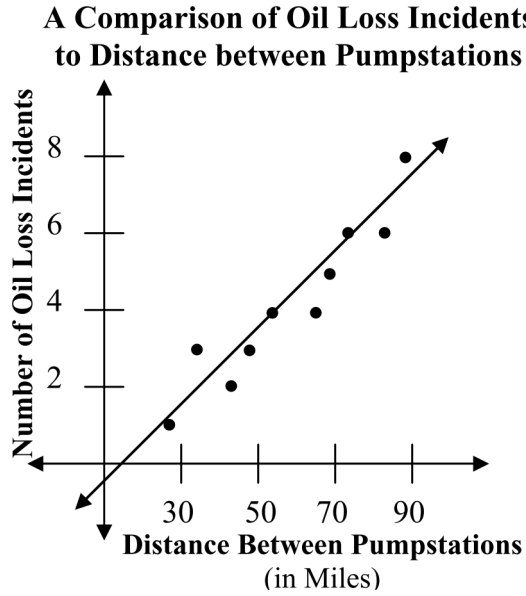Name: _____

1. The trendline below shows _____ association between the distance from pumpstations and the number of oil loss incidents recorded for that section of pipeline.

A Comparison of Oil Loss Incidents to Distance between Pumpstations

A. positive

B. negative

C. no

2. What is the relationship between average test scores and days absent from school shown in the plot below?

Test Scores versus Days Absent
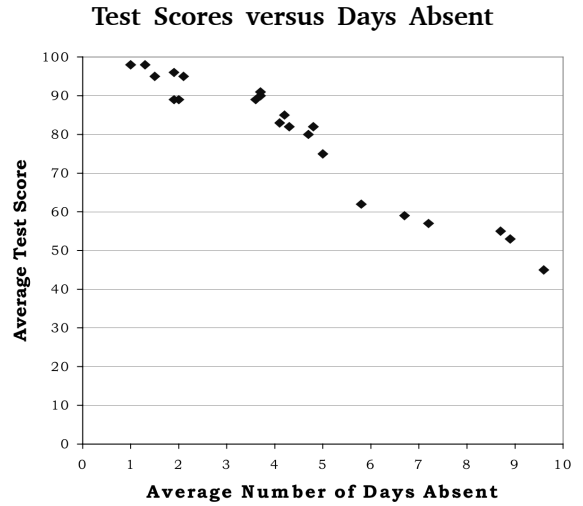
A. Test scores are equal to the number of days absent from school.

B. There is a positive correlation between test scores and days absent.

C. There is a negative correlation between test scores and days absent.

D. There is no relationship between test scores and days absent.

3.

Ticket Prices to Funland
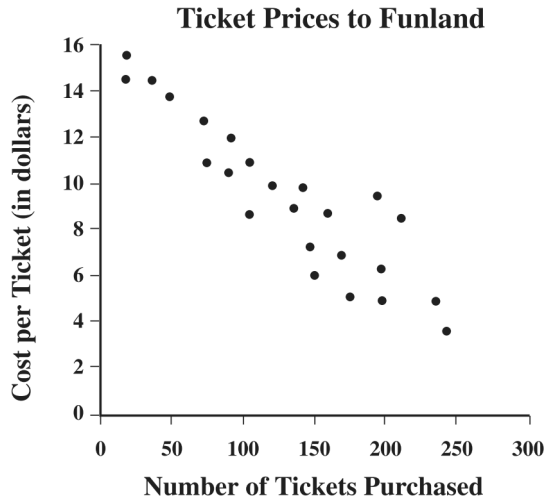
The cost of a ticket to Funland varies according to the season. Which of the following conclusions about the number of tickets purchased and the cost per ticket is *best* supported by the scatterplot above?

A. The cost per ticket increases as the number of tickets purchased increases.

B. The cost per ticket is unchanged as the number of tickets purchased increases.

C. The cost per ticket decreases as the number of tickets purchased increases.

D. There is no relationship between the cost per ticket and the number of tickets purchased.

4. The scatterplot below shows the ages of some children and the distance each child lives from school.

Distance from School
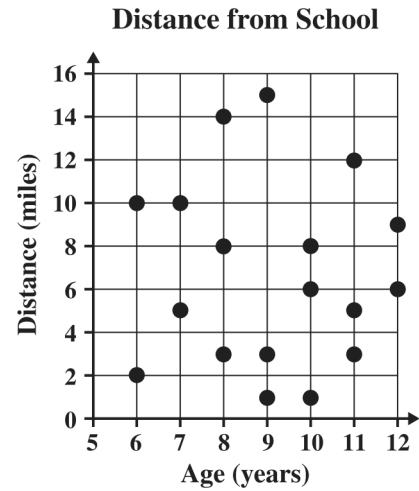
Which statement *best* describes the relationship between age and distance from school?

