Finding a Least Squares Line or Regression Line

This will be the best fitting line that passes the closest to the actual data. It can be used to predict values not in the original sample.

*first go to catalog and turn diagnostics on.
[2nd→0, go down to DiagnosticsOn, hit enter twice]
1. Put in your data.
   a. Go to STAT
   b. Option 1:Edit
   c. Put your data in the appropriate lists. Make a note of which ones you are using.
2. Get the equation of the best fit line and the diagnostics.
   a. Go to STAT
   b. Slide over to CALC
   c. Choose option 4 or 8
   d. Add the names of your lists with a comma between
   e. Hit enter

The output will give you the equation of the best fit line in the form $y = ax + b$. It will also give you r (correlation coefficient) and r^2 (coefficient of determination).

r^2- Explains how much of the variation in y is explained by the linear relationship between the two variables in percent form.

r- looks at how strong the linear relationship is from the data to the predicted line. r goes from -1 to 1 with 0 being a no correlation relationship.

The closer to 1 or -1, the stronger the correlation.

$r \rightarrow$ (+) $r \rightarrow$ (-)

Graphing the Line and the Scatterplot

Steps if you want to look at the scatterplot
1. Go to Y= and clear anything there.
2. Shift/2nd, y=(stat plot),1:
3. Make sure it says ON
4. Choose your type of graph
5. Choose your lists and press enter
6. Go to Zoom, option 9:ZoomStat and then press enter

Steps if you want to see the regression line also:
1. Go to STAT
2. Slide over to CALC
3. Choose option 4 or 8
4. Add the names of your lists with a comma between them and add another comma after
5. **VARS key, then Y-VARS, 1: Function, 1:Y1**
6. Press enter
7. Go to Zoom, option 9:ZoomStat and then press enter

These steps pertain to the TI 83+. Please ask in the Learning Commons or your instructor if you are using a different calculator.