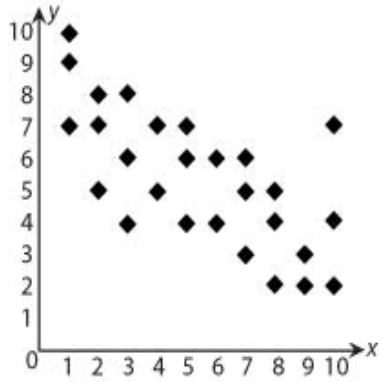
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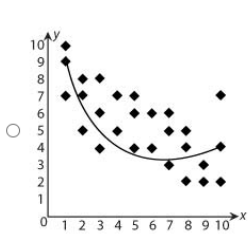
Algebra: Unit 6 Study Guide

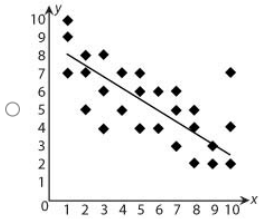
1.

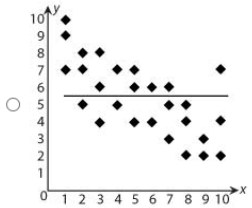
Look at this scatter plot.

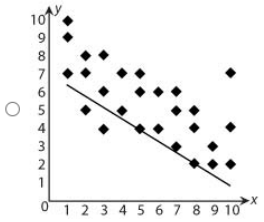


Which of the following lines best fits the data?



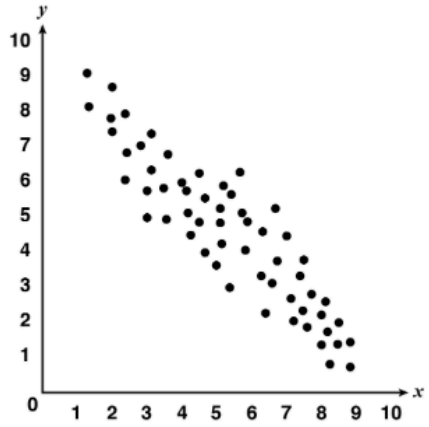






2.

Consider the scatterplot shown.

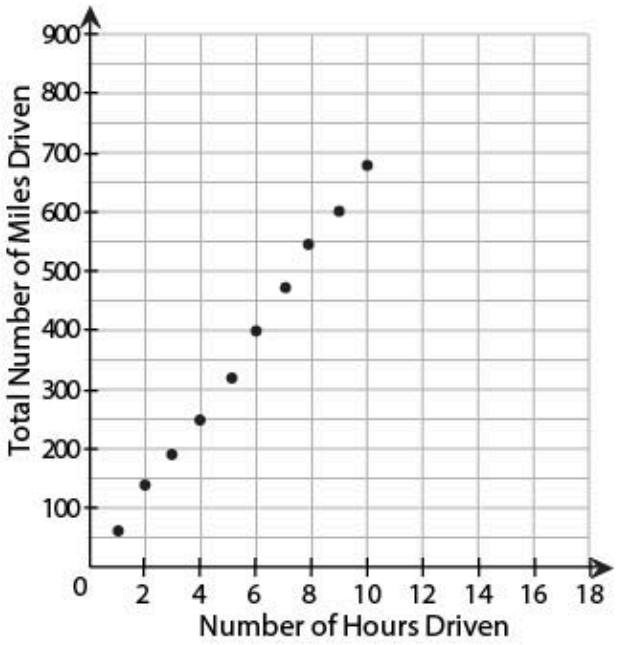


Which of the following is true about the correlation between x and y?

- Strong and Positive
- Strong and Negative
- Weak and Positive
- Weak and Negative

3.

The scatterplot below shows the relationship between the number of hours spent driving and the total number of miles driven.



Which statements correctly describe this relationship? Choose all that are correct.

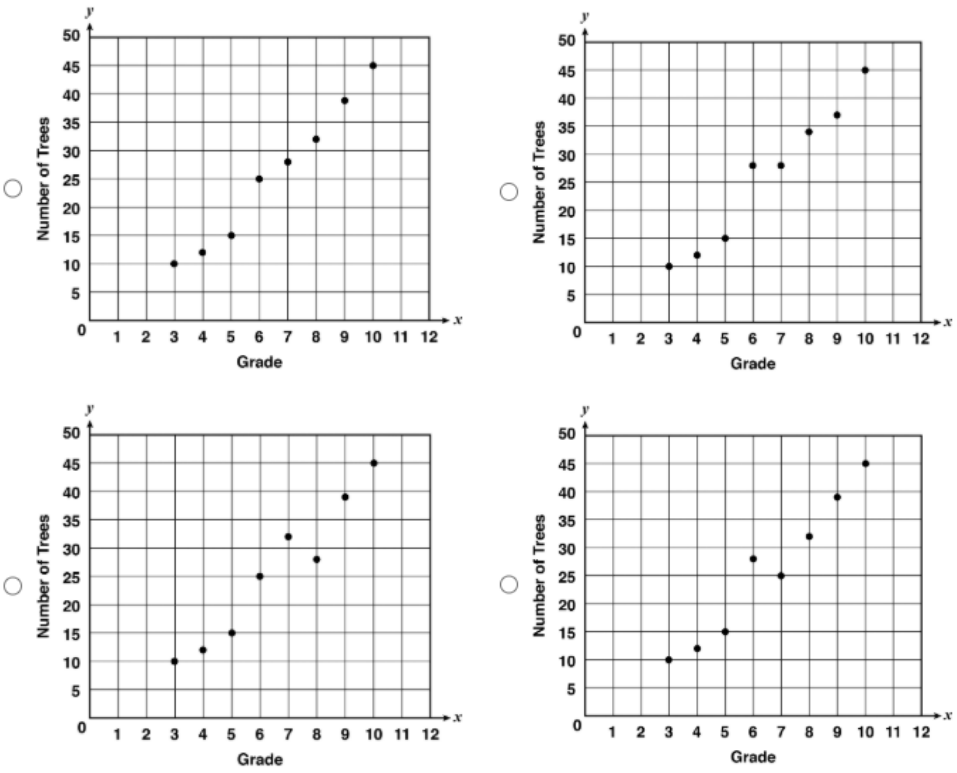
- [ ] The line of best fit will pass through the origin.
- [ ] The slope of the line of best fit is negative.
- [ ] There is no association between the variables.
- [ ] The relationship between the variables is linear.
- [ ] The relationship between the variables is positive.
- [ ] The relationship between the variables is nonlinear.

4.

The number of trees planted by students of different grade levels is shown.

Grade	3	4	5	6	7	8	9	10
Number of trees	10	12	15	25	28	32	39	45

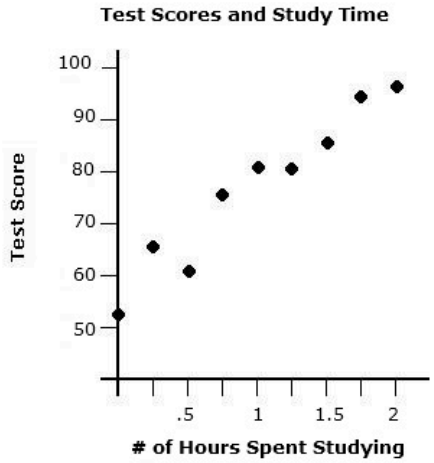
Which scatterplot *best* represents this data?



5. Emma observed a hot air balloon as it ascended into the sky. It first rose steadily, then briefly hovered at a certain height before descending slightly. Finally, it ascended again to an even higher altitude. Create a scatter plot graph that represents the balloon's height above the ground over time.

6.

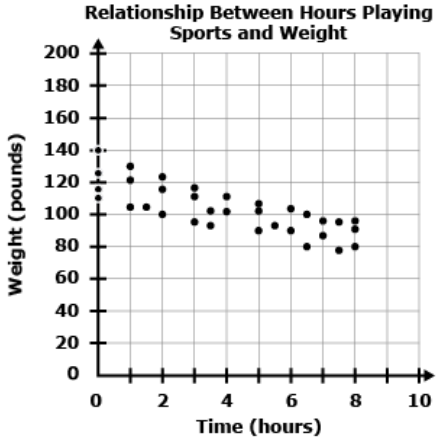
The following data was taken from Mr. Martin's math class. Which choice BEST describes the relationship between the variables shown in the graph below?



