2.5 Review

Name_____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Provide an appropriate response.

1) Suppose you were to collect data for the pair of given variables in order to make a scatterplot. For the variables time spent on homework and exam grade, which is more naturally the response variable and which is the explanatory variable? 1) _____

A) Time spent on homework: explanatory variable
Exam grade: response variable

B) Time spent on homework: response variable
Exam grade: explanatory variable

2) Would you expect the following pair of variables measured for 200 individuals aged 18-32 to have a positive association, negative association, or no association: amount of time spent exercising per week; height? 2) _____

A) positive association B) negative association C) no association

3) Would you expect the following pair of variables measured for 200 individuals aged 18-32 to have a positive association, negative association, or no association: age of vehicle(how many years old); mileage for vehicle? 3) _____

A) negative association B) positive association C) no association

Select the most appropriate answer.

4) If a positive association exists between two quantitative variables, 4) _____

A) the movement of x does not affect the movement of y.
B) y tends to decrease as x decreases.
C) none of these.
D) y tends to decrease as x increases.
E) y tends to increase as x decreases.

5) The strength of the linear relationship between two quantitative variables may be measured by the 5) _____

A) y-intercept.
B) correlation.
C) residual.
D) slope.
E) scatterplot.

Provide an appropriate response.

6) For the 14 teams in baseball's American league , the correlation with number of wins in the 2007 regular season is 0.51 for shutouts, 0.61 for hits made, -.70 for runs allowed and -0.56 for homeruns allowed. (mlb.mlb.com/stats/) Which variable has the strongest linear association with number of wins? 6) _____

A) runs allowed B) hits made
C) homeruns allowed D) shutouts

Answer true or false.

7) The closer r is to 0, the weaker is the linear association between the variables. 7) _____

A) True B) False

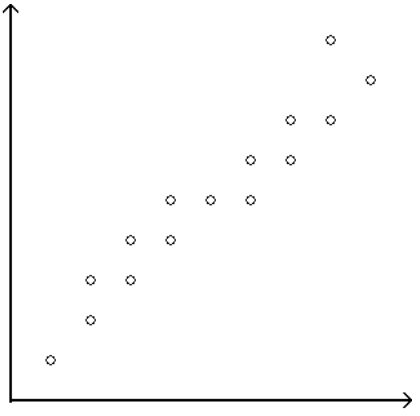
Provide an appropriate response.

8) For the 14 teams in baseball's American league , the correlation with number of wins in the 2007 regular season is 0.51 for shutouts, 0.61 for hits made, -.70 for runs allowed and -0.56 for homeruns allowed. Which variable has the weakest linear association with number of wins? 8) _____

A) homeruns allowed
B) runs allowed
C) shutouts
D) hits made

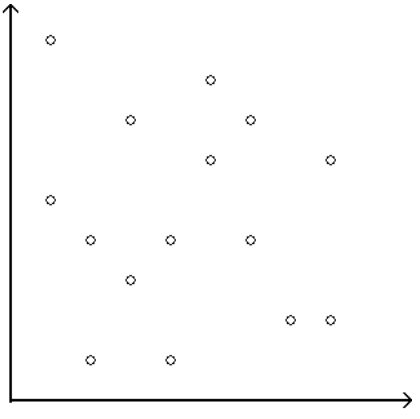
Determine the type of association apparent in the following scatterplot.

9) 9) _____



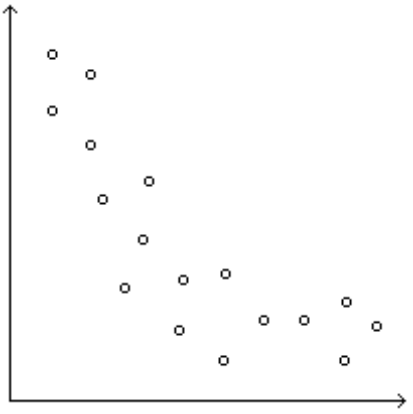
A) Linear association, very strong association
B) Linear association, moderately strong association
C) Positive association, moderately strong association
D) Positive association, linear association, very strong association
E) Positive association, linear association