A. As age increases, the distance from school increases.

B. As age increases, the distance from school decreases.

C. As age increases, the distance from school remains constant.

D. There is no relationship between age and distance from school.

9.2 ~ Correlation

5.
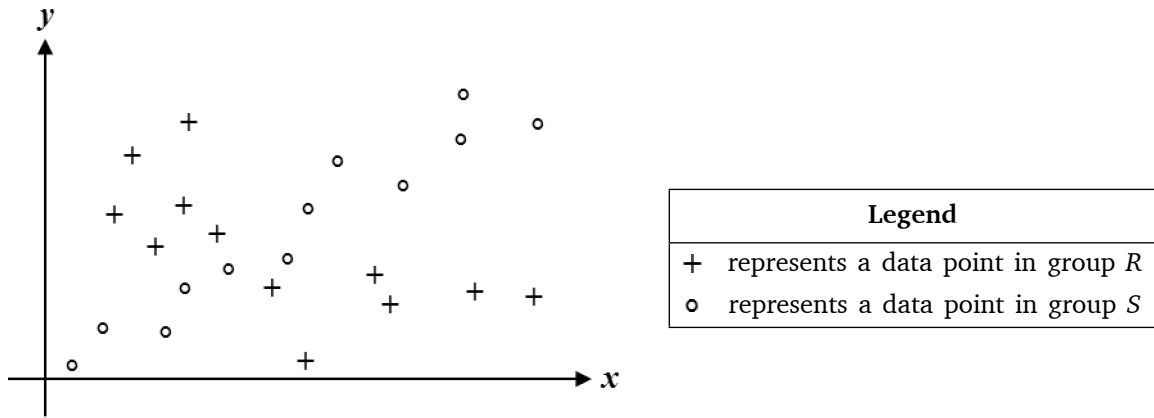
The scatterplot above shows data for groups R and S. Which of the following statements is true about the correlation between the x and y values of group R and the correlation between the x and y values of group S?

A. The x and y values appear to be negatively correlated in both R and S.

B. The x and y values appear to be positively correlated in both R and.

C. The x and y values appear to be negatively correlated in R but positively correlated in S.

D. The x and y values appear to be positively correlated in R but negatively correlated in S.

9.2 ~ Correlation

6. Which graph *best* shows a positive correlation between the number of hours studied and the test scores?

A.

Number of Hours Studied

B.

Number of Hours Studied

C.

Number of Hours Studied

D.

Number of Hours Studied
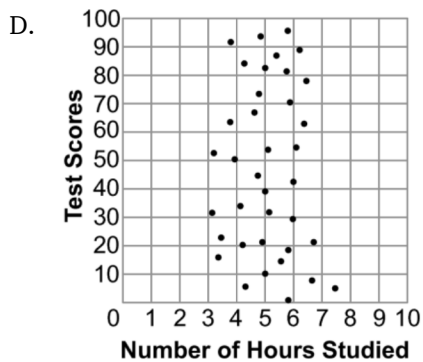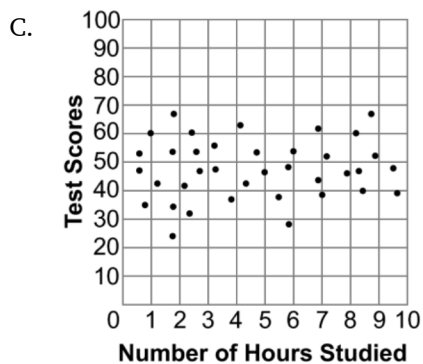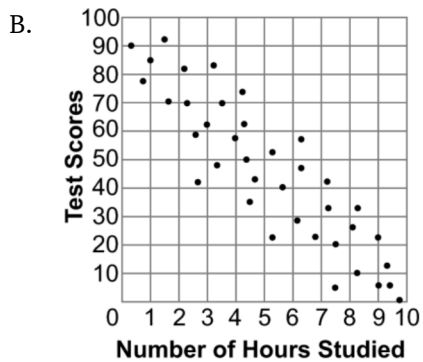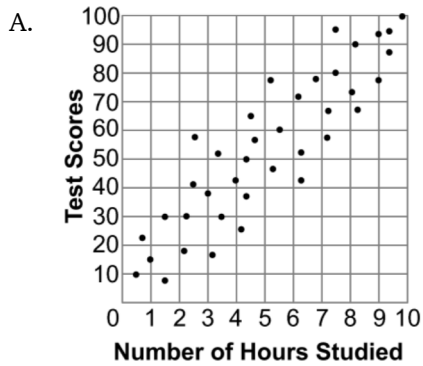
7. A baseball coach places baseballs in a cart. He uses the baseballs to pitch to the players during practice. The number of baseballs remaining in the cart after different practice lengths, in minutes, are displayed in the scatter plot below.

Baseballs Remaining in Cart

Practice Length (minutes)
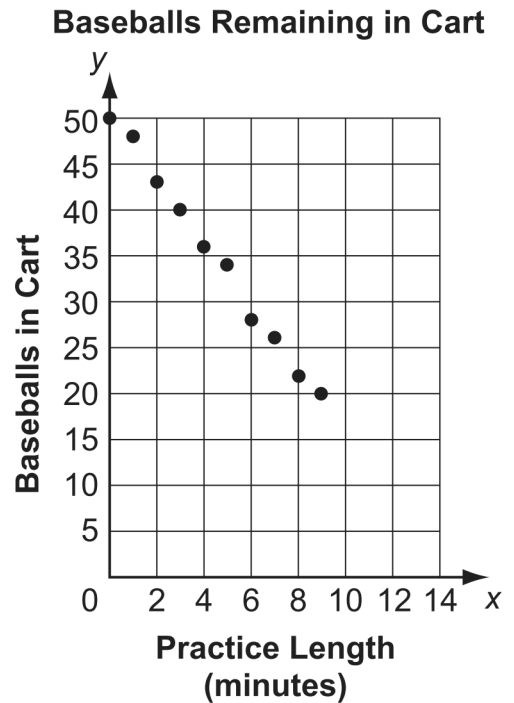
Which statement about the scatter plot is true?

A. The scatter plot shows a positive association because all of the points have positive coordinates.

B. The scatter plot shows a positive association because the points on the graph go towards 50 baseballs.

C. The scatter plot shows a negative association because the practice length is always less than the number of baseballs in the cart.

D. The scatter plot shows a negative association because as the practice length increases, the number of baseballs in the cart decreases.

9.2 ~ Correlation

8. The scatter plot below shows the relationship between the age of a person, ages 0 to 18, and the daily recommended amount of calcium, in milligrams (mg), the person should consume.

Recommended Amount of Calcium
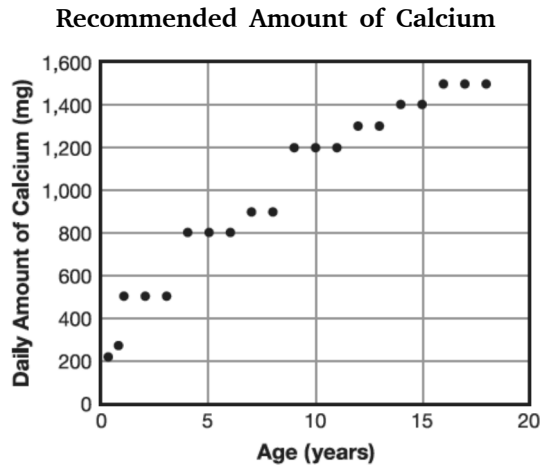
Which *best* describes the association between age and daily recommended amount of calcium consumption?

A. no association

B. negative association

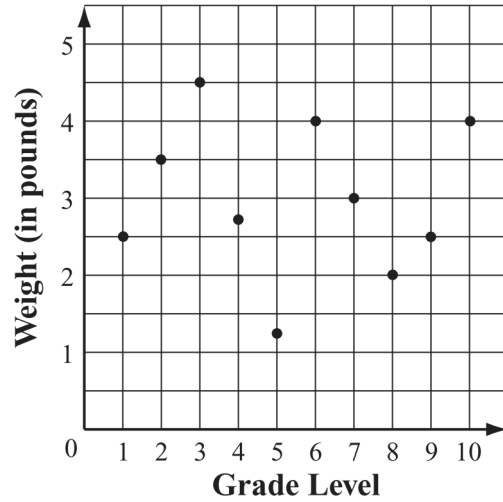C. exponential association

D. positive association

9. In David's school district, there is a positive correlation between the grade level and the weight of the mathematics textbook used by each grade.

Which of the following scatterplots best represents this correlation?
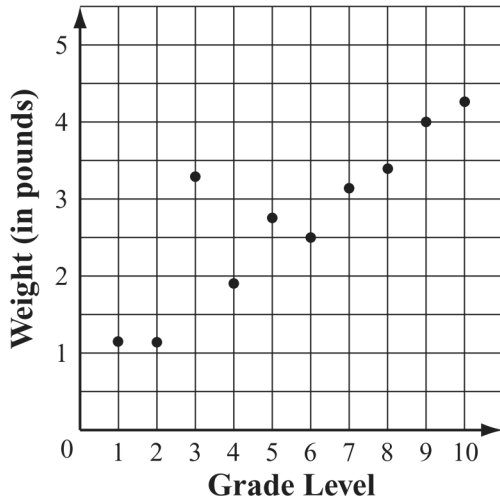
A.

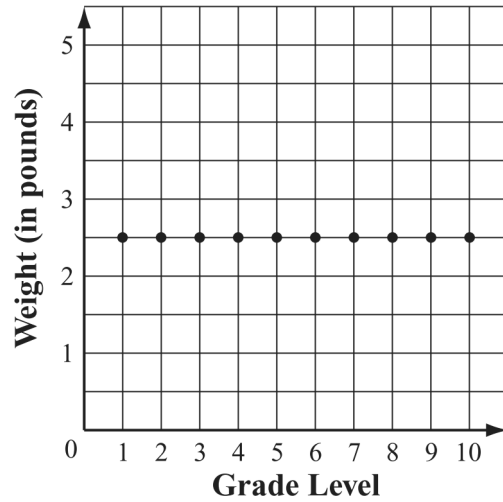**Mathematics Textbooks**
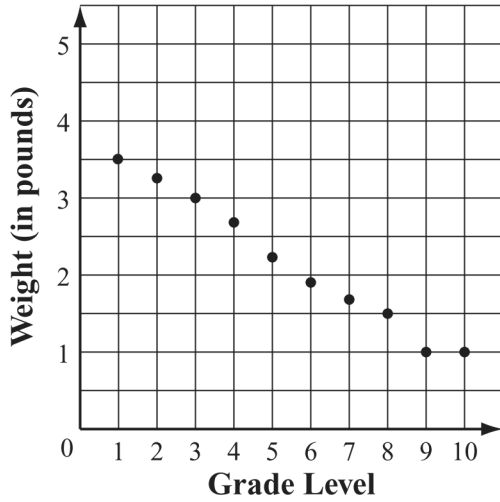
B.

Mathematics Textbooks

C.
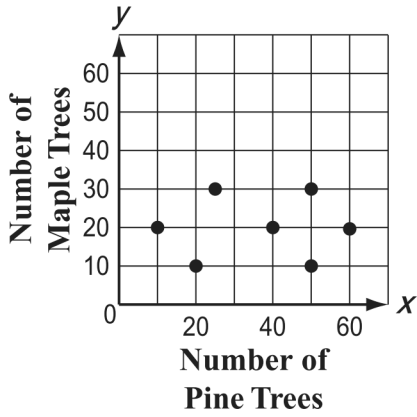
Mathematics Textbooks

D.

Mathematics Textbooks

10. Allie counted the number of pine trees and the number of maple trees in each of seven study areas. She made a scatterplot of her data, where each point represents one study area.

Allie found that, in general, the larger the number of pine trees in a study area, the smaller the number of maple trees. Which of the following is *most likely* Allie's scatterplot?
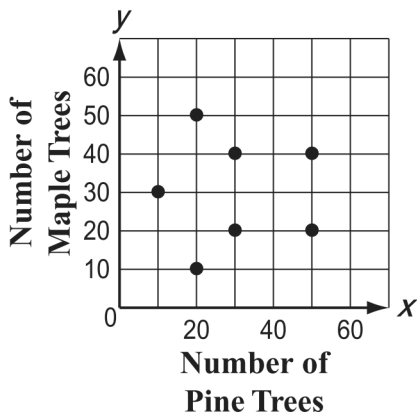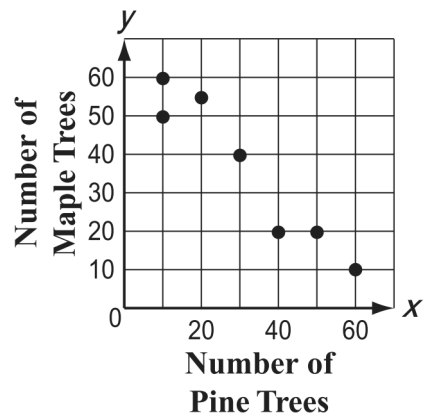
A.

Numbers of Pine and Maple Trees

Number of Maple Trees

Number of Pine Trees

B.

Numbers of Pine and Maple Trees

Number of Maple Trees

Number of Pine Trees

C.

Numbers of Pine and Maple Trees
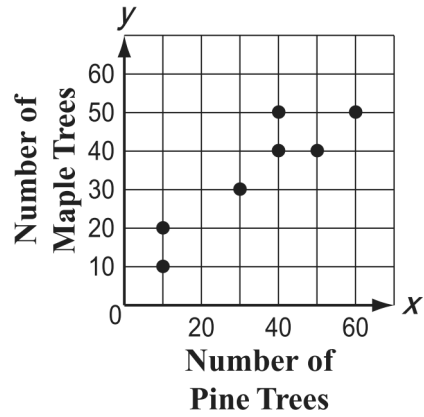
Number of Maple Trees

Number of Pine Trees

D.

