Applications

1. Use what you learned in this lesson to explain how the quote can be interpreted by a business person.

2. A scatterplot shows the number of days that have passed and the number of days left in a month. The explanatory variable is the number of days that have passed. The response variable is the number of days left. Is there a positive or negative correlation? Explain.

3. Examine each scatterplot. Identify each as showing a positive correlation, a negative correlation, or no correlation.

a.

b.

c.

d.

e.

f.
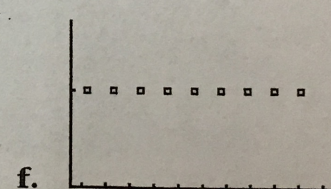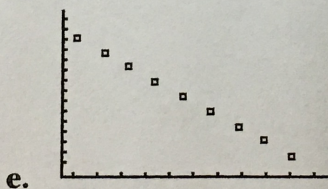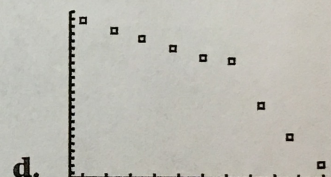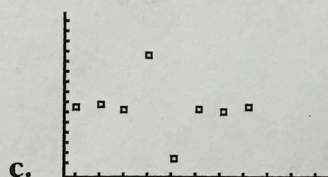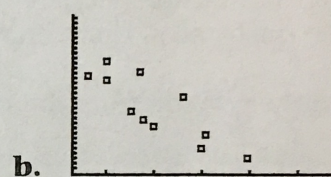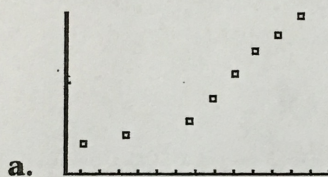
Year	Per Capita Income in Dollars
2002	30,838
2003	31,530
2004	33,157
2005	34,690
2006	36,794
2007	38,615
2008	39,751

4. In a–d, each set of bivariate data has a causal relationship. Determine the explanatory and response variables for each set of data.
   a. height and weight of a student
   b. grade on a math test and number of hours the student studied
   c. number of hours worked and paycheck amount
   d. number of gallons of gas consumed and weight of a car

5. The table shows the personal income per capita (per person) in the United States for seven selected years.
   a. Draw a scatterplot for the data.
   b. Describe the correlation.

6. The following set of ordered pairs gives the results of a science experiment. Twelve people were given different daily doses of vitamin C, in milligrams, for a year. This is the x-value. They reported the number of colds they got during the year. This is the y-value.

(100, 4), (100, 4), (100, 3), (250, 3), (250, 2), (250, 2),

(500, 1), (500, 2), (500, 1), (1,000, 1), (1,000, 2), (1,000, 1)

  a. Construct a scatterplot.
  b. Describe the correlation.
  c. Should the scientists label the vitamin C intake the explanatory variable and the number of colds the response variable? Explain.

7. The enrollment at North Shore High School is given in the table. In each year, the number of students on the baseball team was 19.

Year	Enrollment
2006	801
2007	834
2008	844
2009	897
2010	922

  a. If x represents the year and y represents the enrollment, draw a scatterplot to depict the data.
  b. Describe the correlation from the scatterplot.
  c. If x represents the enrollment and y represents the number of students on the baseball team, draw a scatterplot to depict the data.
  d. Describe the correlation from the scatterplot.

8. The MyTunes Song Service sells music downloads. Over the past few years, the service has lowered its prices. The table shows the price per song and the number of songs downloaded per day at that price.

Price per Song	Number of Downloads (in thousands)
$0.89	1,212
$0.79	1,704
$0.69	1,760
$0.59	1,877
$0.49	1,944
$0.39	2,011

  a. Examine the data without drawing a scatterplot. Describe any trends you see.
  b. Draw a scatterplot. Describe the correlation.
  c. Approximate the number of downloads at a price of $0.54 per song. Explain your reasoning.

9. Perform an online search to answer the questions below.
  a. Find your state's population for each of the last ten years.
  b. Create a table of bivariate data. Let x represent the year, and let y represent the population.
  c. Create a scatterplot for the data.
  d. Describe the correlation between the year and your state's population.