

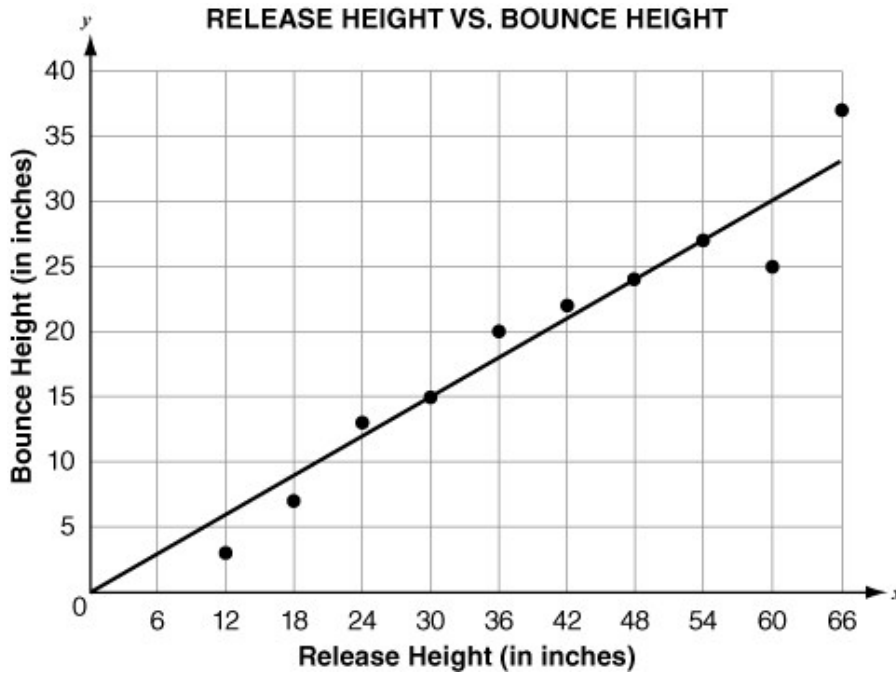
TEST NAME: **SP.3 NEW**
TEST ID: **885908**
GRADE: **08 - Eighth Grade**
SUBJECT: **Mathematics**
TEST CATEGORY: **School Assessment**

Student: _____

Class: _____

Date: _____

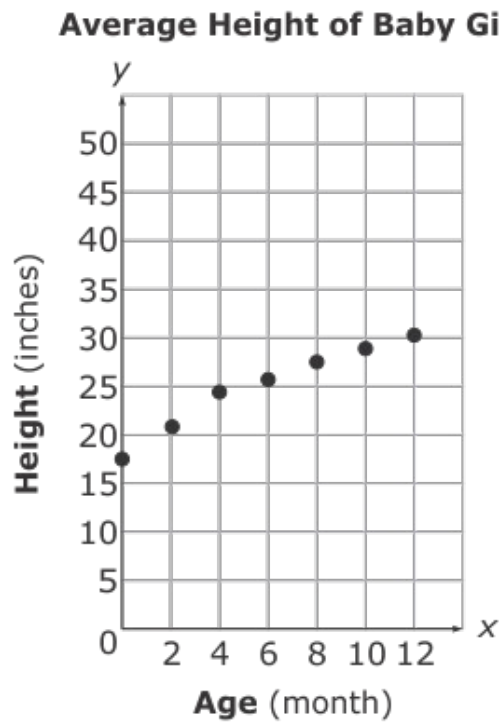
1. The graph below shows the relation between the height from which a ball is released and the maximum height it reaches on its first bounce.



What can be concluded from the line of best fit shown on the graph?

- A. The bounce height is 0.5 inch less than the release height.
- B. The bounce height is 2 inches less than the release height.
- C. The bounce height is 0.5 times the release height.
- D. The bounce height is 2 times the release height.

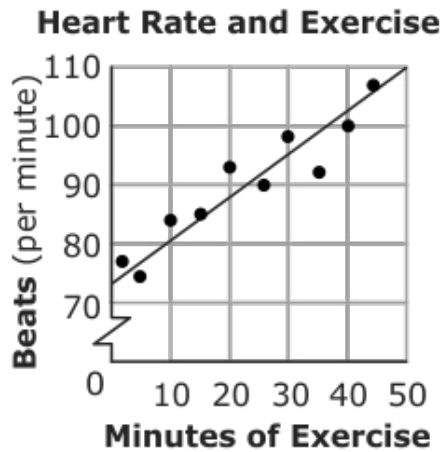
2. The scatterplot below represents the average height of girls from birth to 12-months of age.



Based on a linear model of the data, what is the **approximate** average height of a 16-month-old girl?

- A. 17 inches
- B. 31 inches
- C. 35 inches
- D. 40 inches

3. Savannah collected data to determine whether the time a student spends playing video games each week has any effect on the student's math grade. She represented her data on a scatter plot. The equation for the line of best fit was $y = -6x + 97.5$, where x represents the number of hours a student spent playing video games and y represents the student's math grade. Which statement must be true?
- A. Students who play video games have an average math grade of 97.5
 - B. Students who do not play video games have an average math grade of 91.5.
 - C. An increase of 6 hours per week spent playing video games is associated with a decrease of 1 point in a student's math grade.
 - D. A decrease of 1 hour per week spent playing video games is associated with an increase of 6 points in a student's math grade.
4. Samantha recorded her heart rate after exercising for different amounts of time. She created the scatterplot below with the data.

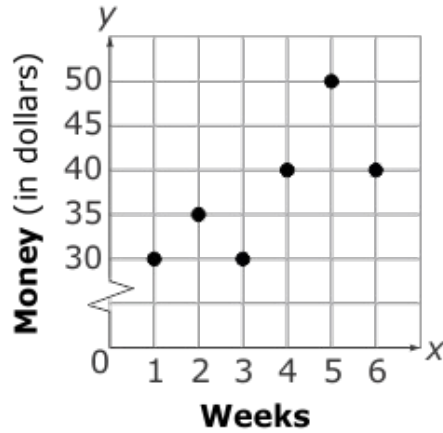


Based on a linear model, what is the meaning of the y -intercept?

- A. the increase in Samantha's heart rate for each minute of exercise
- B. Samantha's heart rate before she exercises
- C. the amount of time Samantha exercises

5. Tilda kept track of how long it took her to assemble various puzzles based on the total number of puzzle pieces. She determined that the linear model $y = 5 + 0.5x$ can be used to estimate y , the total time, in minutes, it will take her to assemble a complete puzzle based on x , the total number of puzzle pieces. What does the slope in Tilda's equation represent?
- A. The initial $\frac{1}{2}$ hour needed to sort the puzzle pieces before assembling the puzzle.
 - B. The rate of $\frac{1}{2}$ minute per puzzle piece while assembling the puzzle.
 - C. The initial 5 minutes necessary to sort the puzzle pieces before assembling the puzzle.
 - D. The rate of 5 minutes per puzzle piece while assembling the puzzle.
6. The graph shows the amount of money that cheerleaders raised each week over a period of six weeks.