- ○ The students in Mr. Martin's class do not study enough.
- ○ The students that spent more time studying had a tendency to get better scores.
- ○ To do well on a test, a student should study at least an hour and a half.
- ○ It is better to study for 15 minutes than it is to study for a half hour.

7.

Which choice BEST describes the relationship between the variables shown in the graph below?



- ○ Only thin people play sports.
- ○ People that are overweight do not play sports.
- ○ People that spend more time playing sports weigh less than those who don't.
- ○ There is no relationship between time spent playing sports and weight.

8.

Simon has been been tracking his weight for the past five months. He recorded his initial weight and his weight at the end of each month.

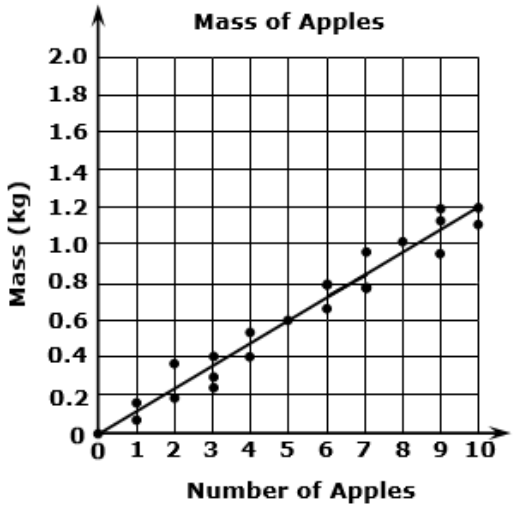


Which statement best describes Simon's weight over the five months?

- ○ Simon gained 1/5 pound each month.
- ○ Simon lost 25 pounds each month.
- ○ Simon gained 5 pounds each month.
- ○ Simon lost 5 pounds each month.

9.

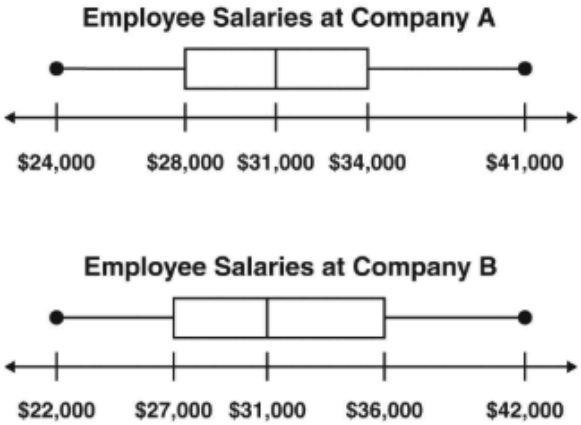
A worker at an orchard measures the mass of different numbers of apples. The scatter plot below shows the relationship between the mass, in kilograms, and the number of apples.



Create an equation for the line of best of fit.

10.

The box-and-whisker plots shown below represent the salaries of employees at two different companies.



What is the difference between the median salaries of the employees at the two companies?

11.

The stem-and-leaf plot shows the high temperatures for two cities during a period of 7 days.

High Temperatures (°F)

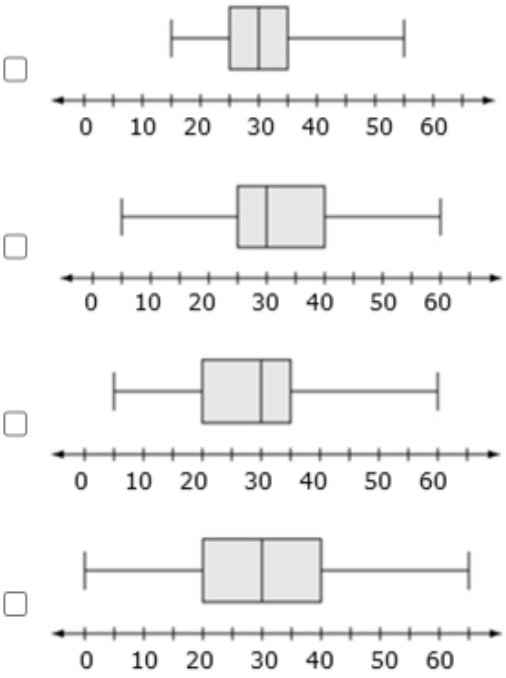
Baker City				Felina		
			3			
9	6	3	4	8		
5	3	0	5	4	4	8
		1	6	2	3	7
			7			

