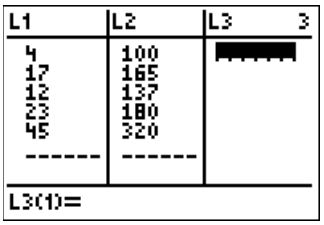
The lesson documents provide information about using the calculator provided with the lessons. The purpose of this supplement is to supply information about another possible technology, namely the TI-83/84 series calculator.

CAUTION: You should note that the interface for the calculator has changed in the past and may well change in the future – accordingly, some of the information given here may prove to be out of date.

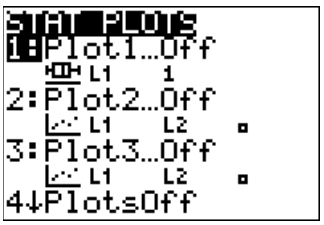
Lesson 3

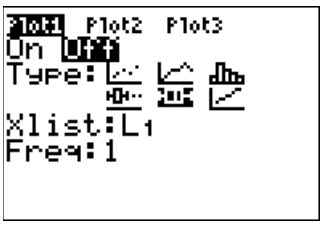
We cover the steps necessary to do scatterplots, calculate the correlation coefficient, and calculate and plot the regression line. For any of these, the first step is to enter the explanatory variable into a list, with the response variable in another list. ***All remaining instructions assume the explanatory variable is in L1 and the response variable in L2.*** Here is the data we are using for these examples:



Scatterplot

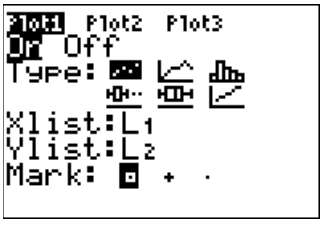
- Press "Y=" and clear out all existing plots.
- Press 2nd STAT PLOT to get the first screen, then press enter (or 1) to choose the first plot, getting the second screen.





Note: If any of the stat plots are already "On," you can use option 4 to turn off all stat plots, then use 2nd STAT PLTO to re-enter the first screen.

- Switch plot 1 to "on". Select the scatterplot (the first plot type) as the type of the plot. The screen changes to this:



- We want the explanatory on the x axis and the response variable on the y axis, so the default options of Xlist: L1 and YList: L2 are correct. (If your calculator does not have the correct lists, remember that "2nd 1" = L1 and "2nd 2" = L2.)

- Finally choose the symbol for your plot and press GRAPH. If you graph does not appear in the viewing window, press ZOOM 9:ZoomStat. Here is the result:
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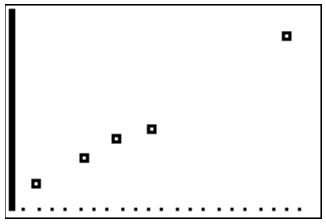
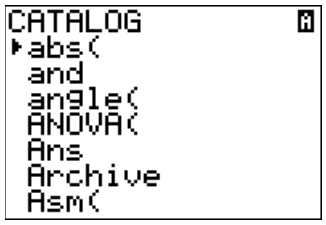


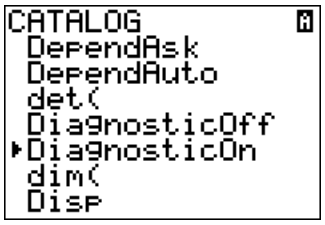
Correlation and Regression

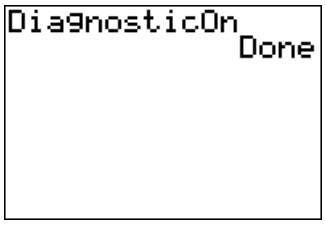
Important note to student and instructor: If you use the TI 83/84 calculator, there are two options under the STAT CALC menu which can be used to calculate the regression line. These two options give the same results but in slightly different form.

In Lesson 13 we will be using the ***LinReg(a+bx)*** option, which gives the regression line in the form $y = a + bx$. We suggest you use this form for this lesson, rather than the alternative ***LinReg(ax+b)*** option.

- (Once only – or perhaps again after resetting calculator): Go to CATALOG (2^{nd} 0) and scroll down to "DiagnosticOn" and hit enter twice:

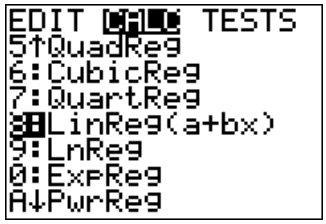


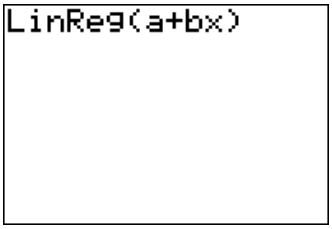




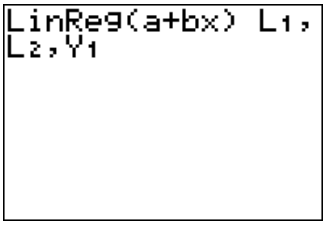
- We will compute the correlation and the regression line. ***Again, we are assuming that the explanatory variable is in L1 and the response variable is in L2.***

- Press STAT > CALC and choose 8:LinReg(a+bx):

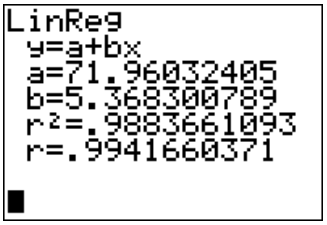




- Tell the calculator which list is explanatory, which is response, and which Y= variable to place the regression line into. We will get L1, L2, Y1 by using the following: "2nd 1" to get the L1, then ",", then "2nd 2" to get the L2, then "," and finally VARS > Y-VARS > 1:Function > 1:Y1. We have this screen:



- We now hit ENTER to enter the command, with these results. The screen shows the coefficients of the regression equation and the values for r and r^2. Note that the regression line is $y = 71.96 + 5.37x$. The correlation coefficient (r) is 0.9942.



- Press GRAPH. You should see both the scatterplot and the line of best fit. If not, press ZOOM 9:Zoomstat. (For this example, the fact that the line is such a good fit is reflected in the r value being very close to 1.)