Cheerleading Fundraising Event

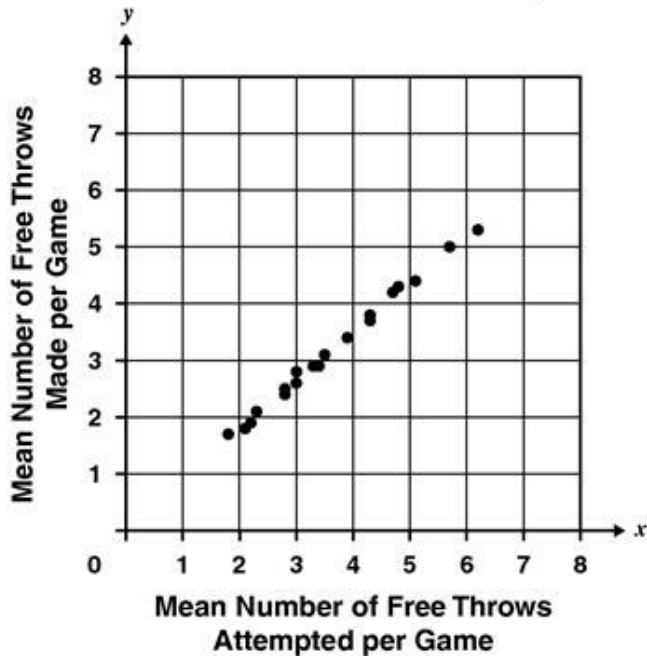


Using a linear model, **approximately** how much money will the cheerleaders raise in week 7?

- A. \$40
- B. \$50
- C. \$60
- D. \$70

7. Basketball players sometimes attempt to shoot the ball through the basket from a specific location without interference from other players. These shots are called *free throws*. When a free throw attempt is successful, the player is said to have *made* the free throw. The scatterplot below shows the mean number of free throws attempted and made per game for several professional basketball players.

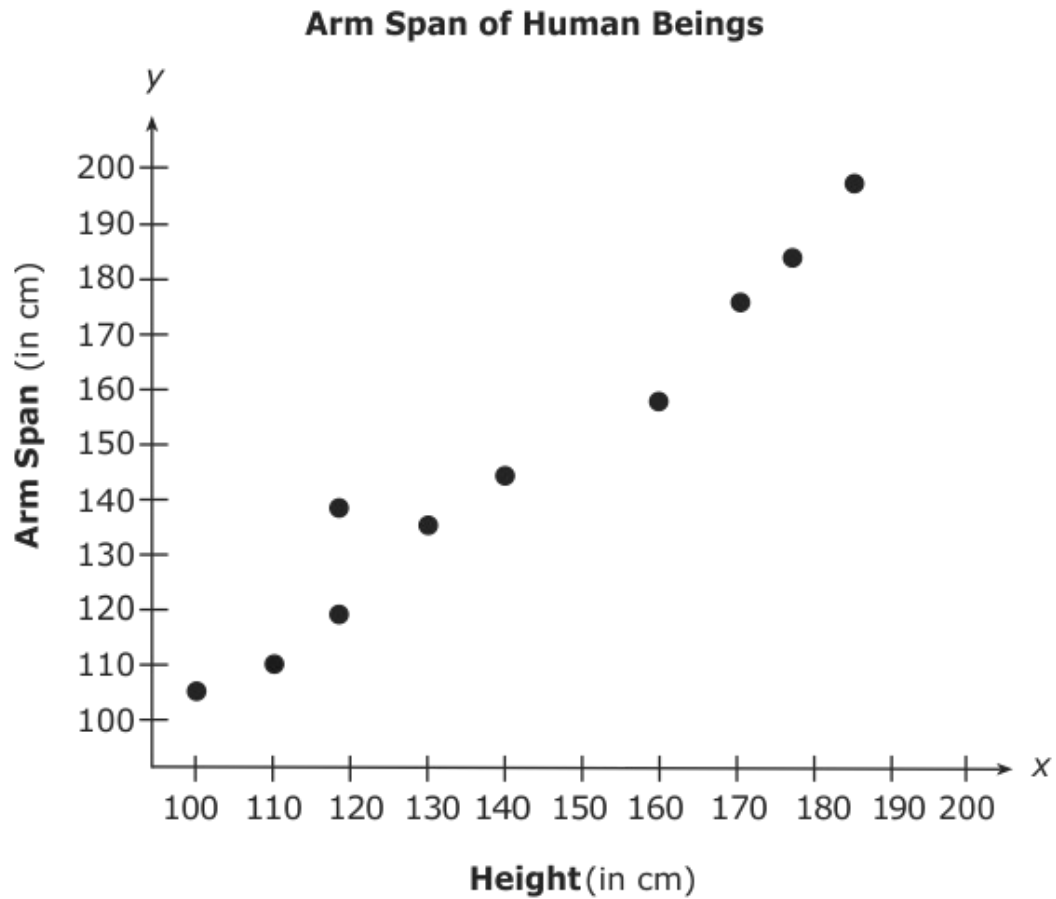
Free Throws Attempted and Made by Professional Basketball Players



The equation $y = 0.85x + 0.09$ is an approximation of the line of best fit for the data on the scatterplot. Which statement correctly describes the meaning of the slope of this line?

- A. Each player made about 85% of the free throws that were attempted.
- B. In each game, players attempted free throws during 85% of the playing time.
- C. Each player attempted free throws in 85% of the games that were played.
- D. In each game, about 85% of the players who attempted free throws made them.

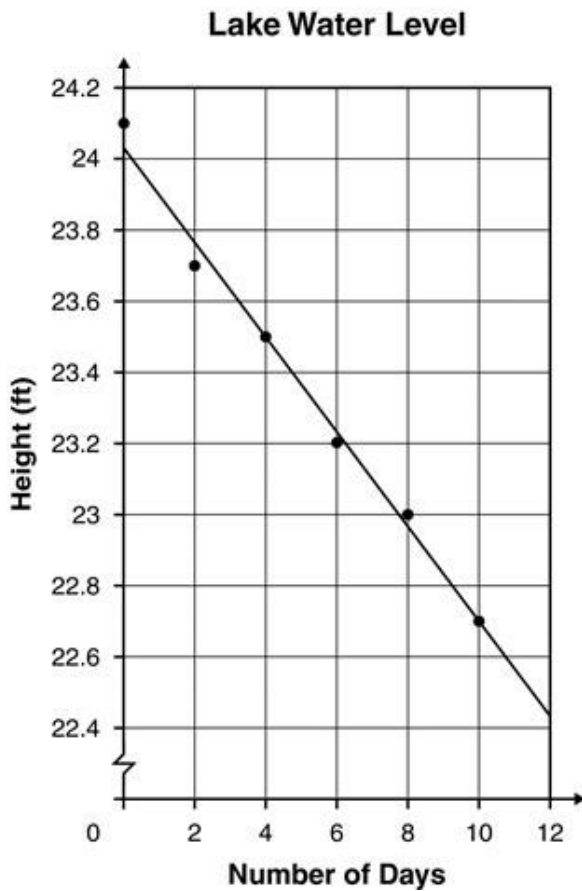
8. Anna measured the heights and arm spans of 10 students in her class. She created the scatterplot below.



Based on the graph, what is the **approximate** arm span of a student who is 150 cm tall?