10) 10) _____



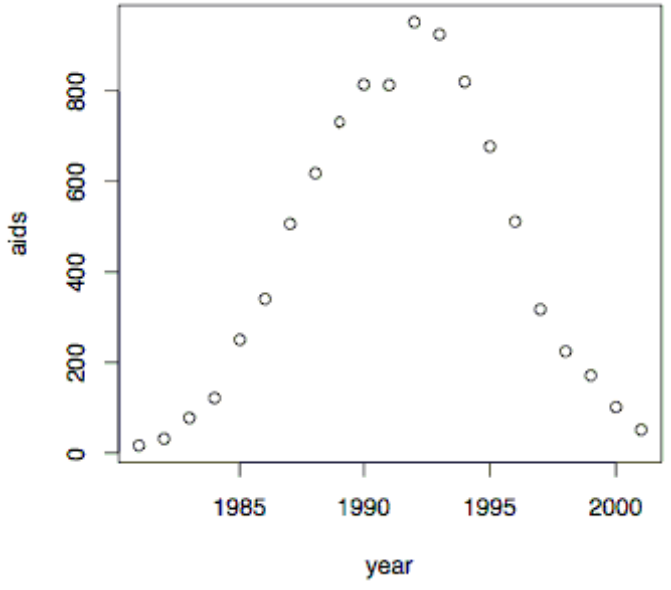
A) Little or no association
B) Positive association, moderately strong association
C) Negative association, linear association
D) Negative association, moderately strong association
E) Positive association, linear association

11) 11) _____



A) Linear association, moderately strong association
B) Linear association
C) Moderately strong association, negative association, linear association
D) Little or no association
E) Negative association, linear association

The number of AIDS cases diagnosed for children under the age of 13 is displayed in the scatterplot below for the years 1981-2001. (hivinsite.ucsf.edu)



12) Considering all of the data, which of the following best describes the linear association between number of AIDS cases diagnosed and year? 12) _____

A) weak, positive
B) no linear association
C) weak, negative
D) strong, positive
E) strong, negative

Solve the problem.

13) A researcher determines that the linear correlation coefficient is 0.85 for a paired data set. This indicates that there is 13) _____
A) A strong positive linear correlation
B) Insufficient evidence to make any decision about the correlation of the data
C) No linear correlation but that there may be some other relationship
D) A strong negative linear correlation

14) A history instructor has given the same pretest and the same final examination each semester. He is interested in determining if there is a relationship between the scores of the two tests. He computes the linear correlation coefficient and notes that it is 1.15. What does this correlation coefficient value tell the instructor? 14) _____
A) There is a strong positive correlation between the tests.
B) The instructor has made a computational error.
C) The correlation is something other than linear.
D) There is a strong negative correlation between the tests.

15) A traffic officer is compiling information about the relationship between the hour or the day and the speed over the limit at which the motorist is ticketed. He computes a correlation coefficient of 0.12. What does this tell the officer? 15) _____
A) There is a moderate negative linear correlation.
B) There does not exist a linear correlation.
C) There is a moderate positive linear correlation.
D) There is insufficient evidence to make any conclusions about the relationship between the variables.

Select the most appropriate answer.

16) The correlation between two variables x and y 16) _____
A) depends on the units of measurement of y and x.
B) depends on the units of measurement of y.
C) depends on the units of measurement of x.
D) does not depend on the units of measurement of y or x.
E) None of these.

17) If the correlation is approximately zero, then one can conclude 17) _____
A) None of these.
B) that there is a linear relationship between x and y.
C) that there is no relationship between x and y.
D) that there is a relationship between x and y.
E) that there is no linear relationship between x and y.

18) Which of the following is <u>not</u> a property of r? 18) _____
A) r does not depend on which variable is treated as the response variable.
B) The closer r is to zero, the weaker the linear relationship between x and y.
C) r measures the strength of any kind of relationship between x and y.
D) r does not depend on the units of y or x.
E) r is always between -1 and 1.