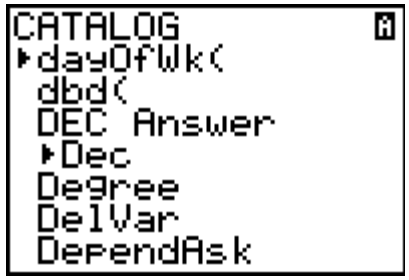




Before You Can Find Correlation

In order to do correlation, there is a few steps that must be competed prior to finding the correlation. Luckily, you only need to do these steps once (unless you reset your calculator).

1. Press 2^{nd} then 0. This opens the catalog.
2. Press the x^{-1} button (this will jump down to D)
3. Scroll down to DiagnosticON
4. Press Enter
5. Press Enter again (afterwards it should say done)
6. Press clear



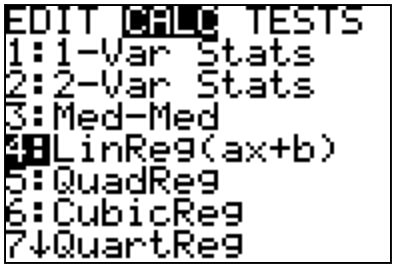
Line of Best Fit and Correlation

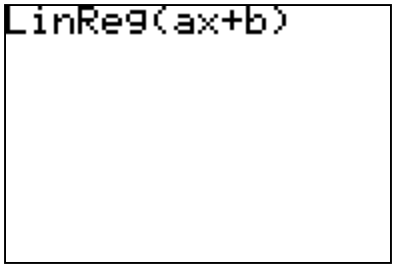
Find the line of best fit (aka the least squares regression line) and the correlation are found together.

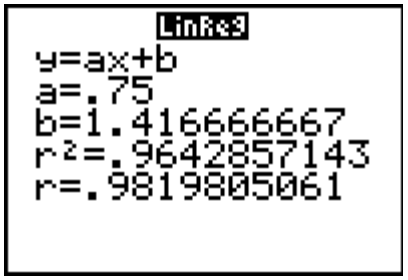
1. Enter the points into the list
2. Press STAT.
3. Press the right arrow key to Calc.
4. Select LinReg (#4) and press enter
5. Press Enter again

Instead of using #4, you can use #8 (the difference is in the labels)

If you do not see r and r^2, then repeat the previous slide.



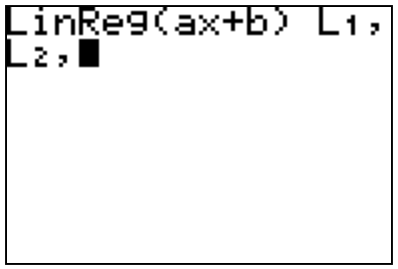


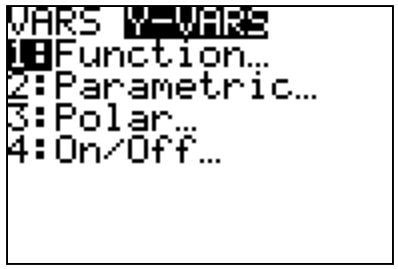


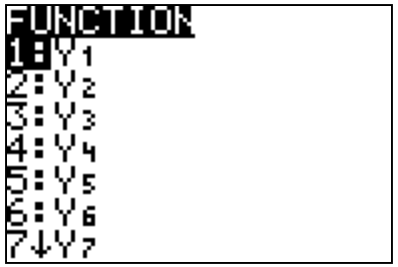
Plotting the Points and Graphing the Line of Best Fit

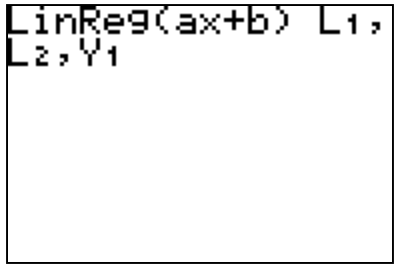
1. Press STAT.
2. Press the right arrow key to Calc.
3. Select LinReg (#4) and press enter
4. Type 2^{nd} 1 (L1), then comma, 2^{nd} 2 (L2), then comma
5. The Press VARS
   Using the right arrow, move over to Y-vars, then press enter
1. Press enter again
2. Press enter again
3. Then press graph.