- A. 130 cm
- B. 150 cm
- C. 170 cm
- D. 190 cm

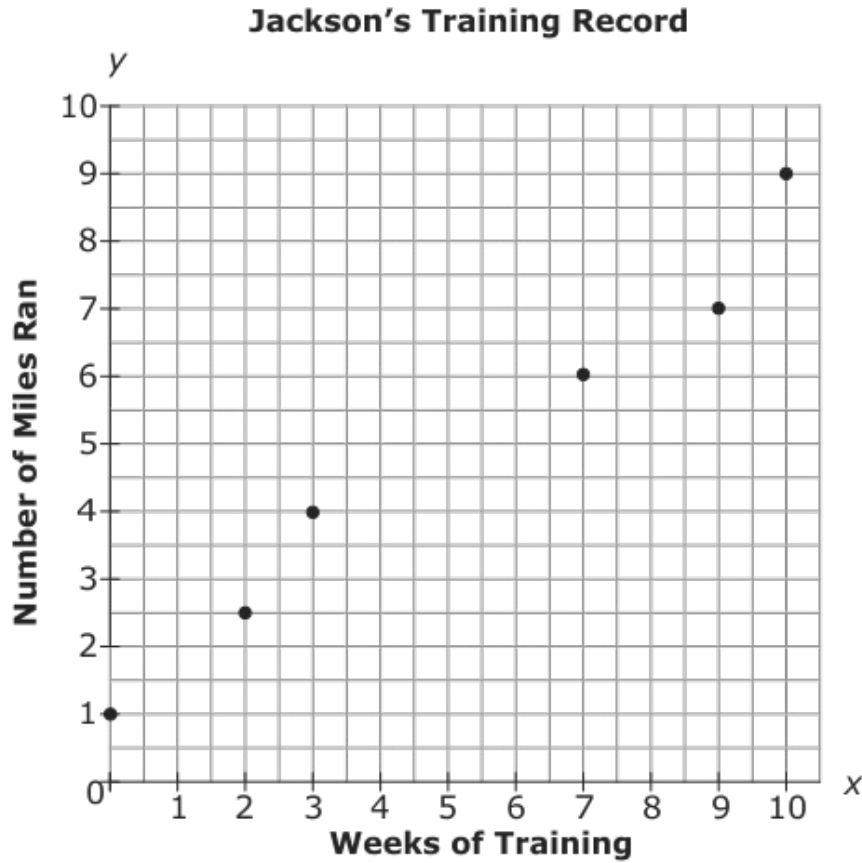
9. The water level, in feet, of a lake decreased due to evaporation. The scatterplot below shows the height of the water over a ten-day period.



An equation for a line of best fit for these data is $y = -0.13x + 24.04$, where y represents the height of the water in the lake, and x represents the day. Using the line of best fit, which of the following is the best estimate of the height, in feet, of the water in the lake on Day 14?

- A. 22.2
 - B. 22.4
 - C. 24.1
 - D. 25.9
10. If p represents the world population in billions and y represents the number of years after 1960, then the world population after 1960 can be closely approximated by the equation $p = 0.077y + 3.04$. Which number most closely approximates the predicted population of the world, in billions, in the year 2015?
- A. 4.20 billion
 - B. 6.51 billion
 - C. 7.28 billion
 - D. 14.59 billion

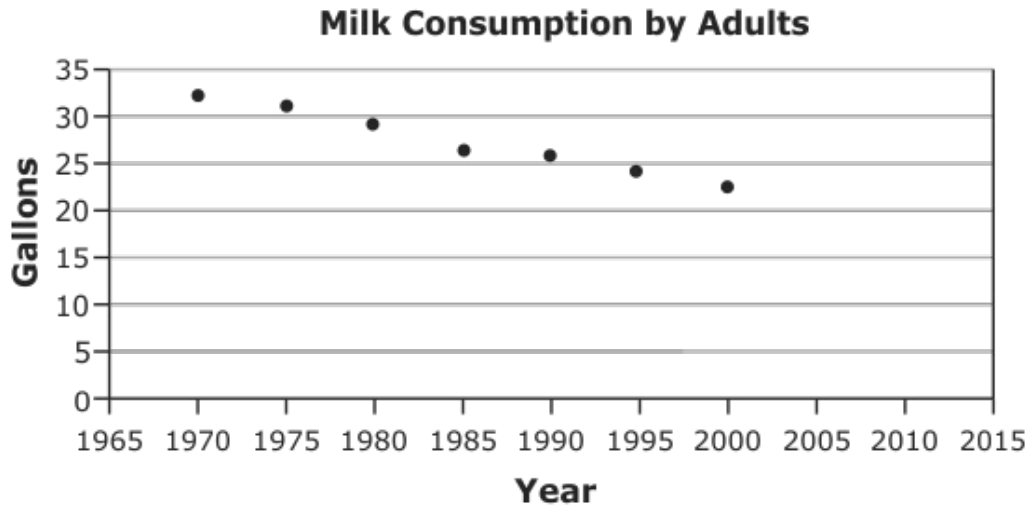
11. The scatterplot below displays the number of miles, y , Jackson ran over several weeks, x , while he was training for a competition.



Which statement describes the y -intercept?

- A. the number of miles Jackson ran after one week of training
- B. the number of miles Jackson ran before starting his training
- C. the increase in the miles Jackson ran each week
- D. the decrease in the miles Jackson ran each week

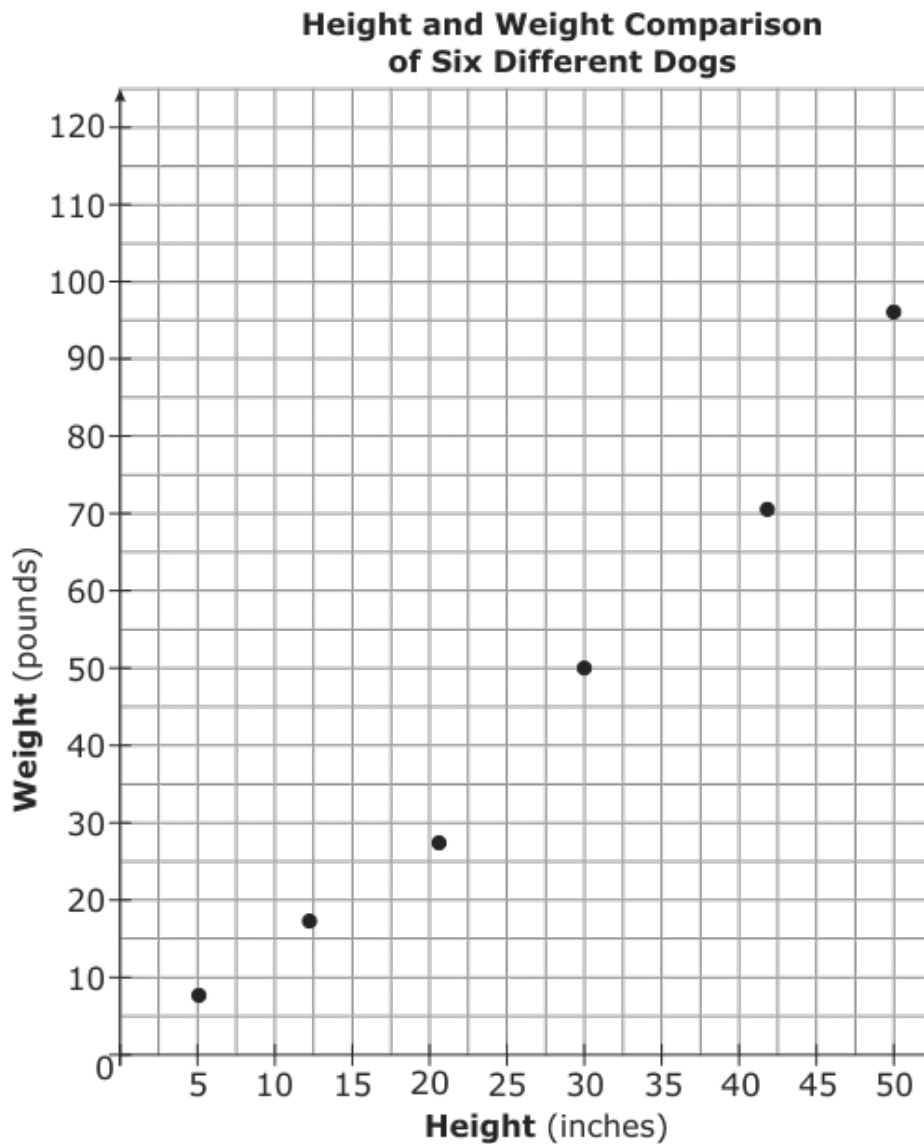
12. The scatterplot shows the average amount of milk consumed by an adult over a 30-year period in the United States.