Key: 4 | 8 means 48
0 | 5 | means 50

Andrew calculated the difference between the mean temperatures for the two cities. He then divided by the mean absolute deviation of the temperatures for Baker City. What was the approximate result?

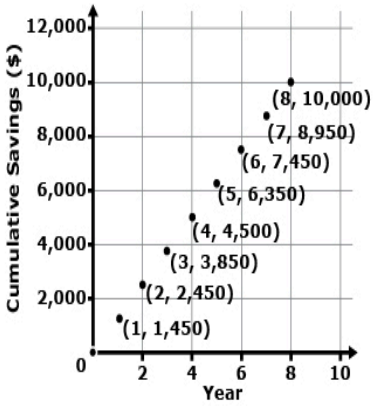
- ○ 1.53
- ○ 1.36
- ○ 0.19
- ○ 0.22

12. Which data set shows the smallest spread of data?



13.

The amount of money David has saved over the past 8 years is shown in this scatterplot.



If this trend continues, what is the *best* prediction of the cumulative savings David will have accrued at the end of an additional 10 years?

- $18,900
- $20,500
- $22,500
- $26,100

14.

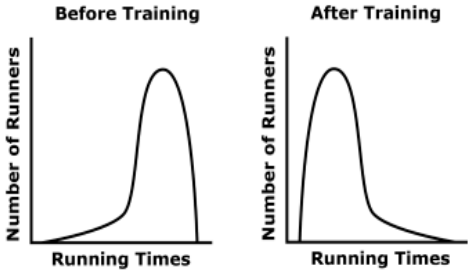
The ages of the students in a statistics class are listed below. If the 18-year-old student has a birthday and turns 19, how will it affect the mean and median ages of the class?

Ages: 14, 15, 15, 16, 16, 16, 16, 17, 17, 17, 17, 17, 18

- Both the mean age and the median age will increase.
- The mean age will increase, and the median age will remain the same.
- The mean age will remain the same, and the median age will increase.
- The mean age will remain the same, and the median age will decrease.

15.

The data distributions below show the running times of a group of runners before and after training for a marathon.

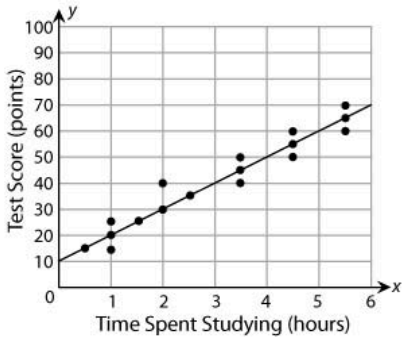


Which statement CORRECTLY explains the summary statistics that should be used to compare the running times?

- The distributions are normal, so the mean and standard deviation should be used to compare the running times.
- The distributions are skewed, so the mean and standard deviation should be used to compare the running times.
- The distributions are normal, so the median and interquartile range should be used to compare the running times.
- The distributions are skewed, so the median and interquartile range should be used to compare the running times.

16.

The scatterplot below shows the association between the amount of time spent studying for a test and the score on the test. A regression line is also shown which models the data.

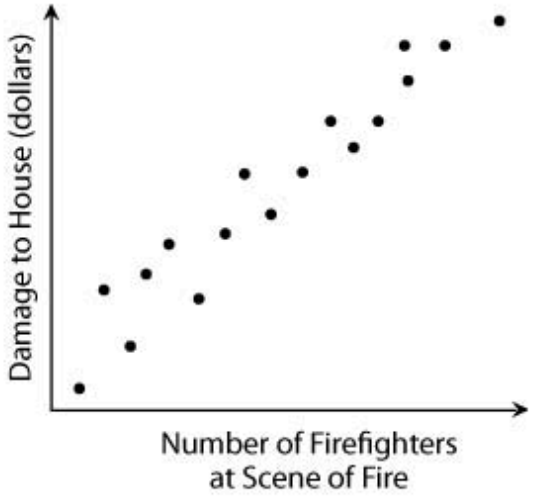


Which statement describes the y-intercept in the context of the situation?