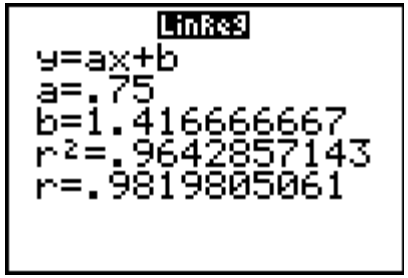
Before you make more graphs you need to clear the line by pressing y= , then clearing the equation of the line

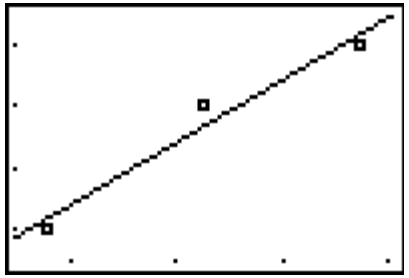








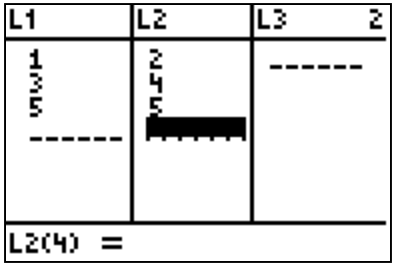


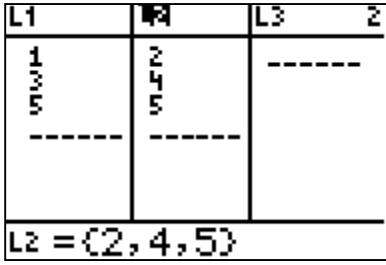


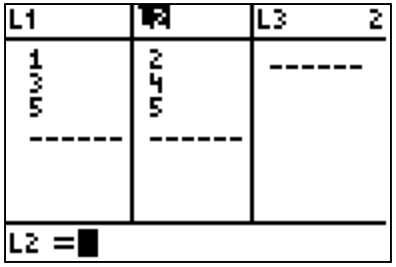
Clearing a List

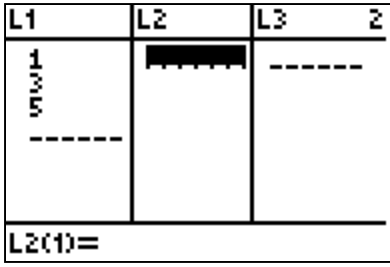
1. Press STAT
2. Press ENTER
3. Use the up arrow until the list name is dark
4. Press Clear (<u>never delete)</u>
5. Press Enter

The list is now clear!









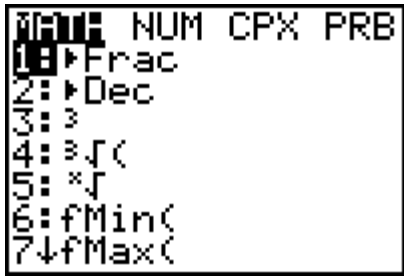
<u>If you press delete, you must reset your calculator</u>

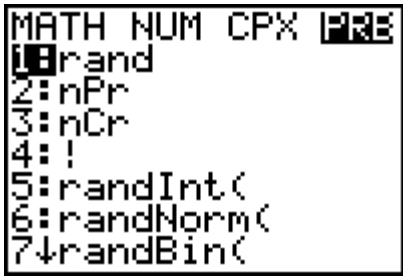
Random Numbers

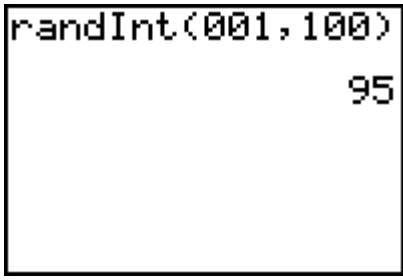
Using random numbers is helpful when doing sampling

1. Press Math
2. Go over to PRB
3. Scroll down to RandInt(and press enter
4. Type the smallest possible number
5. Type in a comma
6. Type in the largest number
7. Close parenthesis (not needed but it wont hurt to add it)
8. Press enter, the first random number appears

Keep pressing enter to get more random numbers.





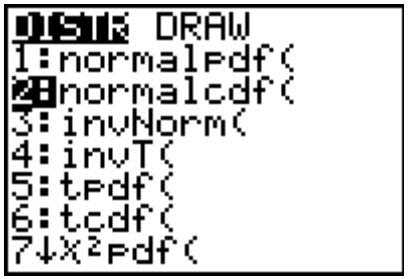


Normal Distribution

To find the probability of x being greater or less than something, given a normal distribution

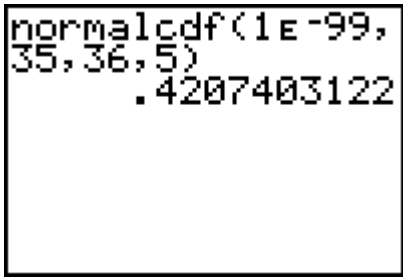
1. Press 2nd then VARS
2. Select normalcdf(and press enter

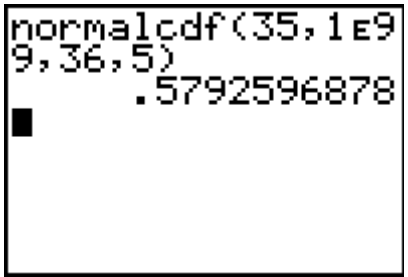
Continues on next slide

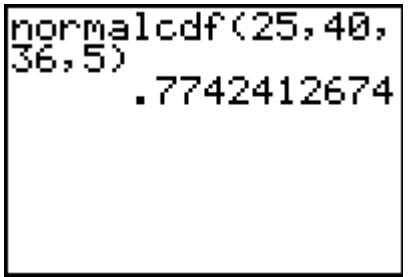


Normal Distribution continued

P(x<number)	P(x>number)	P(number<x<number)
3. Type in 1 E -99 (E is done by pressing 2nd then the comma and it means times 10 the) 4. Type in a comma 5.Type the number 6. Type in a comma 7. Type in the mean 8. Type in a comma 9. Type in the standard deviation 10. Enter a parenthesis 11. Press Enter	3. Type in the number 4. Type in a comma 5.Type the 1 E 99 (E is done by pressing 2nd then the comma and it means times 10 the) 6. Type in a comma 7. Type in the mean 8. Type in a comma 9. Type in the standard deviation 10. Enter a parenthesis 11. Press Enter	3. Type in the first number 4. Type in a comma 5.Type the second number 6. Type in a comma 7. Type in the mean 8. Type in a comma 9. Type in the standard deviation 10. Enter a parenthesis 11. Press Enter