Based on the scatterplot, **approximately** what will be the consumption of milk for an adult in the year 2015?

- A. 10 gallons
 - B. 15 gallons
 - C. 20 gallons
 - D. 25 gallons
13. A physicist hangs a spring from a hook. She attaches different weights to the spring to make it stretch and measures the total length of the spring each time. The equation shown calculates the length of the spring, in centimeters, when w kilograms (kg) of mass are attached to it.
- $$L = 1.5w + 5.5$$
- Which statement explains what happens to the length of the spring when 5 kg of mass are attached to it?
- A. The length of the spring will increase by 1.5 cm.
 - B. The length of the spring will increase by 5 cm.
 - C. The length of the spring will increase by 7.5 cm.
 - D. The length of the spring will increase by 27.5 cm.

14. The scatterplot below shows the heights, x , and weights, y , of several dogs in a kennel.



Which describes the slope of the line that **best** fits this data?

- A. The smallest dog is 5 inches tall and weighs about 8 pounds.
- B. The height of a dog increases about 2 inches for each additional pound.
- C. The average weight of a dog decreases for each additional inch of height.
- D. The average weight of a dog increases about 2 pounds for each additional inch of height.

15. A restaurant manager compared the amount of time, y , in minutes, that a group waited to be seated and the number of people in the group, x , during the past several weeks. The line of best fit for the data collected was $y = 1.5x + 10$. Based on the line of best fit, how much additional wait time, in minutes, is associated with each additional person in the group?

- A. 11.5
- B. 10
- C. 3
- D. 1.5

16. A college student is using the following model to determine the total number of text messages she will have in the inbox in her cell phone, if she does not delete any of the current messages or future messages she receives in the next x days. In the model, y represents the total number of text messages in her inbox after x days.

$$y = 180 + 84x$$

What does 180 represent in the model?

- A. The current number of text messages on her phone.
- B. The maximum number of text messages she can receive in a day.
- C. The number of text messages she predicts she will receive per day.
- D. The number of text messages she predicts she will receive in 3 months.

17. A farmer has two apple orchards.

- Orchard L has 2,500 trees.
- Orchard M has one-fourth as many trees as Orchard L.
- The farmer adds 1,100 trees to both orchards each year.

Which equation gives the total number of trees, t , in Orchard M after n years?

- A. $t = 1,100n + 625$
- B. $t = 1,100n + 2,500$
- C. $t = 275n + 625$
- D. $t = 275n + 2,500$

18. The equation for the height of a burning candle is $h = -\frac{1}{5}t + 10$, where h represents the candle's height in centimeters after elapsed time, t , in minutes. Which equation represents the height of a second burning candle that is 5 centimeters taller than the first candle?

A.

$$h = -\frac{1}{5}t + 5$$

B.

$$h = -t + 15$$

C.

$$h = -\frac{1}{5}t + 15$$

D.

$$h = -t + 10$$

19. A reporter collected data about the price of gasoline during the first 16 weeks of 2012. The equation $p = 0.0423w + 3.2863$ models the relationship between p , the price of a gallon of gasoline in dollars, and w , the number of weeks after January 1, 2012. According to this model, by how much did the price of a gallon of gasoline increase each week?

A. \$0.0423

B. \$0.6768

C. \$3.2863

D. \$3.3286

20. A man used a faucet to add water to a pond. The man used the equation $v = 3,208m + 6,000$ to determine the volume, v , of the pond in milliliters after he had added water for m minutes. What is the meaning of the y -intercept of this equation?

A. The volume of the pond increases by 3,028 milliliters each minute.

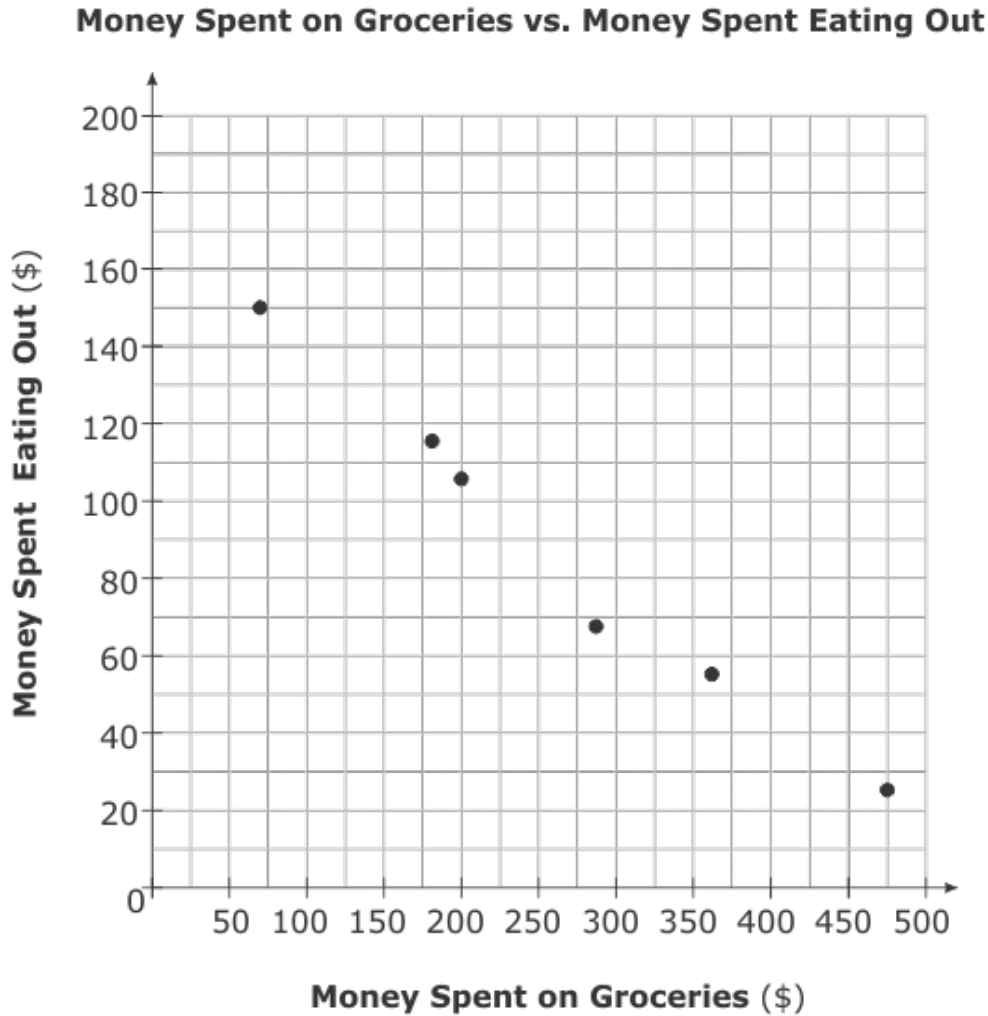
B. The volume of the pond increases by 6,000 milliliters each minute.

C. The volume of the pond was 3,028 milliliters before the water was added.

D. The volume of the pond was 6,000 milliliters before the water was added.

21. An employee's weekly salary can be calculated using the linear model $y = 0.25x + 225.23$ where x represents the employee's sales, in dollars. How much does the employee make if he or she does NOT sell any clothes during the week?
- A. \$0.00
 - B. \$0.25
 - C. \$225.23
 - D. \$225.48
22. The line of best fit for a scatter plot showing the age, x , and value, y , of a car is $y = -1,580x + 17,020$. What does the y -intercept represent?
- A. The age of the car is 2 years.
 - B. The ending value of the car is \$1,580.
 - C. The beginning value of the car is \$17,020.
 - D. The amount of money owed to the bank for the car is \$15,440.

