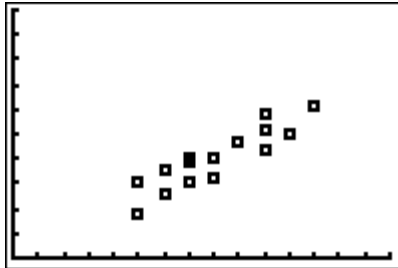


# TI-83/84 How To Series

## Topic: Drawing a Scatter Plot

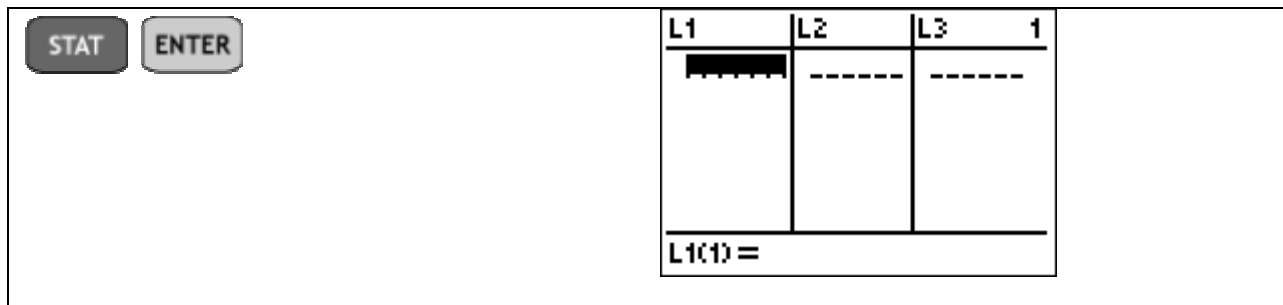
Often, it is helpful to view a set of data in a graph to see how the data trends, whether it is completely random or there is a distinct relationship between the two sets of data. This relationship may be either linear or non-linear. The data below appears to be linear (a straight line).



As you can see, the data seems to be trending in a SW to NE direction. This particular set of data has 15 points, you may have more or less. Ultimately you will want to draw a linear (straight) line of best fit that corresponds with this data.

### Steps

1. Clear your memory. Doing this is good practice as it allows you start fresh.
2. Enter in the data using the List function of the calculator. Bring up the empty list screen.



Enter in the data. Typically L1 will refer to the x-axis and L2 will refer to the corresponding data on the y-axis.

Example: L1 {5, 8, 6, 7, 11, 10, 5, 7, 10, 6, 8, 7, 9, 12, 10}

L2 {3, 4, 2.5, 4.1, 5, 5.8, 1.8, 3.8, 4.3, 3.6, 3.2, 3.1, 4.7, 6.1, 5.2}

Using the arrow keys to move from L1 to L2 you should have 15 sets of data for each list. If you do not, you have missed a piece of data or added an extra. ALWAYS double check you data when entering into the calculator. If you need to delete a piece of data, scroll to the data and hit the DEL key. If you need to insert a piece of data, scroll to the data AFTER where you want to insert and hit 2<sup>nd</sup> INS.

If entered correctly your screen should appear like this:

L1	L2	L3	2
6	3.6		
8	3.2		
7	3.1		
9	4.7		
12	6.1		
10	2.2		
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L2(16) =			

- In order to see your data you have to adjust the window of your calculator. Remember, your window is exactly like a graph, but we only want to see a particular portion of the graph. Let's take a look at the x-axis (L1) first. The smallest value is 5 and the largest 12. There is no negative numbers, so we are not interested in any x-values less than 0. Now the y-axis (L2). The smallest value is 1.8 and the largest 6.1. Again there are no negative numbers, so we are not interested in any y-values less than 0.

If you were to draw the axis for this graph, you might want to start x at 0 and end at 15 going up by a scale of 1. The y-axis may start at 0 and end at 10 going up by a scale of 1. We are going to do the same thing on our calculator. Follow these steps.



```

WINDOW
Xmin=0
Xmax=15
Xscl=1
Ymin=0
Ymax=10
Yscl=1
Xres=1
  
```

Notice how the Xmin, Xmax, Xscl, etc correspond to the information we described above. For more information refer to [Viewing Graphs on the Calculator Using the Window Function](#).

- The type of graph the data corresponds to is a scatter plot. We have to tell the calculator to plot our data points in this type of plot. Follow these steps.

<p>2nd Y=</p>	<pre> STAT PLOTS 1:Plot1...Off   L1 L2 2:Plot2...Off   L1 L2 3:Plot3...Off   L1 L2 4↓PlotsOff           </pre>
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<p>ENTER</p> <p>This screen allows us to choose from a variety of options. The first, we must turn ON the plot, then choose the type of plot we want.</p>	<pre> Plot1 Plot2 Plot3 On Off Off Type: [Scatter] [Line] [Bar]       [Normal] [Histogram] Xlist:L1 Ylist:L2 Mark: [Square] + .           </pre>
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<p>ENTER</p> <p>In our case, we only need to turn on the plot. You will know it is turned on when the On is highlighted. Scatter plot is already chosen, and the Xlist is in fact our L1 and Ylist our L2.</p>	<pre> Plot1 Plot2 Plot3 On Off Off Type: [Scatter] [Line] [Bar]       [Normal] [Histogram] Xlist:L1 Ylist:L2 Mark: [Square] + .           </pre>
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5. Plot the graph.

<p>GRAPH</p> <p>Pressing the Graph key allows us to see our data. Note, we can see all of our data clearly because we set up our window correctly. If you are unable to see any data, or it is clustered and difficult to see, chances are your window needs adjusting.</p>	
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