

## LINEAR REGRESSION ON THE TI-86

Step 1: Enter the data

- 1.) Press  $\boxed{2nd} \boxed{+} \boxed{F2}$ . If there are any values, press  $\boxed{DEL}$  until they are all deleted.

xStat	yStat	fStat
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xStat(1) =		
←	→	NAMES " " OPS

- 2.) Enter all  $x$ -values, then all the  $y$ -values. Enter a  $\boxed{1}$  in each row in the  $fStat$  column.

xStat	yStat	fStat
1	2	1
5	4	1
7	7	1
10	9	1
fStat(5) =		
←	→	NAMES " " OPS

Suppose the data is:

x	y
1	2
5	4
7	7
10	9

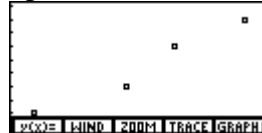
and you wish to predict the  $y$ -value when  $x$  is 4.

Step 2: Display the data

- 1.) Press  $\boxed{2nd} \boxed{+} \boxed{F3} \boxed{F1} \boxed{ENTER}$ . This turns the first plot on.

STAT PLOTS	Off Off
1:Plot1...On	Type=...
... xStat yStat	Xlist Name=xStat
2:Plot2...Off	Ylist Name=yStat
... xStat yStat	Mark=
3:Plot3...Off	
... xStat yStat	
<span style="font-size: small;">PLOT1 PLOT2 PLOT3 P10n P10ff</span> <span style="font-size: small;">PLOT4 PLOT5 PLOT6 P10n P10ff</span>	

- 2.) To view the scatter plot, press  $\boxed{GRAPH} \boxed{F3} \boxed{MORE} \boxed{F5}$ . (ZOOM, ZDATA)



Step 3: Getting and graphing the equation

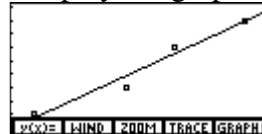
- 1.) Make sure you are on the home screen (press  $\boxed{EXIT}$  as many times as necessary). Press  $\boxed{2nd} \boxed{+} \boxed{F1} \boxed{F3} \boxed{ENTER}$ . The equation is given in the form  $y = a + bx$ . Write it down for later reference in  $y = mx + b$  form using three decimal places.

LinR	LinReg
<b>press ENTER!</b>	$y = a + bx$
	$a = .859649123$
	$b = .807017544$
	$\downarrow$ corr = .979832943
<span style="font-size: x-small;">CALC EDIT PLOT DRAW VARS</span> <span style="font-size: x-small;">OneVl TwoVl LinR LnR Expr</span>	<span style="font-size: x-small;">CALC EDIT PLOT DRAW VARS</span> <span style="font-size: x-small;">OneVl TwoVl LinR LnR Expr</span>

- 2.) To draw the graph, press  $\boxed{GRAPH} \boxed{F1} \boxed{2nd} \boxed{+} \boxed{F5} \boxed{MORE} \boxed{MORE} \boxed{F2} \boxed{ENTER}$ .

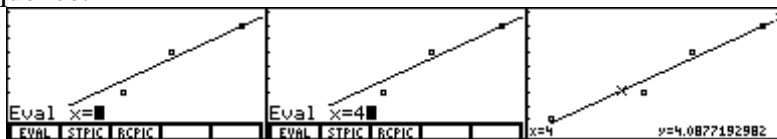
Plot1 Plot2 Plot3	Plot1 Plot2 Plot3
$\psi 1 =$	$\psi 1 = RegEq$
<span style="font-size: x-small;">WIND ZOOM TRACE GRAPH</span> <span style="font-size: x-small;">x y INSF DELF SELCT</span>	<span style="font-size: x-small;">WIND ZOOM TRACE GRAPH</span> <span style="font-size: x-small;">x y INSF DELF SELCT</span>

- 3.) Now press  $\boxed{GRAPH} \boxed{F5}$  to display the graph.



Step 4: Make predictions

- 1.) To make a prediction, press **GRAPH****MOORE****MOORE****F1** then enter the X-value for which you want to predict the Y-value. Once you have entered one  $x$ -value, you may continue to enter additional  $x$ -values without going through the above key sequence.



- 2.) If you get a DOMAIN error that means the X-value you entered is not on-screen. Adjust the windows settings (**GRAPH****F2**) to allow for this X-value.
- 3.) Alternatively, you may substitute the X-value into the equation and solve.

The calculator screen shows the calculation  $.807(4)+.860$  resulting in  $4.088$ .