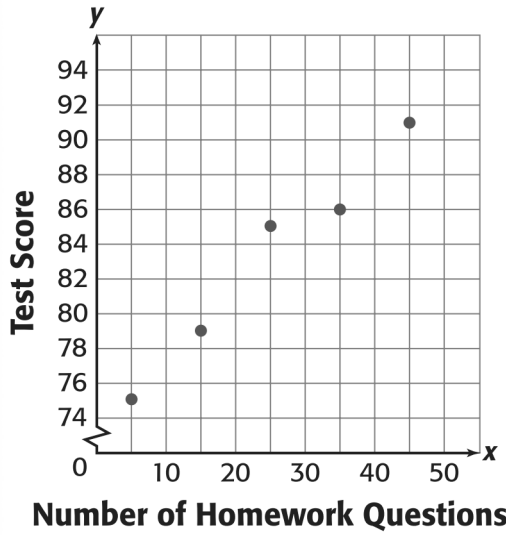**Numbers of Pine and Maple Trees**

Number of Maple Trees

Number of Pine Trees

9.2 ~ Correlation

11. Which scatter plot shows a positive relationship between the number of homework questions a student completes and the student's test scores?
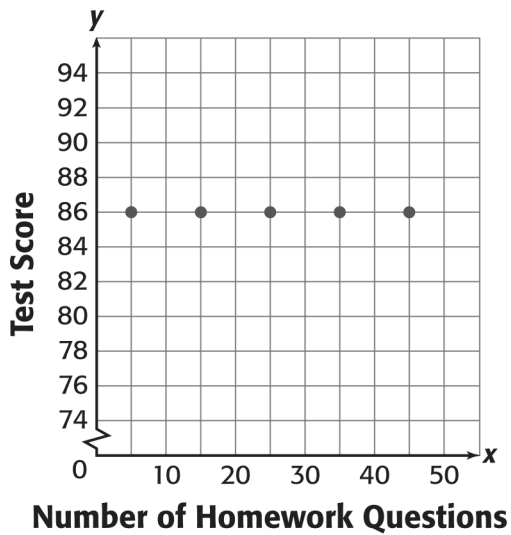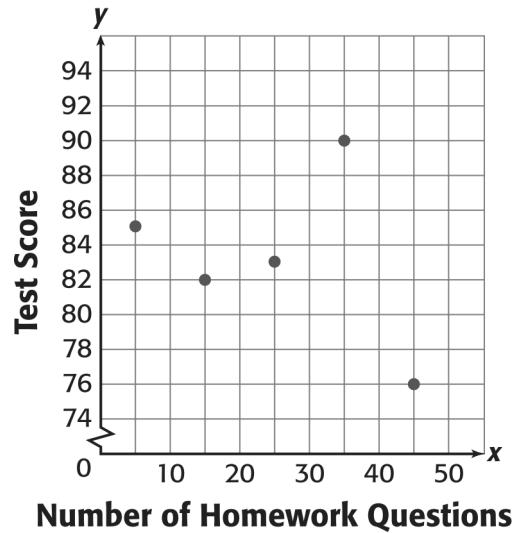
A.

HOMEWORK AND TEST SCORES

Number of Homework Questions

B.

HOMEWORK AND TEST SCORES

Number of Homework Questions

C.

HOMEWORK AND TEST SCORES

Number of Homework Questions

D.

HOMEWORK AND TEST SCORES

Number of Homework Questions

9.2 ~ Correlation
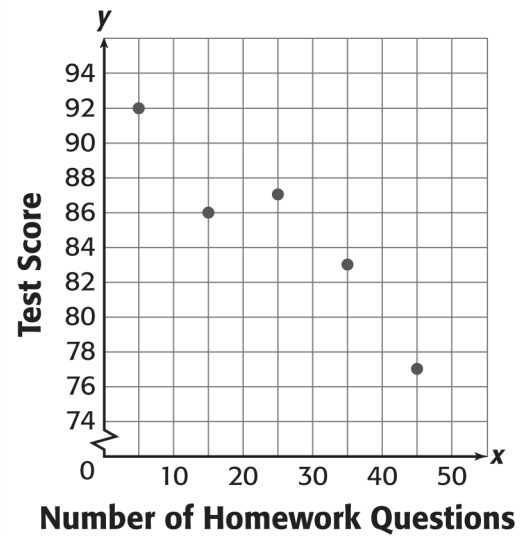
12. Mr. Thomas wanted to know if the amount of class time that he gave students to study affected their test scores. The scatter plot below shows the results.

STUDY TIME VS. AVERAGE TEST SCORES
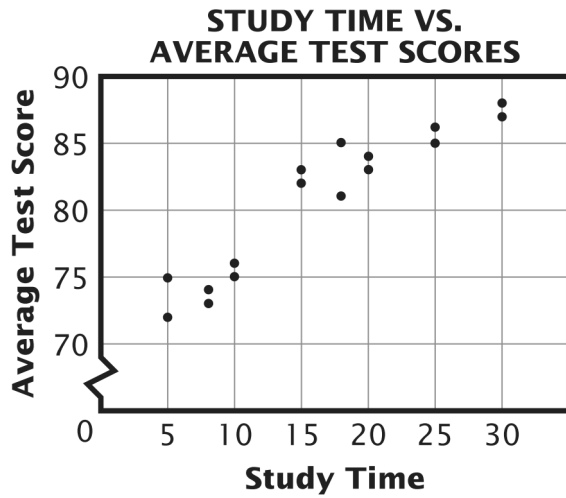
What kind of relationship between class study time and test scores is shown on the scatter plot?

