Day 1: Correlation vs Causation and Scatter Plots   **Name:**_____

Practice Assignment

1. Decide whether each scenario has a positive, negative, or no correlation. Remember to think **generally**!

     a. Education vs. Income   _____

     b. Number of pets a person has vs. Number of books a person has read   _____

     c. Number of days absent from school vs. Math grade   _____

     d. Test scores vs. Shoe size   _____

     e. Distance traveled vs. Amount of gas in the car   _____

2. Determine if the following statements are correlation or causation.

     a. The number of cold, snowy days and the amount of hot chocolate sold at a ski resort.

     b. The number of miles driven and the amount of gas used.

     c. The number of additional calories consumed and the amount of weight gained.

     d. The age of a child and his/her shoe size.

   e. The amount of cars a sales person sells and how much commission he makes.

3. Which of the following statements shows a relationship that is correlated but not causal?
     A. The amount of rainfall received and level of water in the lake.
     B. The number of lights left on each day and the amount of the electric bill.
     C. The increase of warm sunny days and the number of ice cream vendors visible.
     D. The number of hours worked and how much money is made.

4. Which of the following statements shows a relationship that is correlated but not causal?
     A. The number of tardies to class and the number of detentions received.
     B. The season of the year and the number of water related injuries/deaths.
     C. As the temperature rises, more mercury in the thermometer will expand and rise.
     D. The larger the dimensions of a rectangular patio, the more square footage there will be.

5. Determine if the following scatterplots show a positive, negative, or no correlation.
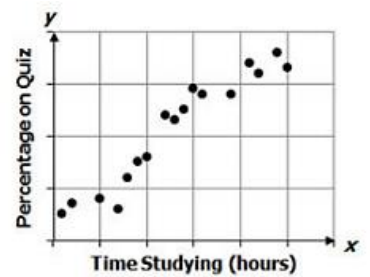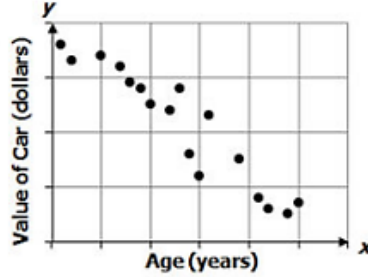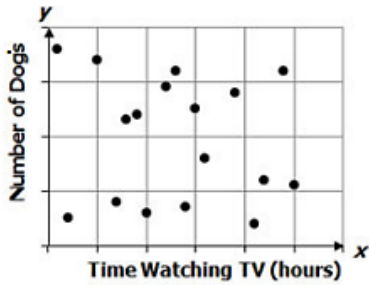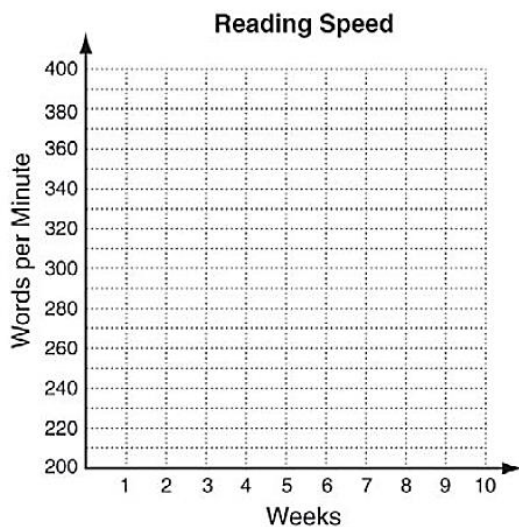

6. Fawn is trying to improve her reading skills by taking a speed reading class. She is measuring how many words per minute (wpm) she can read after each week of the class.

a. Create a scatterplot for the data below:

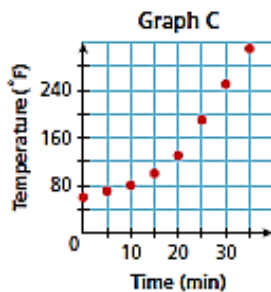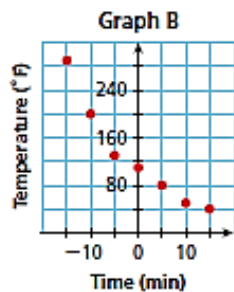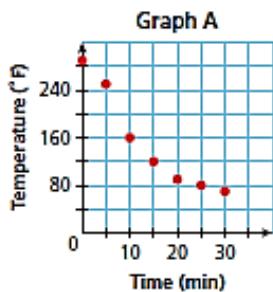| Weeks	1	2	3	4	5
wpm	220	230	260	260	280

b. Describe the correlation illustrated by the plot. Then calculate the correlation coefficient.

c. Draw a trend line and use it to predict the number of words per minute Fawn will read after 8 weeks of this class.

d. Fawn is paying for the classes out of pocket. Identify the type of correlation between number of classes and her bank account balance.

7. Choose the scatterplot that best represents the relationship between the number of minutes since a pie has been taken out of the oven and the temperature of the pie. Explain why each graph fits or does not fit the above scenario.

Graph A:

Graph B:

Graph C: