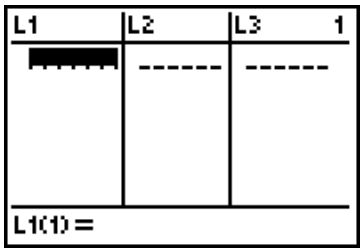
Using the TI-82 to Find the Estimated Simple Linear Regression Equation

Consider the example on page 737 in the Berenson and Levine text. In this example, regression techniques are used to examine the relationship between the size (square footage) of a store and its annual sales. A sample of 14 stores is selected. The data used in this example is provided below:

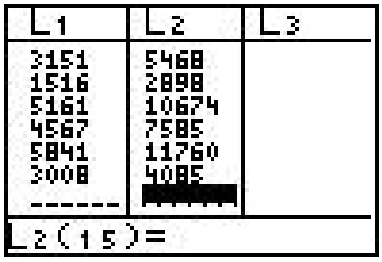
Store	Sq Ft(X)	Annual Sales (Y)	Store	Sq Ft(X)	Annual Sales (Y)
1	1726	3681	8	1102	2694
2	1642	3895	9	3151	5468
3	2816	6653	10	1516	2898
4	5555	9543	11	5161	10674
5	1292	3418	12	4567	7585
6	2208	5563	13	5841	11760
7	1313	3660	14	3008	4085

First, you will need to enter the data from the Edit sub-menu. Press the STAT key and the 1 (Edit…) key. You may see the following screen:



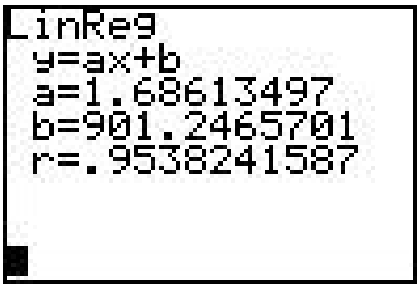
The TI-82 will store up to six lists of data. If you wish to clear any particular list, arrow up to the list name, press CLEAR and then press ENTER.

Enter your data, with the square footage as the x-values in L1 and the annual sales as the y-values in L2. After entering the last y-value in L2, you should see the following screen:



Press STAT, arrow right to CALC. You should see the following screen:

Press 5 for Linear Regression (ax + b) and then press ENTER. (Note: the lists used by default are L1 and L2. If your data is located in lists other than these, then you will have to enter " L# , L# " , with the appropriate numbers, after the LinReg statement. The list containing the x-values should be indicated first.) You should see the following screen:



This screen indicates that the y-intercept is given by $b = b_0 = 901.247$ and the slope is given by $a = b_1 = 1.686$. Thus, the estimated simple linear regression equation is given by: Y-hat = 901.247 + 1.686 X. Note that the coefficient of correlation is r = 0.954.