

Name _____

Date _____

8A: Algebra 1

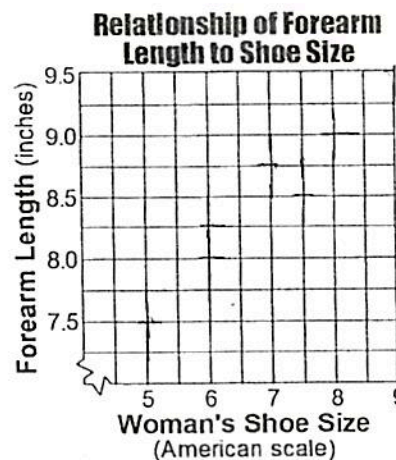
Homework

Period _____

- 1) Melissa works in a shoe store after school. For homework, her class was asked to make observations and collect data to be graphed. Melissa had once heard that the length of a person's forearm (y) is relative to their shoe size (x). She asked seven women in the store if she could take their measurements. Her collected data is given in the accompanying table.

x	5	6	6	7	7.5	8	9
y	7.5	8.0	8.25	8.75	8.5	9.0	9.5

Draw a scatter diagram of the information above.



- 2) Which of the following data sets is univariate?
- A) The number of years of college attended and an individual's annual income.
 - B) The shoe size for each girl on a youth soccer team.
 - C) The number of hours spent exercising and the amount of weight lost.
 - D) The number of hours studying and scores on the SAT.
- 3) Which of the following data sets is bivariate?
- A) The numbers of hours a student spends studying for a test and the grade received on the test.
 - B) The heights, in inches, of freshmen at *Central College*.
 - C) The number of minutes it takes to run a mile.
 - D) The number of hours a student spends doing their homework.

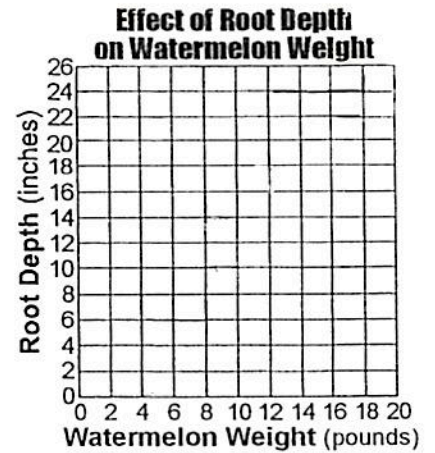
Questions 4 and 5 refer to the following:

State whether the given data set is univariate or bivariate.

- 4) The times, in seconds, of 20 students running the 100-meter dash.
- 5) The number of pushups done by 40 women after x weeks of strength training.

- 6) For a botany class project, Robert wonders if there is a connection between the size of a watermelon and the depth of its roots. Eight watermelon vines are chosen at random and, at the end of 7 weeks, the watermelons and their roots are measured.

Root Depth (inches)	Watermelon Weight (pounds)
25	19
13	9
17	12
10	9
24	15
22	19
6	7
23	18



Draw a scatter plot of this data.

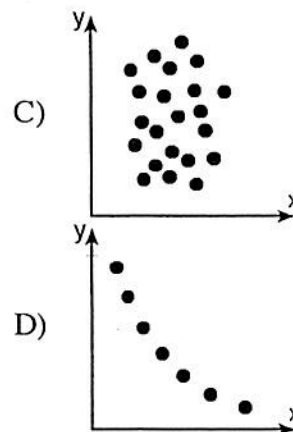
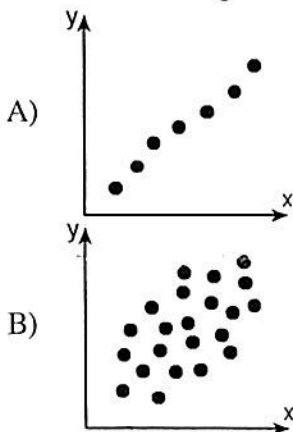
- 7) In one of Boston's city parks, there is a problem with loose dogs. A dogcatcher takes a random sample of 8 days and compiles the following data. For each day, x represents the number of visits by the dogcatcher to the park and y represents the number of reported loose dogs on that day.