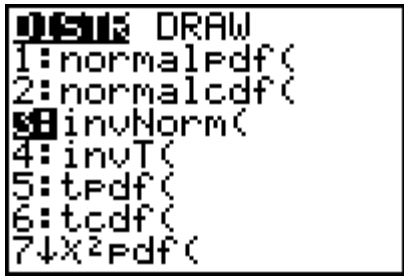


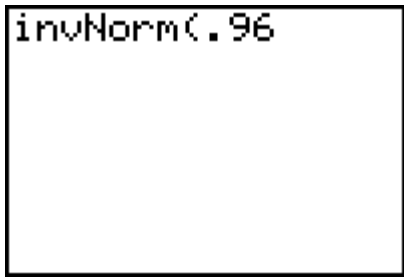


Finding the Z statistic given a probability

1. Press 2nd Vars
2. Scroll down to invNorm(and press enter
3. Type in the probabilty
4. Press enter

This is the critical z value

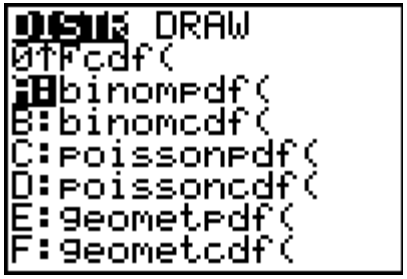


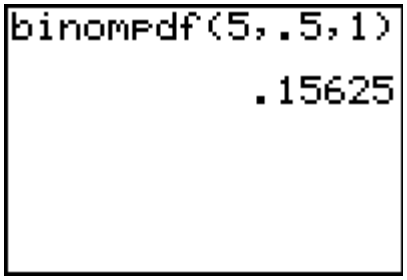


Binomial Distribution: P(x=number)

Binompdf(is used when we want P(x=number) given a binomial distribution with number of trials n and probability p

1. 2nd Vars
2. Scroll down to Letter A: binompdf and press enter
3. Type in n
4. Type in comma
5. Type in p
6. Type comma
7. Type in the number
8. Type in a close parenthesis
9. Enter

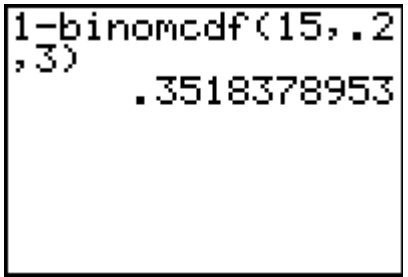


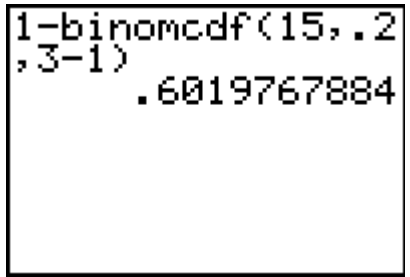


Binomial Distribution: P(x>number) and P(x≥ number)

Binomcdf(is used when we want P(x>number), P(x<number), P(x≥ number) , or P(x÷ number) given a binomial distribution with number of trials n and probability p

P(x>number)	P(x≥ number)
1. Type in 1- 2. Press 2nd then Vars 3. Scroll down to Letter B: binomcdf and press enter 4. Type in n 5. Type in a comma 6. Type in p 7. Type in a comma 8. Type in the number 9. Type in a close parenthesis 10. Enter	1. Type in 1- 2. Press 2nd then Vars 3. Scroll down to Letter B: binomicdf and press enter 4. Type in n 5. Type in a comma 6. Type in p 7. Type in a comma 8. Type in the number-1 9. Type in a close parenthesis 10. Enter

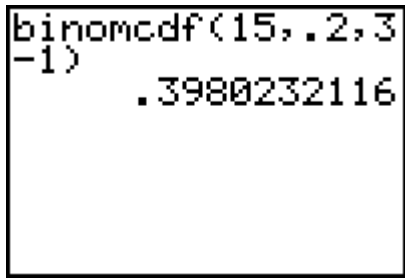


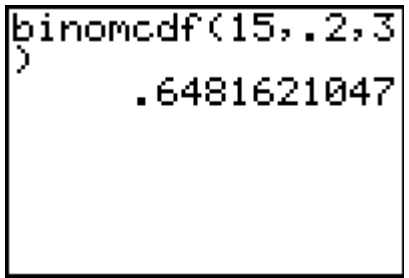


Binomial Distribution: P(x<number) and P(x÷number)

Binomcdf(is used when we want P(x>number), P(x<number), P(x≥ number) , or P(x÷ number) given a binomial distribution with number of trials n and probability p

P(x<number)	P(x÷number)
1. Press 2nd then Vars 2. Scroll down to Letter B: binomcdf and press enter 3. Type in n 4. Type in a comma 5. Type in p 6. Type in a comma 7. Type in the number-1 8. Type in a close parenthesis 9. Enter	1. Press 2nd then Vars 2. Scroll down to Letter B: binomcdf and press enter 3. Type in n 4. Type in a comma 5. Type in p 6. Type in a comma 7. Type in the number 8. Type in a close parenthesis 9. Enter

