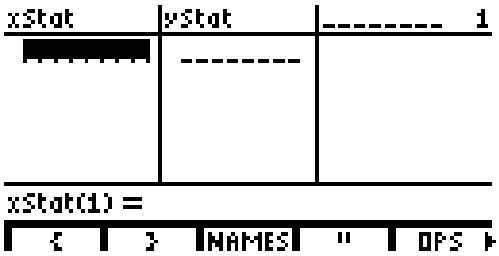
Using the TI-86 to Find the Estimated Simple Linear Regression Equation

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:

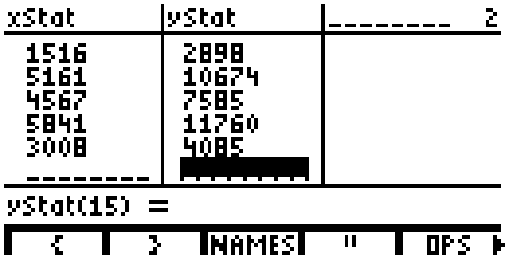
Store	Sq Ft(X)	Annual Sales (Y)	Store	Sq Ft(X)	Annual Sales (Y)
1	1726	3681	8	1102	2694
2	1642	3895	9	3151	5468
3	2816	6653	10	1516	2898
4	5555	9543	11	5161	10674
5	1292	3418	12	4567	7585
6	2208	5563	13	5841	11760
7	1313	3660	14	3008	4085

First, you will need to enter the data from the Edit sub-menu
Press the 2nd + (STAT) keys and the F2 (EDIT) key. You may see the following screen:

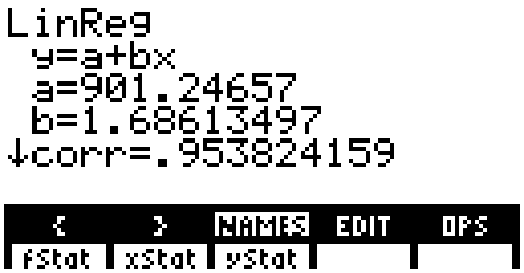


If you wish to clear any particular column, arrow up to the column name, press CLEAR and then press ENTER.

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



Exit out of this screen by pressing EXIT. To calculate the estimated simple linear regression equation, press the 2nd + (STAT) keys, the F1 (CALC) key, and the F3 (LinR) key. You must now enter the names of the columns where your data resides, xStat and yStat. To do this, press 2^{nd} – (LIST), F3 (NAMES), F2 (xStat), the comma key, F3 (yStat) and ENTER . You should see the following screen:



This screen indicates that the y-intercept is given by $a = b_0 = 901.247$ and the slope is given by $b = b_1 = 1.686$. 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.