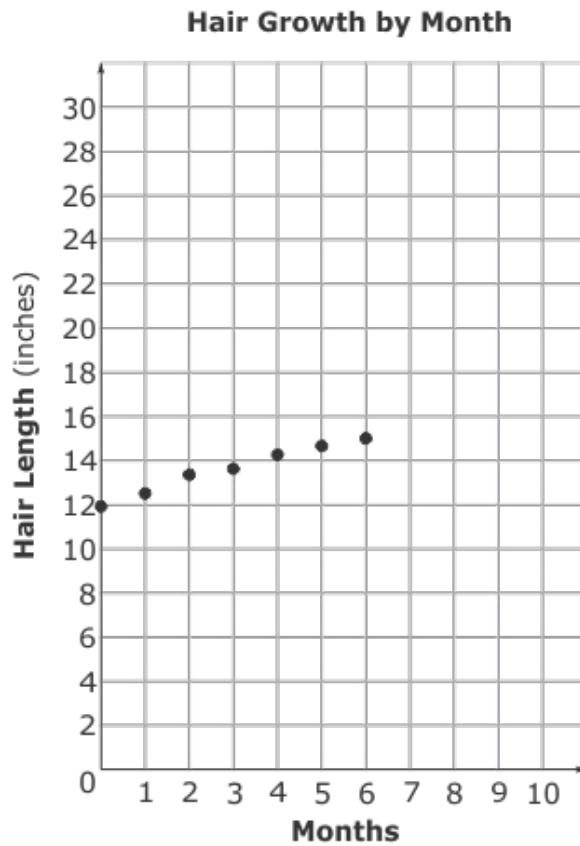
23. The scatterplot below shows the relationship between the money spent on groceries each week, x , and the amount of money spent eating out at restaurants, y , during that same week by six different families.



Using a linear model for this scatterplot, what does the y -intercept represent?

- A. the amount of money spent eating out if there are no groceries purchased
- B. the amount of money spent on groceries when a family does not go out to eat
- C. the decrease in the amount of money spent eating out for each dollar spent on groceries
- D. the increase in the amount of money spent eating out for each dollar spent on groceries

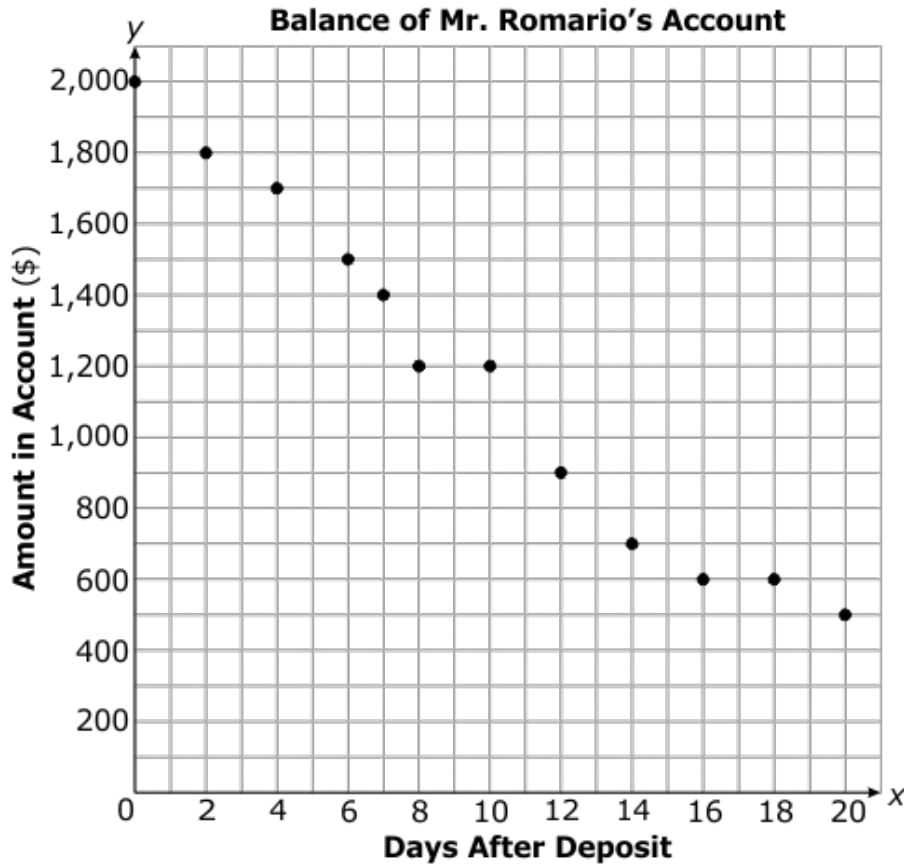
24. Tanya is growing her hair out. She records the length of her hair at the end of each month and plots the data in the graph below. The equation of a line that approximates the data is $y = \frac{1}{2}x + 12$.



Assuming she does not cut her hair, **about** how long can Tanya expect her hair to be after 8 months?

- A. 14 inches
- B. 16 inches
- C. 20 inches
- D. 28 inches

25. Mr. Romario receives his monthly salary by direct deposit into his checking account. The scatterplot below displays his balance, y , after x days of making the deposit.

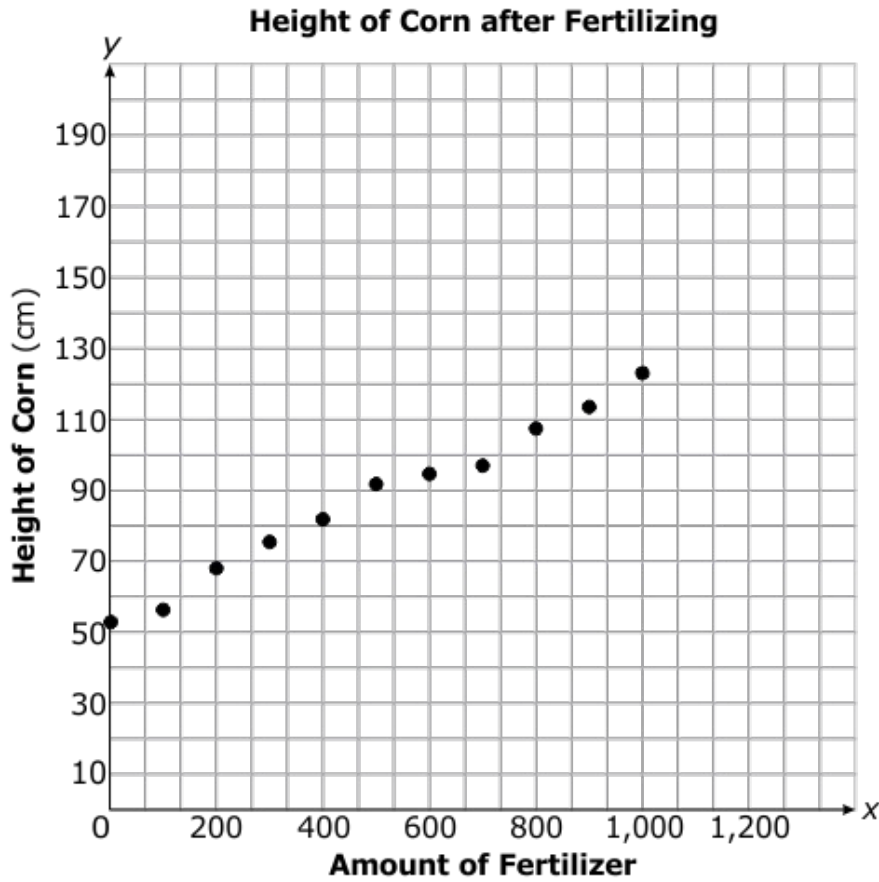


Using a linear model that **most closely** represents this data, what is the meaning of the slope?