x	10	15	16	1	4	6	18	12
y	5	2	1	9	7	8	1	5

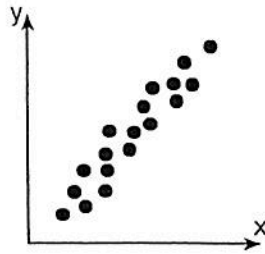


Construct a scatter diagram for this data.

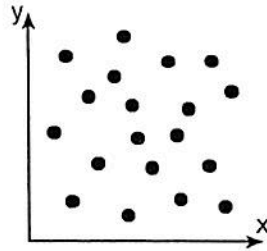
- 8) Which scatter diagram shows the *strongest* positive correlation?



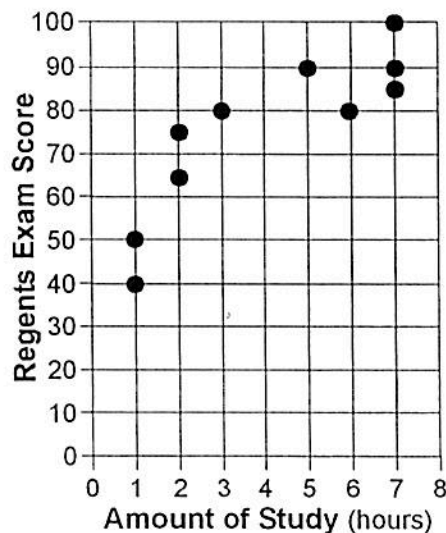
- 9) Which statement is correct about the graph below?



- A) It shows a strong negative correlation.
 B) It shows a low negative correlation.
 C) It shows a strong positive correlation.
 D) It shows no correlation at all.
- 10) Which statement is correct about the graph below?



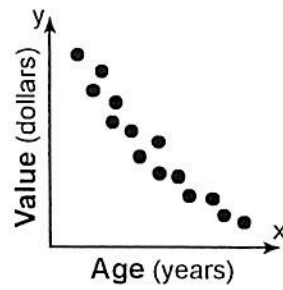
- A) It shows a strong negative correlation between x and y .
 B) It shows a strong positive correlation between x and y .
 C) It shows a low positive correlation.
 D) It shows no correlation between x and y .
- 11) The scatter plot below shows the relationship between the number of hours studying for an exam and the Regents grade received on that exam.



What number could approximate the correlation between the independent and dependent variables?

- A) -0.83
 B) 0
 C) 0.89
 D) -1

- 12) The points in the scatter plot below represent the ages of automobiles and their values.

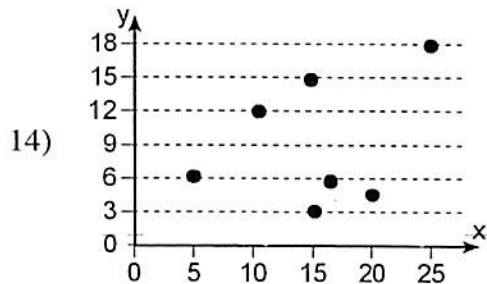
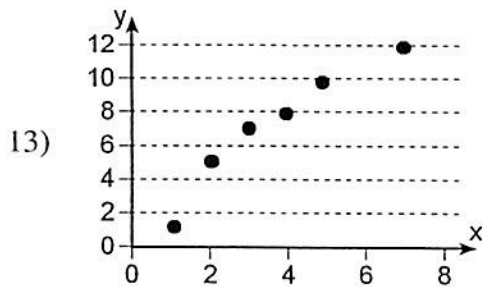


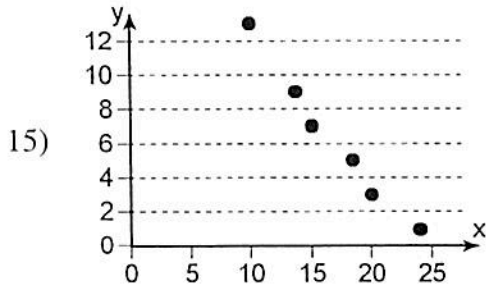
Which of the following conclusions can be made based on this diagram?

- A) Age and value have a correlation that is greater than 0.5.
- B) Age and value have a correlation that is between zero and 0.5.
- C) Age and value have a correlation that is less than 0.
- D) Age and value have no correlation.

Questions 13 through 15 refer to the following:

State whether the correlation in given graph is positive, negative, or does not exist.



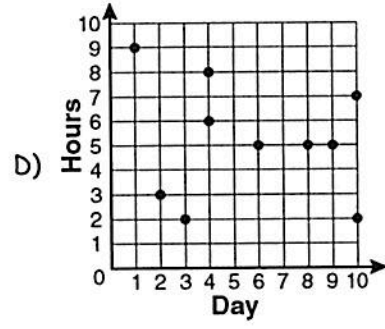
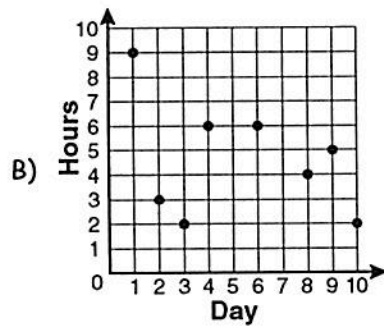
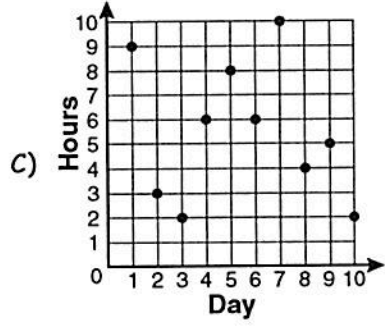
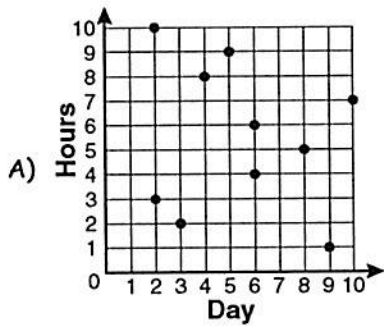


- 16) Which of the following statements shows a relationship that is correlated but *not* causal?
- The number of hours worked and how much money is made.
 - The increase of warm, sunny days and the number of ice cream vendors visible.
 - The amount of rainfall received and level of water in the lake.
 - The number of lights left on each day and the amount of the electric bill.
- 17) Which of the following statements shows a causal relationship and *not* just a correlated one?
- As a child's weight increases so does her vocabulary.
 - An individual's decision to work in construction and his diagnosis of skin cancer.
 - A decrease in temperature and the increase in attendance at an ice skating rink.
 - The number of minutes spent exercising and the amount of calories burned.
- 18) Researchers have found that cities with more low-income housing have more homeless people.
- Do you think these two variables are correlated?
 - Do you think that having more low-income housing causes there to be more homeless people? [*Explain your answer.*]
- 19) Identify the relationship between the two quantities in the given question as causation or correlation.
- The number of cold, snowy days and the amount of hot chocolate sold at a ski resort.

20) For 10 days, Romero kept a record of the number of hours he spent listening to music. The information is shown in the table below.

Day	1	2	3	4	5	6	7	8	9	10
Hours	9	3	2	6	8	6	10	4	5	2

Which scatter plot shows Romero's data graphically?



21) There is a negative correlation between the number of hours a student watches television and his or her social studies test score. Which scatter plot below displays this correlation?

