Fathom Lab 3.2

Correlation Exercise

**SETUP**

1. Open a new fathom file and save it as Fathom Lab 3.2 to your H:\AP Stats folder.
2. Drag a new case table to the work space.
3. Name 2 variables (attributes) in the top row and make up 10 values for each variable.
4. Drag a new graph to the work space.
5. Make a scatterplot with your two variables.
6. Drag a new summary box to your window.
7. Drag the 2 variables (attributes) to the column and row arrows in the summary box so your correlation (r) is shown (see figure below – your correlation value should be different!).

**MATCH THE CORRELATION**

1. Drag the data points on your graph to make a lower left to upper right pattern with a correlation of about 0.7. Note, you may select multiple data points by drawing a selection rectangle around the desired points (click and hold the mouse button while dragging the mouse).
2. Select the graph (click once on it) and Edit 🡺 copy as picture to paste it into a new Word file (Save the word file as Lab 3 in your AP Stats folder).
3. Change your scatterplot by moving 9 points in a vertical stack at the left side of the graph. Move one point far to the right side and move it until the correlation is close to 0.7
4. Select the graph and Edit 🡺 copy as picture to paste it into your Lab 3 Word file.
5. Change your scatterplot a third time by moving the 10 points in a curved pattern that starts at the lower left, rises to the right, then falls again at the far right. Adjust the points up or down until you have a smooth curve with correlation close to 0.7.
6. Select the graph and Edit 🡺 copy as picture to paste it into your Lab 3 Word file.
7. Change your scatterplot a 4th time by moving the 10 points in a small group in the lower left corner with a strong straight-line pattern (correlation about 0.9). Now add one point in the upper-right that is in line with the first 10 points. How does the correlation change?
8. Move the 11th point around the scatterplot and notice the change in correlation. Is it possible to make the correlation negative by just moving this one outlier? Is the correlation resistant or not resistant to outliers? Select the graph and Edit 🡺 copy as picture to paste it into your Lab 3.2 Word file

**QUESTION**

Correlation r = 0.7 is considered reasonably strong in many areas of scientific work. In which of your 4 scatterplots does it make sense to use a straight line for prediction? Print out your word file with all graphs on one page and circle the answer(s) to the previous question. Write your name and turn in your graphs.