- A. The account decreased by \$75 every 2 days.
 - B. The account decreased by \$75 every day.
 - C. The account decreased by \$80 every 2 days.
 - D. The account decreased by \$80 every day.
26. A scientist recorded the weight of an insect from hatching to maturity. The equation $w=0.7a+1.2$ gives the insect's weight, w , in grams at age a , in weeks. What is the meaning of the slope of this equation?
- A. The weight of the insect increases 1.2 grams each week.
 - B. The weight of the insect increases 0.7 grams each week.
 - C. The weight of the insect is 1.2 grams when it hatches.
 - D. The weight of the insect is 0.7 grams when it hatches.

27. For a physics experiment, Scott put objects of different masses on a spring, which caused the spring to stretch to a new length. He measured the new lengths of the spring and modeled the relationship with the equation $y = 0.024x + 4$, where the mass of the object put on the spring, x , is in grams, and the length of the spring, y , is in centimeters. Based on the equation, what is the increase in length of the spring, in centimeters, if the mass of the object put on the spring increased by 125 grams?
- A. 1
 - B. 3
 - C. 4
 - D. 7
28. The equation $y = 0.95x + 3$ models the cost to ride in a taxi, where y is the total cost for a ride, and x is the number of miles driven. What does the slope of the line represent?
- A. It costs \$3.95 to ride in the taxi.
 - B. The flat fee to ride in the taxi is \$3.
 - C. The cost per mile to ride in the taxi is \$0.95.

29. A scientist conducted an experiment on the effects of the height of corn after x amounts of fertilizer. The scatterplot below displays the heights (cm), y , of 3-week-old corn plants after x amounts (mg) of fertilizer were given to the plants.



Approximately, what was the height of a 3-week-old corn plant that received no fertilizer?

- A. 0 cm
- B. 34 cm
- C. 52 cm
- D. 68 cm

30. The table below shows the cost for varying amounts of grapes on a particular day at a grocery store.

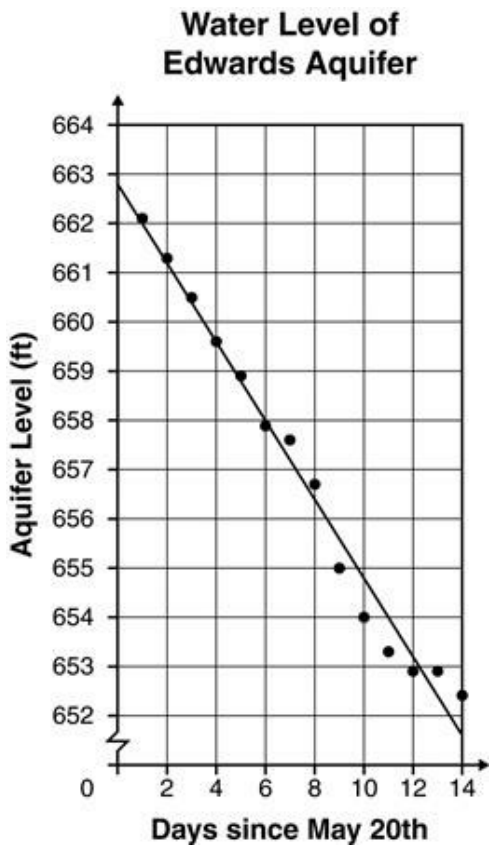
Grapes

Number of Grapes (in pounds)	Total Cost
2.5	\$5.60
4	\$8.96
6	\$13.44
7	\$15.68

Which statement best identifies the slope of an equation of a line of best fit for the data in the table and its meaning in the context of the problem?

- A. The slope is \$5.60/pound, and it represents the weight of the grapes.
- B. The slope is \$2.24/pound, and it represents the weight of the grapes.
- C. The slope is \$2.24/pound, and it represents the cost for each pound of grapes.
- D. The slope is \$5.60/pound, and it represents the cost for each pound of grapes.

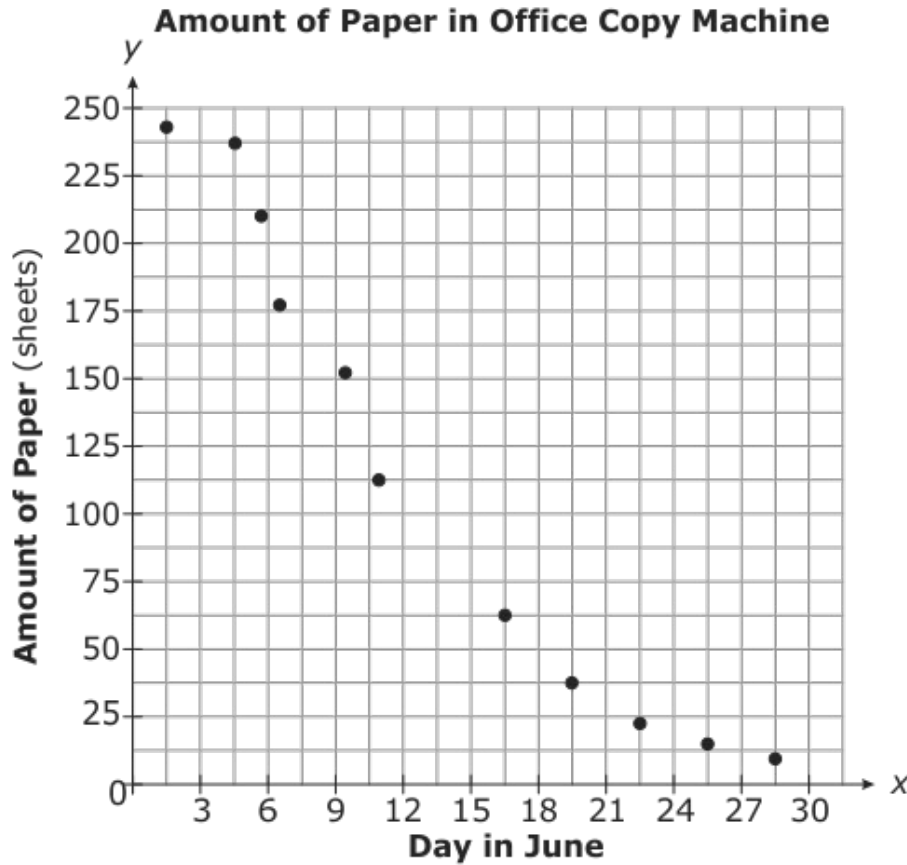
31. San Antonio, Texas, depends on the Edwards Aquifer for its water supply. The graph shows the decline of the water level of the aquifer over a two-week period beginning on May 20, 2012.



Based on the graph, which of the following is the best estimate of the change in the water level, in feet per day, during this time period?

- A. - 1.6
- B. - 0.8
- C. 0.625
- D. 1.25

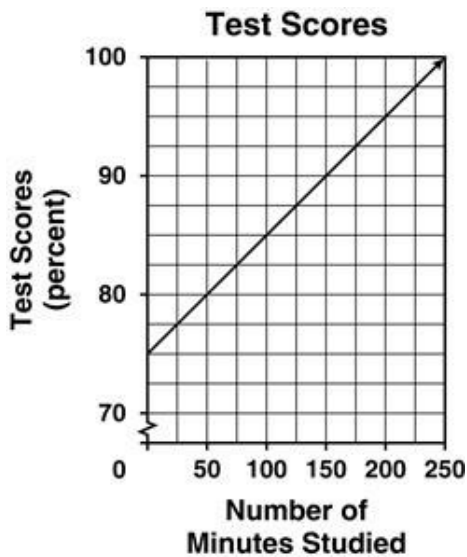
32. The scatterplot below represents the amount of paper left in an office copy machine in the month of June.



Approximately, what is the amount of paper left inside the machine on the 14th of June?