- A student receives about 1 point for every 10 additional hours spent studying for the test.
- A student who studies 10 hours for the test receives a test score of about 0 points.
- A student who does not study for the test receives a test score of about 10 points.
- A student receives about 10 points for each additional hour spent studying for the test.

17.

A news reporter collects data during a twelve-month period on the damage, in dollars, caused to a house by a fire in relation to the number of firefighters at the scene of the fire. She plots the data on the coordinate plane shown below.

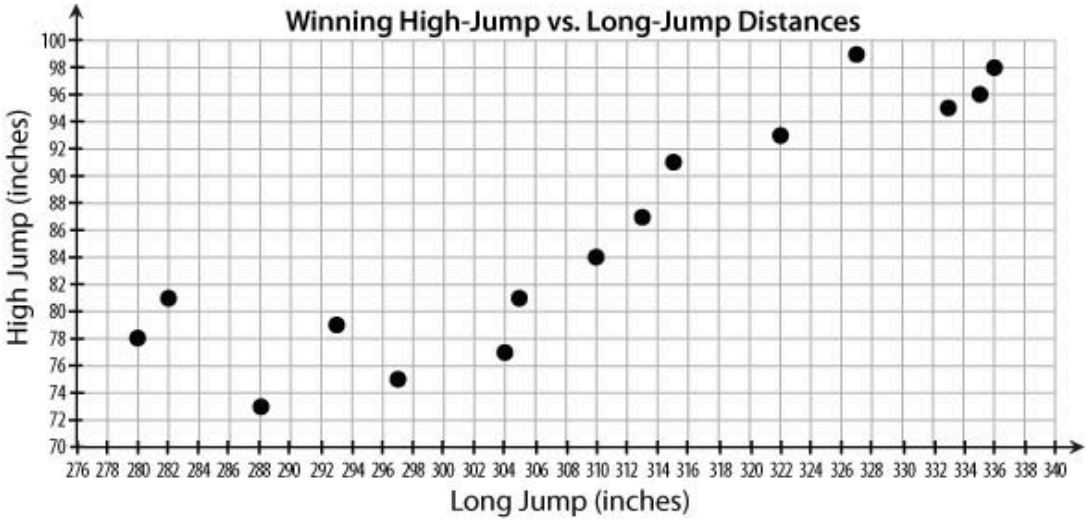


Which statement is TRUE about the data in the scatter plot?

- The scatter plot shows a strong negative linear association between the variables, so an increase in the number of firefighters at the scene of a fire causes decreased damage to the house.
- The scatter plot shows a strong positive linear association between the variables, so an increase in the number of firefighters at the scene of a fire causes increased damage to the house.
- Although the scatter plot shows a strong negative linear association between the variables, one does not cause the other as the hidden variable is the actual size of the fire.
- Although the scatter plot shows a strong positive linear association between the variables, one does not cause the other as the hidden variable is the actual size of the fire.

18.

The scatter plot below shows long-jump and high-jump winning distances, in inches, for the 15 best athletes at a professional sporting event.



Which linear regression equation BEST represents an athlete's high-jump distance, *h*, as a function of his or her long-jump distance, *j*?

- ○ $j = 0.4233h - 45.1470$
- ○ $j = 1.9044h + 145.9380$
- ○ $h = 1.9044j + 145.9380$
- ○ $h = 0.4233j - 45.1470$

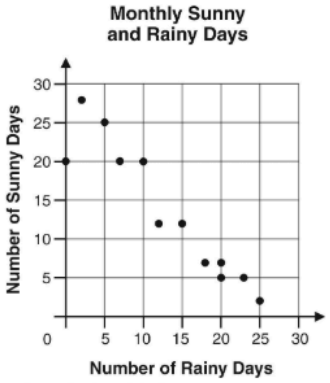
19.

