

## LINEAR REGRESSION ON THE TI-83

Step 1: Enter the data

- 1.) Clear all the data by pressing  $\boxed{2nd} \boxed{+} \boxed{4} \boxed{ENTER}$ . And turn diagnostics on by pressing  $\boxed{2nd} \boxed{0} \boxed{x^{-1}} \boxed{\downarrow} \boxed{\downarrow} \boxed{\downarrow} \boxed{\downarrow} \boxed{\downarrow} \boxed{\downarrow} \boxed{\downarrow} \boxed{ENTER}$ .

```
ClrAllLists Done
DiagnosticOn Done
█
```

- 2.) Press  $\boxed{STAT} \boxed{ENTER}$  to enter the edit screen.

```
L1 L2 L3 1
█ █ █
L1(1)=
```

- 3.) Enter the data by entering all the x-values, then all the y-values.

```
L1 L2 L3 1
1 2 █
5 4 █
7 7 █
10 9 █
L1(5)=
```

Suppose the data is:

x	y
1	2
5	4
7	7
10	9

and you wish to predict the y-value when x is 4.

Step 2: Display the data

- 1.) Press  $\boxed{Y=}$  and clear any equations on the screen.

```
Plot1 Plot2 Plot3
\Y1=█
\Y2=
\Y3=
\Y4=
\Y5=
\Y6=
\Y7=
```

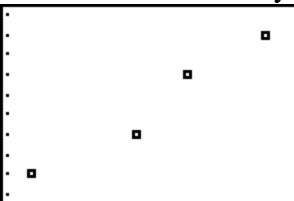
- 2.) Press  $\boxed{2nd} \boxed{Y=}$  to get to the plot edit screen and then  $\boxed{ENTER}$  to get to the edit screen for Plot1. Press  $\boxed{ENTER}$  again to turn the plot On. Verify the type is  $\boxed{\text{L1}}$ , the Xlist is L1 and Ylist is L2 and Mark is  $\boxed{\square}$ .

```
5:ZOOM Plots
1:Plot1...Off
  L1 L2
2:Plot2...Off
  L1 L2
3:Plot3...Off
  L1 L2
4:PlotsOff

5:ZOOM Plot2 Plot3
0:Off
Type: █ █ █
Xlist:L1
Ylist:L2
Mark: █ + .
```

- 3.) Press  $\boxed{ZOOM} \boxed{9}$  for ZoomStat. This should automatically produce the graph.

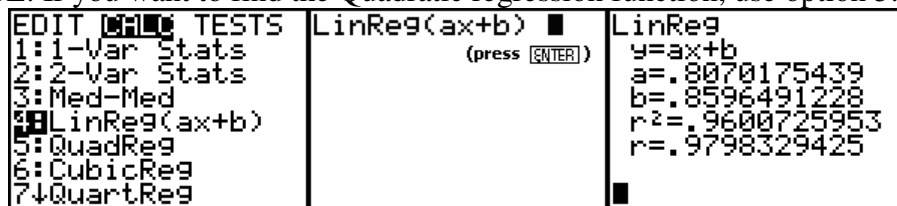
```
5:ZOOM MEMORY
4:ZDecimal
5:ZSquare
6:ZStandard
7:ZTrig
8:ZInteger
9:ZoomStat
0:ZoomFit
```



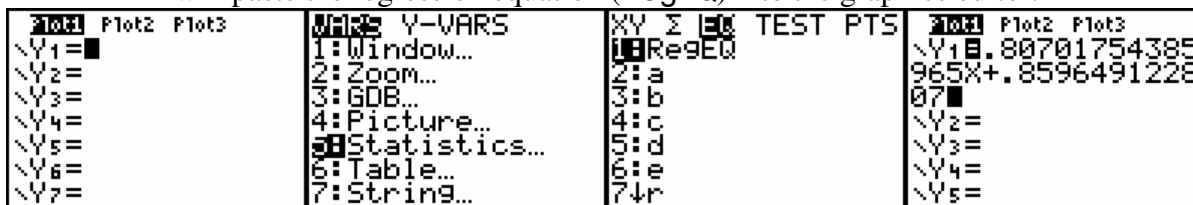
### Step 3: Getting and graphing the equation

- 1.) Press **[STAT]** **[4]** **[ENTER]**. This sequence will display the linear regression equation on the screen. Write the equation down for later reference.

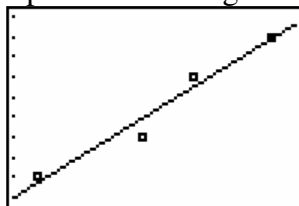
[NOTE: If you want to find the Quadratic regression function, use option 5: QuadReg]



- 2.) To draw the graph of the equation, press **[Y=]** **[VAR]** **[5]** **[ENTER]**. This sequence will paste the regression equation (**RegEQ**) into the graphics editor.

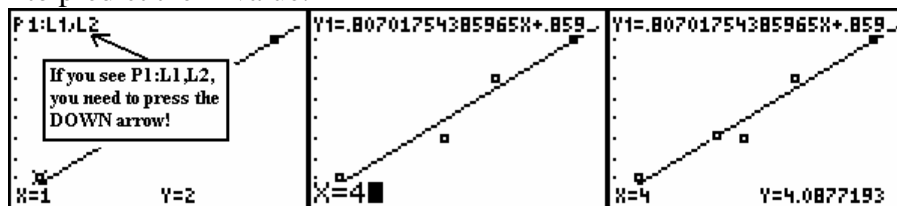


- 3.) Press **[GRAPH]** to see the plots and the regression line.



### Step 4: Make predictions

- 1.) To make a prediction, press **[TRACE]** then enter the X-value for which you want to predict the Y-value.



- 2.) If you get an **INVALID** error, that means the X-value you entered is not on-screen. Adjust the **[WINDOW]** settings to allow for this X-value.
- 3.) Alternatively, you may substitute the X-value into the equation and solve. (Use more decimals for more accuracy.)

$$.807(4)+.860$$

$$4.088$$