A. no correlation

B. positive correlation

C. negative correlation

D. positive then negative correlation

13. The following scatter plot shows the weights and lengths of some dinosaurs.

Dinosaur Sizes
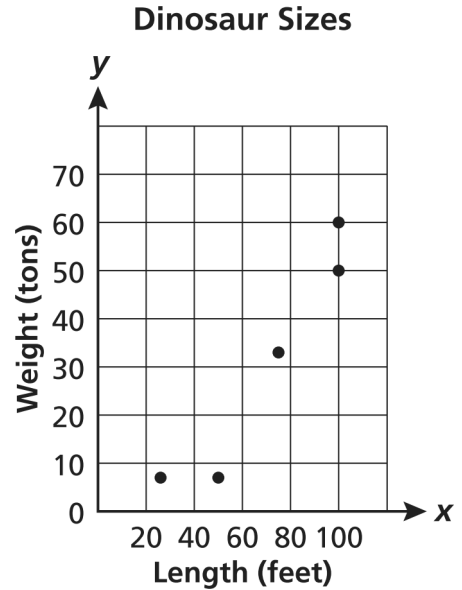
Which statement accurately describes the information in the scatter plot?

A. The information shows a positive correlation. The weight of a dinosaur tends to increase according to its length.

B. The information shows a negative correlation. The weight of a dinosaur tends to decrease according to its length.

C. The information shows no correlation. The weight and length vary according to the type of dinosaur.

D. The information shows no correlation. The relationship between the weight and length of a dinosaur is uncertain.

14. The scatter plot below shows data from an experiment that tested the amount of lactic acid present in aging cheese.

Lactic Acid in Cheese

Age of Cheese (days)
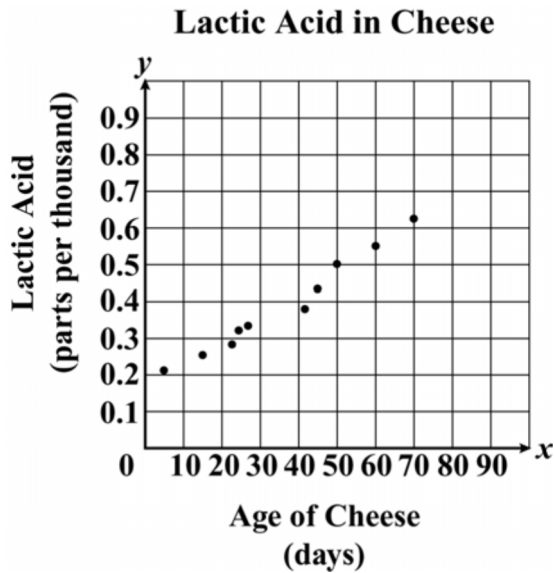
Which best describes the relationship between the age of the cheese and the amount of lactic acid present in the cheese, as shown in the scatter plot?

A. There is no correlation.

B. There is a positive correlation.

C. There is a negative correlation.

D. There is a non-linear correlation.

15. The scatterplot below shows the number of people at the swimming pool every half hour from 1:00 pm until 5:30 pm.

Swimmers at the Pool

Hour
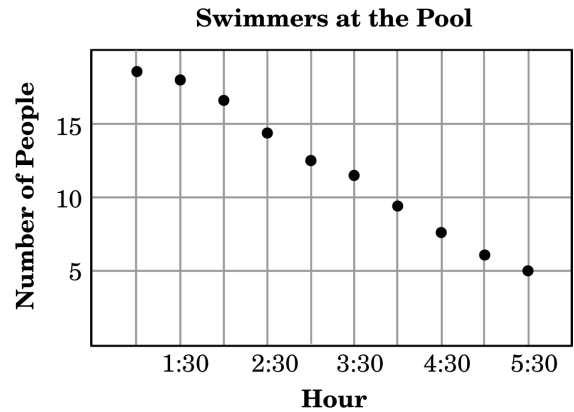
From this scatterplot, what conclusion can be made about the number of people at the pool from 1:00 pm to 5:30 pm?