- A. 130 sheets
 - B. 100 sheets
 - C. 50 sheets
 - D. 20 sheets
33. The line of best fit for a set of data is $y = 0.39x + 45$, where y represents total cost of a utility bill and x represents hours of usage. Using this linear model, what does the slope of the line represent?
- A. The flat fee is \$45 for a utility bill.
 - B. A utility bill will cost \$45.39 each month.
 - C. The cost for each hour of usage is \$45.
 - D. The cost for each hour of usage is \$0.39.

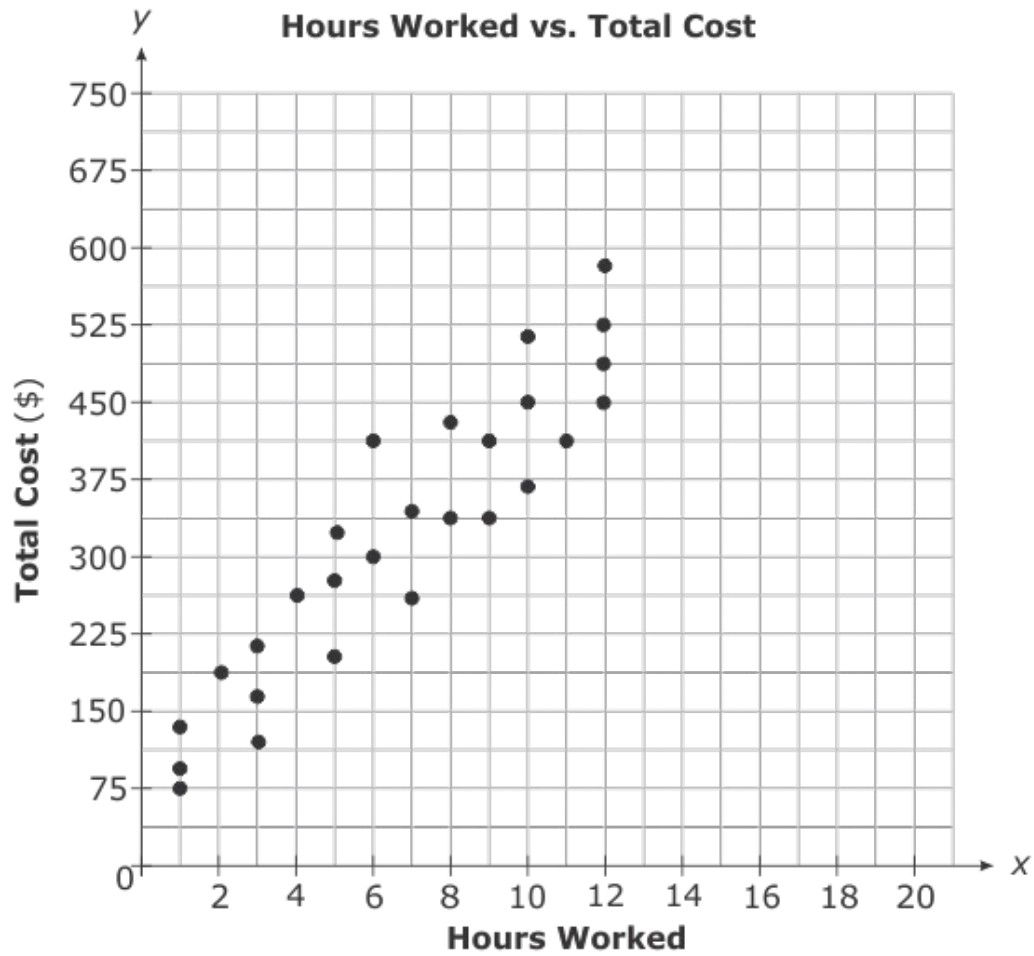
34. A plane travels from Los Angeles to New York City. The distance in miles, d , of the plane from New York City h hours after the plane takes off can be modeled using the equation $d = 2,475 - 445h$. What is the meaning of the slope in this scenario?
- A. The distance, in miles, the plane travels in one hour.
 - B. The distance, in miles, from Los Angeles to New York City.
 - C. The amount of time, in hours, it takes the plane to travel one mile.
 - D. The amount of time, in hours, it takes the plane to travel from Los Angeles to New York City.
35. The graph models the relationship between the number of minutes the students of Mr. Bowen's class studied and their test scores on the final exam.



Which statement best describes the rate of change for this relationship?

- A. The student's scores increased 1 percent for every 10 additional minutes they studied.
- B. The student's scores increased 10 percent for every additional minute they studied.
- C. The student's scores increased 2 percent for every additional minute they studied.
- D. The student's scores increased 1 percent for every 2 additional minutes they studied.

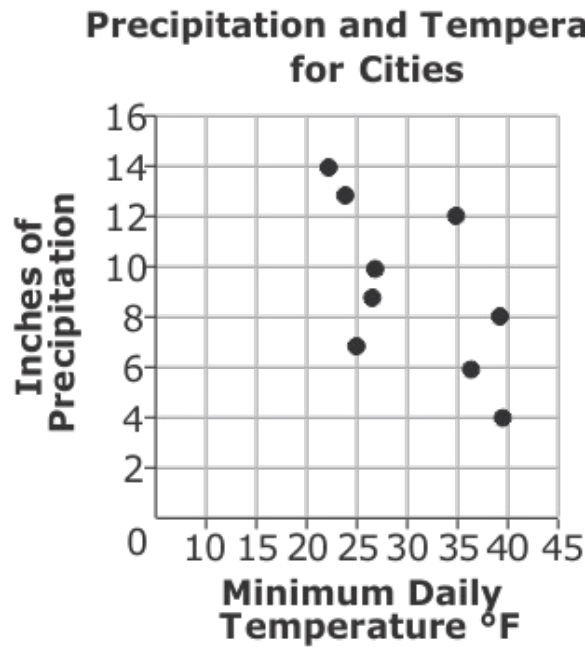
36. The scatterplot below represents the relationship between the total cost for plumbing service and the number of hours worked by plumbing companies in a city.



Using a linear model for the data, what was the **approximate** average hourly cost for services by plumbing companies in the city?

- A. \$100.00
- B. \$75.00
- C. \$65.00
- D. \$40.00

37. The scatterplot shows the amount of precipitation for several cities given the minimum temperature for those cities.



Using a linear model, **approximately** what would be the minimum daily temperature for a city that had 9 inches of precipitation?

- A. 20°F
- B. 30°F
- C. 40°F
- D. 50°F

38. The engine displacement, in cubic centimeters (cc), and the fuel efficiency, in miles per gallon (mpg), for eight economy cars are given in the table.

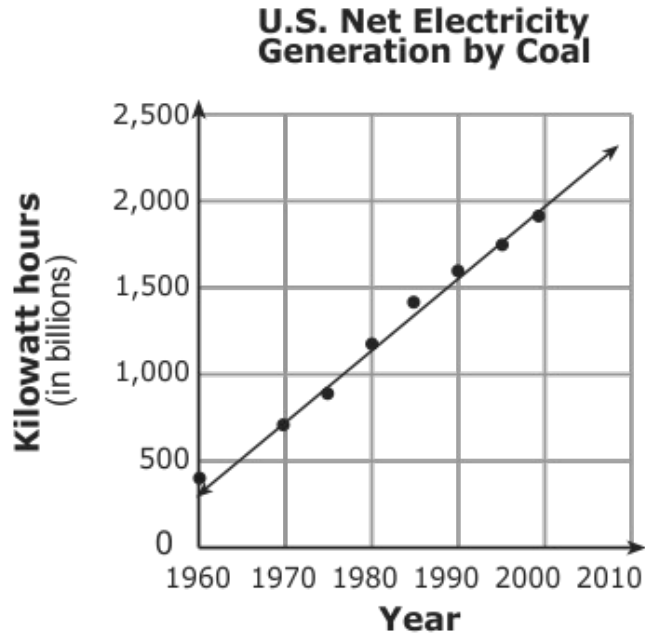
Engine Displacement and Fuel Efficiency for Economy Cars

Car	Displacement (cc)	Fuel Efficiency (mpg)
Q	2189	25
R	1996	29
S	1468	33
T	1324	38
U	1856	26
V	993	43
W	1587	27
X	1590	33

If x represents the engine displacement and y represents the fuel efficiency, then the equation $y = -0.015x + 55.829$ can be used to model the data in the table. According to the equation, which value is closest to the expected engine displacement, in cubic centimeters, of a car with a fuel efficiency of 40 miles per gallon?