A set of data is shown to have a correlation coefficient of 0.15. What does this signify about the relationship between the data?

- ○ There is a strong positive linear correlation between the *x* values and *y* values.
- ○ There is a weak positive linear correlation between the *x* values and *y* values.
- ○ There is a strong negative linear correlation between the *x* values and *y* values.
- ○ There is a weak negative linear correlation between the *x* values and *y* values.

20.

The scatterplot below shows the relationship between the number of sunny days and the number of rainy days.

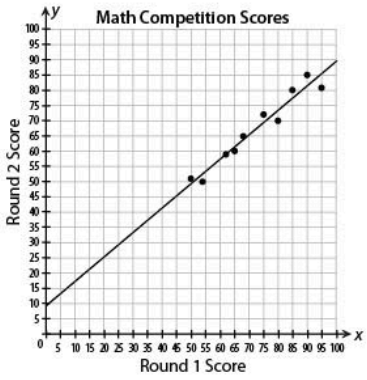


Which statement describes the relationship?

- ○ The number of sunny days decreases as the number of rainy days increases.
- ○ The number of sunny days increases as the number of rainy days increases.
- ○ The number of sunny days stays the same as the number of rainy days increases.
- ○ There is no relationship between the number of sunny days and the number of rainy days.

21.

The results of the two rounds of a math competition are shown below.



Based on the line of best fit through the data, which of these can be concluded?

- ○ A student who scores 0 points in the first round is predicted to score approximately 5 points in the second round.
- ○ For every 4-point increase in the first round score, the predicted second round score increases by approximately 5 points.
- ○ For every 5-point increase in the first round score, the predicted second round score increases by approximately 4 points.
- ○ A student who scores 10 points in the first round is predicted to score approximately 0 points in the second round.

22.

Consider the following data. Which group has the smallest interquartile range?

Group A: 37, 38, 42, 44, 49, 50, 51, 51, 53, 54

Group B: 39, 39, 39, 42, 46, 47, 50, 52, 52, 54

Group C: 36, 38, 42, 47, 49, 51, 52, 52, 53, 54

Group D: 38, 39, 39, 42, 46, 48, 50, 52, 52, 54

- ○ Group A
- ○ Group B
- ○ Group C
- ○ Group D

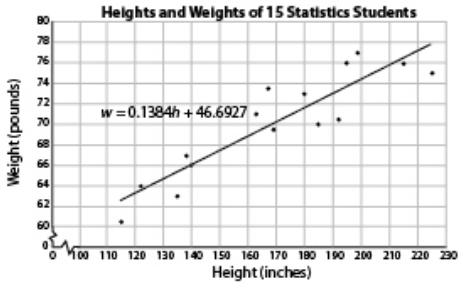
23.

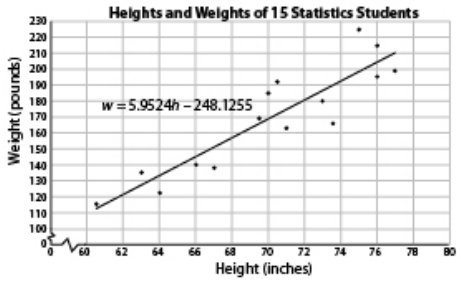
The table below shows the weights and heights of the 15 students in Mr. Murray's statistics class.

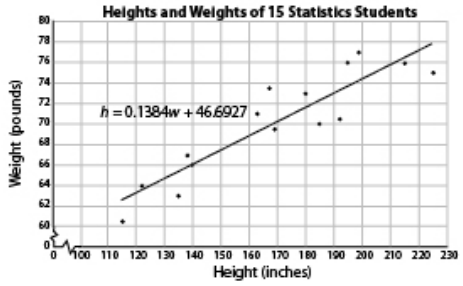
Weights and Heights of 15 Students in Mr. Murray's Statistics Class

Height (inches)	64	60.5	76	66	67	71	73.5	75	76	77	69.5	70	70.5	63	73
Weight (pounds)	122	115	215	140	138	163	167	225	195	199	169	185	192	135	180

Which scatterplot AND linear regression equation correctly express the student's weight in pounds, w, as a function of his or her height in inches, h?

○ 

○ 

○ 

○ 