A. The number of people at the pool steadily decreases and shows a negative correlation with time.

B. The number of people at the pool steadily decreases and shows a positive correlation with time.

C. The number of people at the pool steadily increases and shows a negative correlation with time.

D. The number of people at the pool steadily increases and shows a positive correlation with time.

9.2 ~ Correlation

16. The scatterplot below shows the number of arithmetic errors 10 students made on a quiz and the amount of time the students took to complete the quiz.
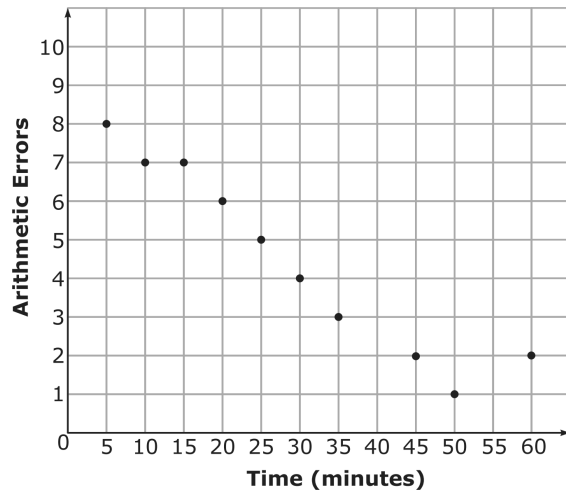
Which describes the relationship between the number of arithmetic errors the students made and the amount of time the students took to complete the quiz?

A. There is a strong positive relationship between the variables.

B. There is a strong negative relationship between the variables.

C. There is a weak positive relationship between the variables.

D. There is a weak negative relationship between the variables.

17. The scatterplot below shows Scott's yearly income at different ages of his life.
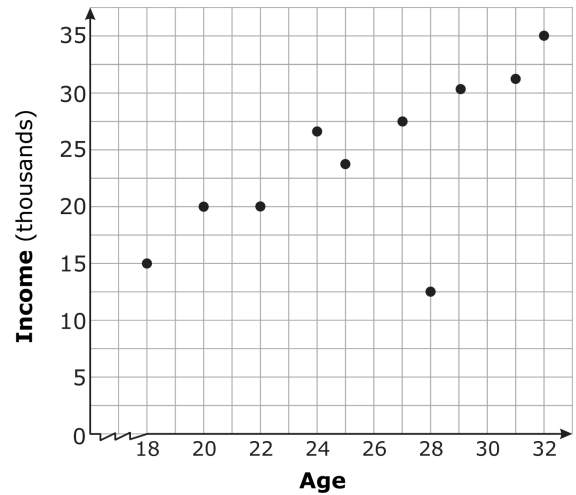

Which *best* describes the relationship between Scott's income and age?

A. positive, linear association

B. negative, linear association

C. no association

9.2 ~ Correlation

18. While studying medical treatments, scientists noticed a relationship between two of the treatments when applied together. As Treatment X became more effective, Treatment Y became less effective.

Which scatter plot best demonstrates this relationship?

A.

B.

C.

D.
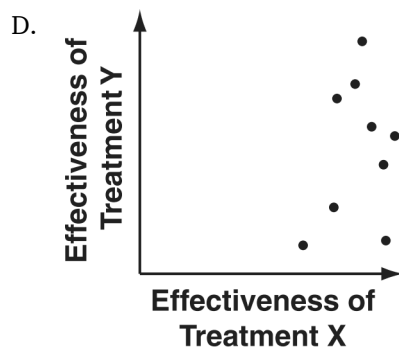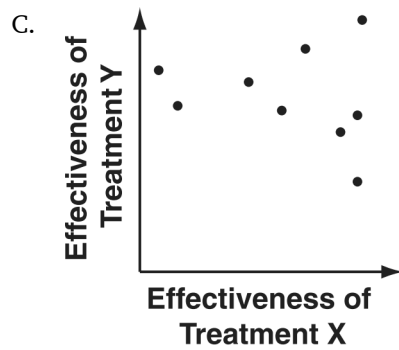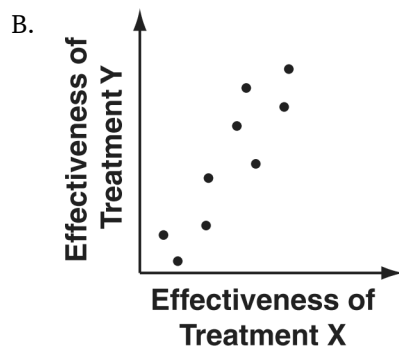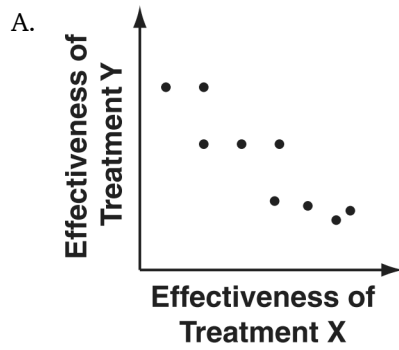
9.2 ~ Correlation