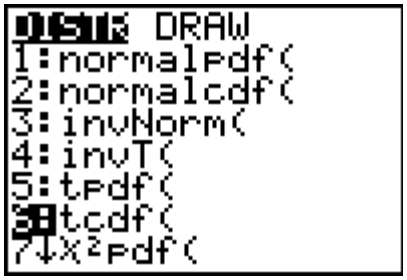




T-distribution: Finding the Probability

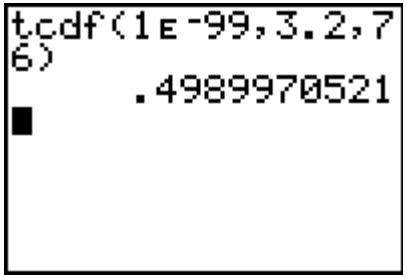
1. Press 2nd Vars
2. Scroll down to tcdf(and press enter

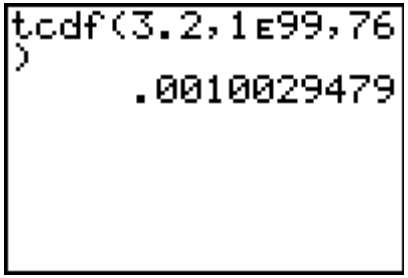
Continues on next slide

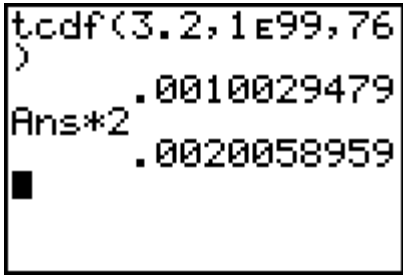


T-distribution continued

H_a: Ã<number	H_a: Ã>number	H_a: Ã ø number
3. Type in 1 E -99 4. Type in a comma 5. Type the t statistic 6. Type in a comma 7. Type in the degrees of freedom 8. Enter a parenthesis 9. Press Enter	3. Type in the t statistic 4. Type in a comma 5. Type the 1 E 99 6. Type in a comma 7. Type in the degrees of freedom 8. Enter a parenthesis 9. Press Enter	3. Type in the t statistic 4. Type in a comma 5.Type the 1 E 99 6. Type in a comma 7. Type in the degrees of freedom 8. Enter a parenthesis 9. Press Enter 10. Times by 2





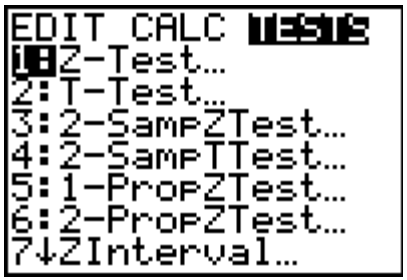


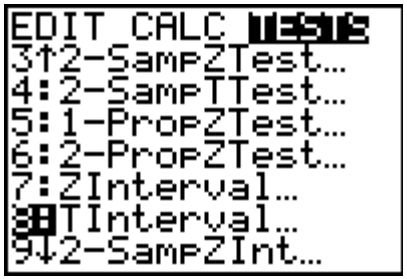
Confidence Intervals Option 1: Data

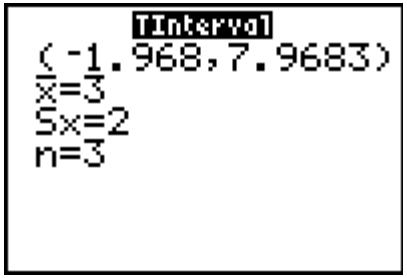
Use this option when you have a list of data

1. Enter your data into L1 (and L2 if needed)
2. Press Stat
3. Go over to tests
4. Scroll down and select the type of interval you want (they start at 7)

