Class Time:

Names:

Ch. 12: Regression Lab I

Student Learning Outcomes:

- The student will calculate and construct the line of best fit between two variables.
- The student will evaluate the relationship between two variables to determine if that relationship is significant.

Do the Experiment:

Use 8 members of your class for the sample. Collect bivariate data (distance an individual lives from school, the cost of supplies for the current term).

Distance from school	Cost of supplies this term

1. Which variable should be the dependent variable and which should be the independent variable? Why?

2. Graph “distance” vs. “cost.” **Plot the points on the graph in 6. below**. Label both axes with words. Scale both axes.

3. Enter your data into your calculator or computer.

4. Write the linear equation below, rounding to 4 decimal places.

   a = _____ b = _____ correlation = _____ n = _____

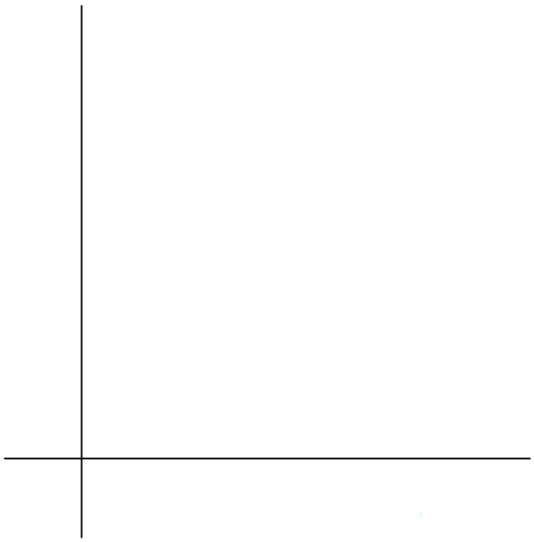
   equation: $\hat{y}$ = _____

   Is the correlation significant? Why or why not? (Answer in 1-3 complete sentences.)

5. For a person living 8 miles from campus , predict the total cost of supplies this term.

   For a person living 80 miles from campus , predict the total cost of supplies this term.

6. Obtain the graph on your calculator or computer. Sketch the regression line below.



7. Questions (Answer each question with 1 - 3 complete sentences.)

    a. Does the line seem to fit the data? _____Why?

    b. What does the correlation imply about the relationship between the distance and the cost?

8.

    a. Are there any outliers? _____ If so, which point is the outlier? _____

    b. Should the outlier, if it exists, be removed?_____ Why or why not?