19. Use the scatterplot below to answer the following question.

Weight and Height of 25 People
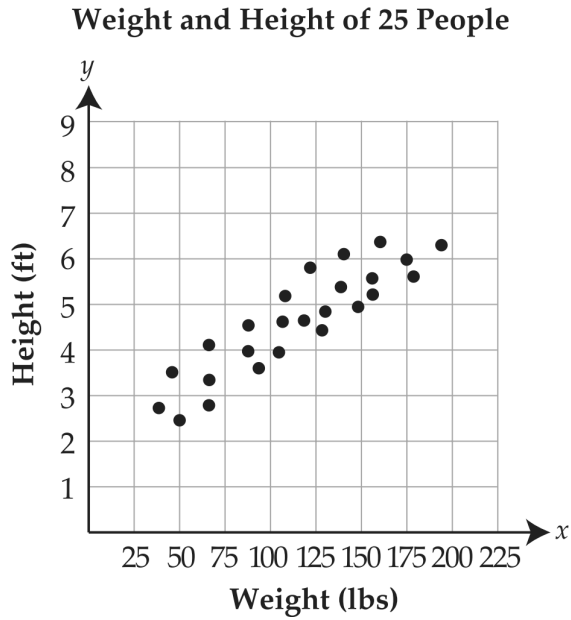
Which type of correlation is represented by the scatterplot?

A. strong positive

B. strong negative

C. weak positive

D. weak negative

20. The scatter plot below shows the average price of car insurance for drivers of different ages.

Car Insurance Prices
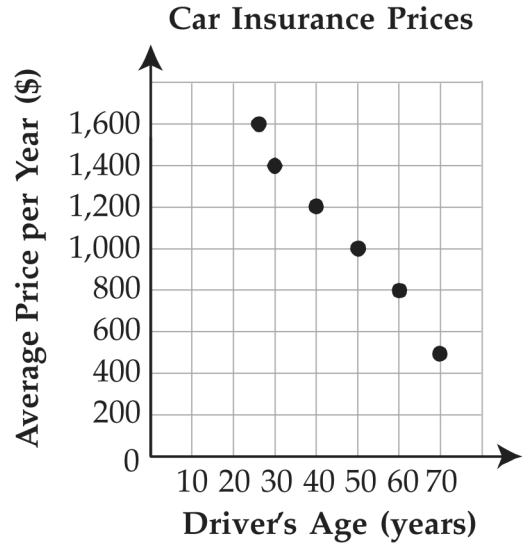
Which type of correlation *best* describes the relationship between a driver's age and the average price of that driver's car insurance?

A. weak negative

B. strong negative

C. weak positive

D. strong positive

21. Which graph represents data used in a linear regression that produces a correlation coefficient closest to −1?

A.

B.

C.

D.
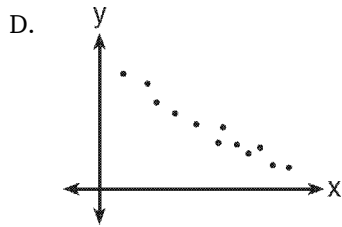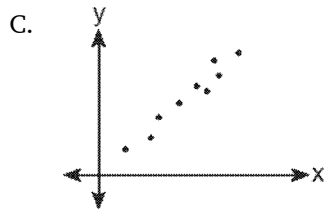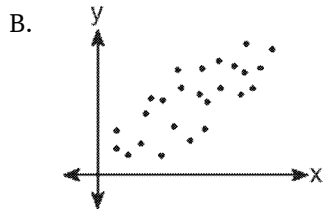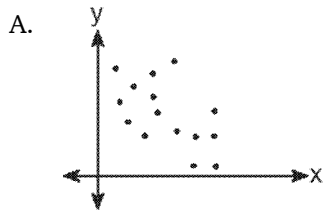
22. What could be the approximate value of the correlation coefficient for the accompanying scatter plot?
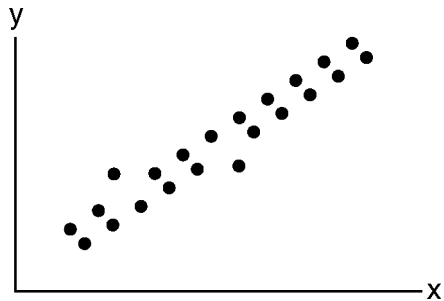
A. −0.85

B. −0.16

C. 0.21

D. 0.90

23. Which value of r represents data with a strong positive linear correlation between two variables?

A. 0.89

B. 0.34

C. 1.04

D. 0.01

24. Analysis of data from a statistical study shows a linear relationship in the data with a correlation coefficient of −0.524. Which statement best summarizes this result?

A. There is a strong positive correlation between the variables.

B. There is a strong negative correlation between the variables.

C. There is a moderate positive correlation between the variables.

D. There is a moderate negative correlation between the variables.

25. The results of a linear regression are shown below.

$$y = ax + b$$
$$a = -1.15785$$
$$b = 139.3171772$$
$$r = -0.896557832$$
$$r^2 = 0.8038159461$$

Which phrase best describes the relationship between x and y?

A. strong negative correlation

B. strong positive correlation

C. weak negative correlation

D. weak positive correlation

9.2 ~ Correlation