

Exploring Data: Models and Scatter Plots: data to equations on your TI-83 or TI-84 calculator.

Save this page -- you'll need it later!

Step 0 Clear all equations from your y= screen.

```
Plot1 Plot2 Plot3
\Y1=
\Y2=
\Y3=
\Y4=
```

Step 1 Enter the data

Press **STAT** (2nd row, 3rd key)

Choose **1: Edit...**

You will see columns used to enter the data – just use the standard list names, L1 and L2.

or you can give the lists your own names. To put your own names on lists, use the up arrow to go to the top (title) line on the lists, then use the right arrow several times until you have a blank title line. Type your chosen title, then press ENTER. Notice that the calculator will be expecting a name, so it automatically starts in alphabet mode.

If you need to clear numbers from a list, highlight its title, then press **CLEAR**.

(Do not press DELETE!)

If you accidentally press DELETE, the whole column will disappear. To get it back, press STAT, then choose SetUpEditor, then press ENTER. When you go back to STAT, then Edit, you should see all the lists restored.

Once you have the titles set up, use the arrows to go down, then start entering your data.

When you've entered the numbers, check for mistakes. Especially, make sure that the two lists of numbers are the same length.

L1	L2	L3	3
3	17		
4	18		
5	20		
6	21		
7	23		
8	24		

Step 2 Set up, and Look at the Graph

Press **WINDOW**.

Set up the dimensions of the window so that it makes sense with your data.

(for now, match the dimensions of whatever graph is on your worksheet paper.)

Press **STAT PLOT**. (above **Y=**)

Choose **1: Plot 1**

Choose **On**.

Where it says **Type:**, choose the scatter plot, which is the first picture.

Where it says **Xlist:**, type L1 (it's on the keypad, above the 1).

Or, you can choose the list name that you used for the x-variable. You choose the list name that you want by pressing 2nd LIST (above STAT) and choosing the correct name, or by typing in the list name, or by choosing the standard name from the keyboard -- L1 through L6 are above keys 1 through 6.

Where it says **Ylist:**, type L2 (it's on the keypad, above the 2).

Where it says **Mark:**, choose the kind of mark you want. I like the box.

Press **GRAPH**. You should see a graph, in the form of a scatter plot, of your data.

```
Plot1 Plot2 Plot3
Off Off Off
Type: [ ] [ ] [ ]
      [ ] [ ] [ ]
Xlist:L1
Ylist:L2
Mark: [ ] + .
```

Step 3 Calculate a model that matches your data.

Press **STAT**.

Press right arrow to choose **CALC**.

Choose **LinReg(ax+b)** if you want a linear equation (model).

Or, choose whatever kind of model makes sense with your data -- QuadReg, ExpReg, etc

Older Calculators:

The calculator will go the home screen and will write LinReg(ax+b). Tell it what lists of data to calculate the calculation on, so enter your two list names, x first, then y. Put a comma (row 5, 2nd key) between the two list names:

```
LinReg(ax+b) L1,
L2
```

Then, press **ENTER**.

Newer Calculators:

The calculator will go to the home screen, with the L1 and L2 already filled in:

```
LinReg(ax+b)
Xlist:L1
Ylist:L2
FreqList:
Store RegEQ:
Calculate
```

Use your arrows to choose **Calculate**, then press **ENTER**.

The calculator will find numbers for an equation to fit your data.

If your calculator shows more numbers, such as r or n, ignore them.

The calculator can automatically enter the equation on the Y= screen. For the older calculators, calculate the regression again, except just after you put the two list names, put another comma and then the name of one of the Y= equations. You get to those names by pressing **VARS** (3rd row, 4th key), then right arrow to choose **Y-VARS**, then choose **1: Function**, then choose which equation name you want. Then press **ENTER** one last time. For the newer calculators, put the equation name on the line labelled "Store RegEQ:"

Step 4 Graph the equation, compare it to your data

Type the equation into the **Y=** screen.

Press **GRAPH**.

Be amazed!