   For this example we will use Tinterval
4. Go over to data and hit enter (if data is already selected skip this step)
5. Scroll down
6. Where it says List: it should say L1 (like the picture). If your data is not in L1, switch it now
7. Scroll down and Leave Freq:1 alone
8. Scroll down and For C-level: type in your confidence interval (as a decimal)
9. Scroll down to calculate and press enter to get your confidence interval





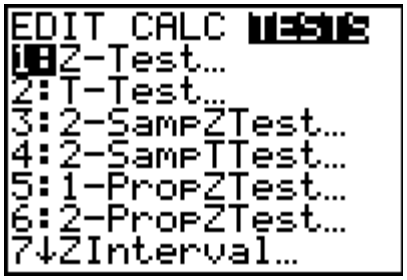


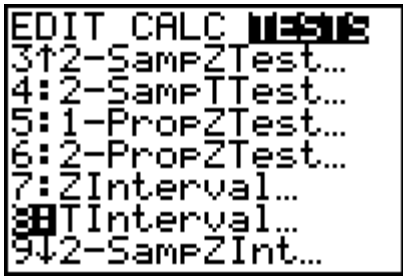
Confidence Intervals Option 2: Stats

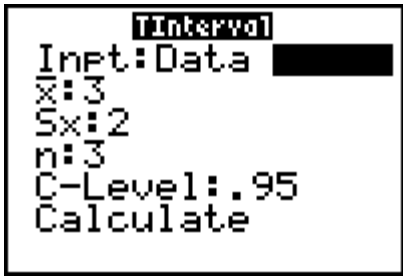
Use this option when you have the mean, standard deviation, etc.

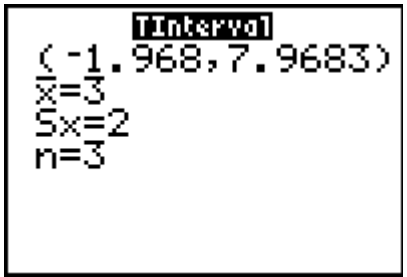
1. Press Stat
2. Go over to tests
3. Scroll down and select the type of interval you want (they start at 7)

   For this example we will use Tinterval
4. Go over to stats and hit enter (if stats is already selected skip this step)
5. Scroll down and Type in the mean
6. Scroll down and type in the standard deviation
7. Scroll down and type in the sample size
8. Scroll down and For C-level: type in your confidence interval (as a decimal)
9. Scroll down to calculate and press enter to get your confidence interval









Hypothesis Testing Option 1: Data

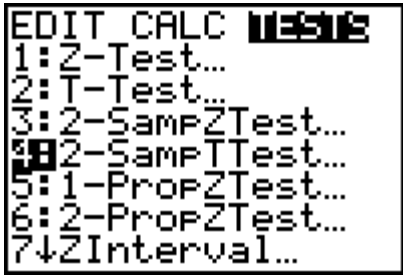
Use this option when you have a list of data

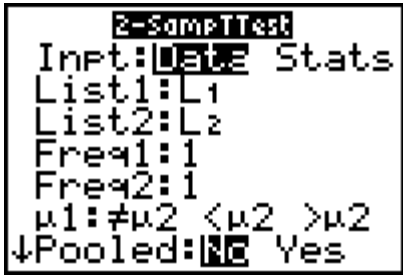
1. Enter your data into L1 (and L2 if needed)
2. Press Stat
3. Go over to tests
4. Scroll down until you see the test you want and hit enter

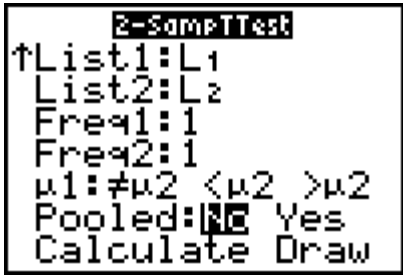
For this example we will use 2-sampleTTest

