Curve-Fitting on the TI-89/92

Example: Fit a line to the following data rounding to the 3rd decimal place, and predict y when x=15.

x|6 4 2 15 9
y|5 2 8 12 10

0. Clean out the function editor by pressing ♦ **Y=**. Then, deleting or deselecting all functions listed. Remember to exit out of the function editor by pressing either **HOME** on the TI-89 or ♦ **HOME** on the TI-92.
1. Enter data:
   a. Enter data/matrix editor.
      Press **APPS 6 3 (cursor down) (cursor down)**.
   b. Select data variable.
      We'll use dd to hold the data. So type **d d ENTER ENTER**.
   c. Type in data. Make sure to keep the each y value paired with the appropriate x value.
      Enter all x's then all y's in order. For this example, type **6 ENTER 4 ENTER 2 ENTER 15 ENTER 9 ENTER** to enter x's under c1. Then press **(cursor right) 2nd (cursor up)** to get to top of y's in c2. Then type **5 ENTER 2 ENTER 8 ENTER 12 ENTER 10 ENTER**.
2. Set viewing window such that all data points are in the window. In this case, [0,20]by[0,20] with a scale of 1 might be a good choice.
   Press ♦ **WINDOW 0 ENTER 20 ENTER 1 ENTER 0 ENTER 20 ENTER 1 ENTER**.
3. View just the data.
   a. Set up the plot.
      TI-89 | Press ♦ **Y= (cursor up) ENTER (cursor down) (cursor down) c alpha 1 (cursor down) alpha c 2 ENTER ENTER**.
      TI-92 | Press ♦ **Y= (cursor up) ENTER (cursor down) (cursor down) c 1 (cursor down) c 2 ENTER ENTER**.
   b. View plot. Press ♦ **GRAPH**.
4. Perform the regression.
   a. Go to Stat. Calculate screen.
      Type **APPS 6 ENTER F5:Calc**.
   b. Press **(cursor left)** to see the selection of the types of regression. Some the the ones of interest are:

Menu Option	Type of Regression	Equation
LinReg	linear	y = a*x+b
LnReg	Natural Logarithmic	y = a+b*ln(x)
ExpReg	Exponential	y = a*b^x
PowerReg	Power	y = a*x^b
QuadReg	Quadratic	$y = a*x^2+b*x+c$
CubicReg	Cubic	$y = a*x^3+b*x^2+c*x+d$

   In this case, we want LinReg because we want to fit a line to the data. Thus, type **5**.
   c. Enter the columns' names.
      Press **(cursor down) c alpha 1 (cursor down) alpha c 2 ENTER ENTER**.
   d. The screen should now display the regression output. The numbers could be rounded differently.
      a=.560311 and b=3.365759 .
      Thus, the linear regression formula(the line of best fit) is y=0.560x+3.366
   e. Record the output then press **ENTER**.
5. Display the regression function with the data.
   Type ♦ **Y=**. Move cursor to "y1=". Type on the
   TI-89 | **alpha r e g e q (x) ENTER**.
   TI-92 | **r e g e q (x) ENTER**.
   Display the data and line of best fit by pressing ♦ **GRAPH**
6. Use regression function to predict y value when x is a given mumber.
   With the regression equation displayed press **F3:TRACE (cursor up)**. Then just type the number for x by pressing **15 ENTER**. Finally, read the y value from the bottom of the screen
   Thus, y should be 11.770428 when x is 15.
7. To turn off plots press ♦ **Y=**. Put the cursor on "Plot1:" and press **F4:√** .