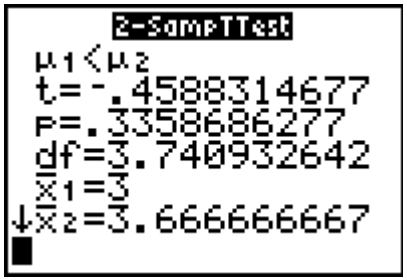
4. Go over to data and hit enter (if data is already selected skip this step)
5. Scroll down and make any changes needed (for example you have your data in different lists)
6. Scroll down to μ1: and select your alternative hypothesis and press enter
7. Scroll down and change pooled to yes or no as needed (by pressing enter)
8. Scroll down to calculate and press enter

The t is the test statistic, and p is the p-value you need to make your decision about your hypothesis are given.









Hypothesis Testing Option 2: Stats

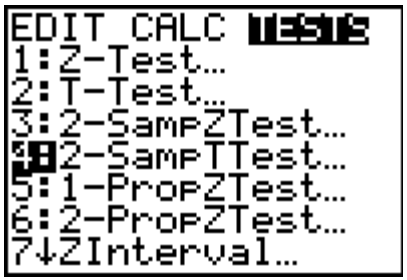
Use this option when you have the mean, standard deviation, etc.

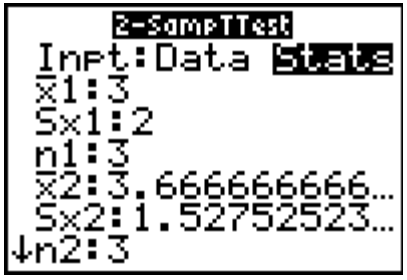
1. Press Stat
2. Go over to tests
3. Scroll down until you see the test you want and hit enter

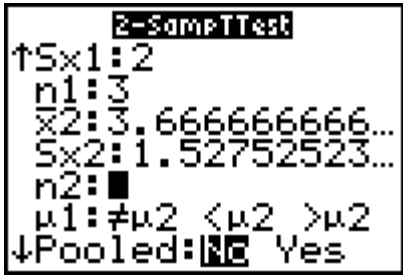
   For this example we will use 2-sampleTTest

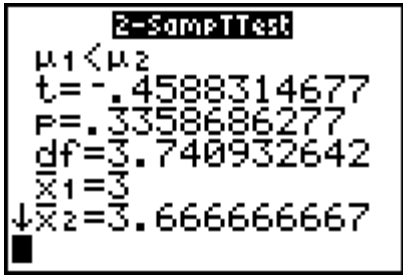
4. Go over to stats and hit enter (if stats is already selected skip this step)
5. Scroll down and enter in the information needed
6. Scroll down to μ1: and select your alternative hypothesis and press enter
7. Scroll down and change pooled to yes or no as needed (by pressing enter)
8. Scroll down to calculate and press enter

The t is the test statistic, and p is the p-value you need to make your decision about your hypothesis are given.



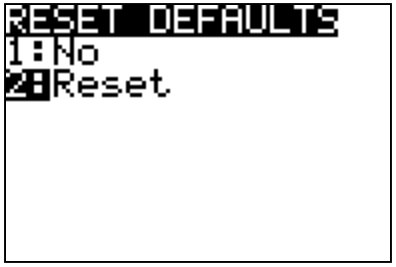
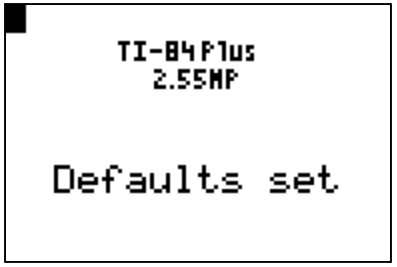






Resetting the Calculator

If something is wrong with the calculator or you want to clear everything, you need to reset the calculator

1. Press 2nd + (MEM)
2. Select Reset (or press 7)
3. Select Defaults (or press 2)
4. Select Reset (or press 2)
5. A screen that says Defaults set will appear.

Warning: This will delete everything (numbers in lists, any functions in y=, games,…)