- A. 655
- B. 1055
- C. 5643
- D. 6389

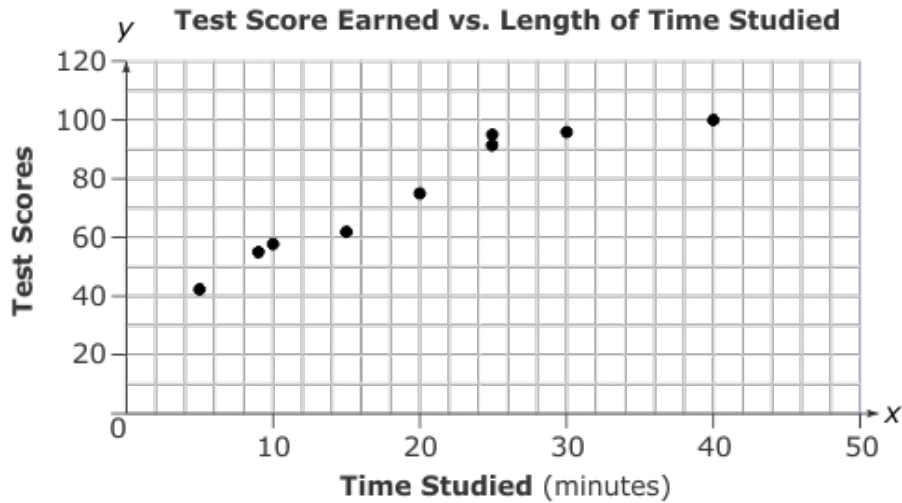
39. Electricity generated in the United States from coal over the past 30 years is shown in the scatterplot below.



A line that **best** fits the data was drawn. What does the slope of the line represent?

- A. The United States has produced 400 billion kilowatt hours of electricity from coal every year for 30 years.
- B. The United States has produced 100 billion kilowatt hours of electricity from coal every year for 30 years.
- C. The United States has increased its production of electricity from coal by about 200 billion kilowatt hours per year.
- D. The United States has increased its production of electricity from coal by about 40 billion kilowatt hours per year.

40. Mr. Conley surveyed his students about the number of minutes each studied for a test. In the graph below, he recorded each student's score in a scatterplot based on the number of minutes the student studied.



Approximately how many minutes did a student study to receive a test score of a 93?

- A. 20
 - B. 25
 - C. 30
 - D. 35
41. Every year, Liberty High School holds a relay race during a field day. If y represents the winning time for the relay race in seconds and x represents the number of years after 2000, then the equation $y = -0.09x + 12.94$ can be used to model the winning times in the relay race at the Liberty High School field day after 2000. According to the linear model, what was the winning time in the relay race in seconds at the Liberty High School field day in 2007?
- A. 12.85 seconds
 - B. 12.31 seconds
 - C. 12.22 seconds
 - D. 12.04 seconds

42. The average heights, y , in inches, of trees in a city park according to x , their ages in years, are shown in the table.

Average Tree Height

Age (years)	Height (inches)
2	49
5	91
8	130
11	173

A linear model, $y = 13.7x + 21.7$, can be used to represent the data in the table. Based on the linear model, which measurement is closest to the expected average height of trees that are 25 years old?

- A. 251 inches
 - B. 364 inches
 - C. 418 inches
 - D. 560 inches
43. According to the United States Department of Agriculture, the estimated number of calories needed per day for inactive female children of different ages are shown in the table.

Estimated Calories Needed

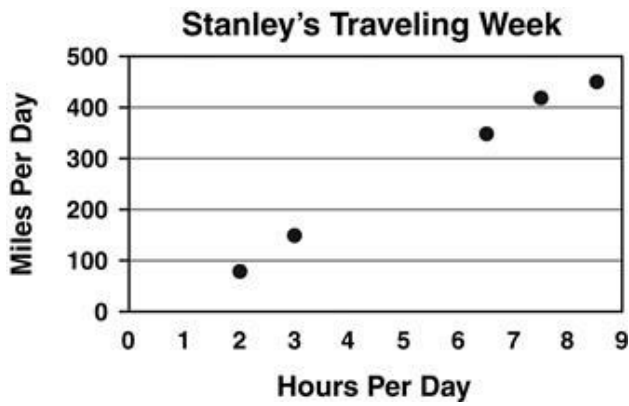
Age (years)	Calories per Day
2	1000
4	1200
9	1400
14	1800

If x represents the age of inactive female children and y represents the calories needed each day, then the linear model $y = 63x + 895$ can be used to represent the data in the table.

According to the model, approximately how many calories per day are needed by an inactive female who is 16 years old?

- A. 1100
- B. 1900
- C. 2000
- D. 2800

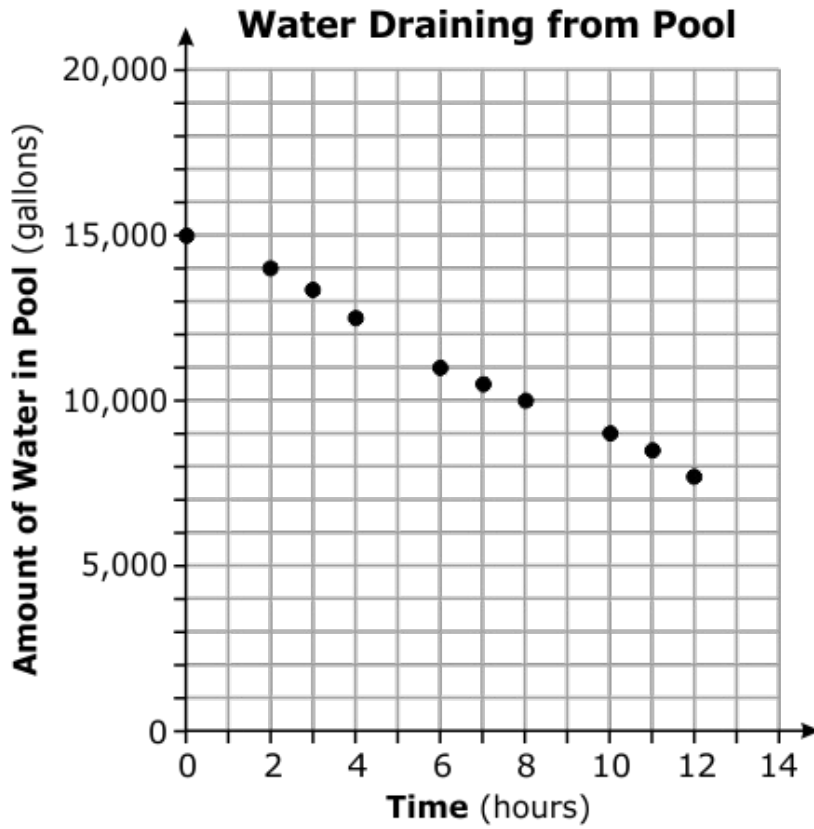
44. Stanley drove his truck for 5 days in a row and recorded his traveling times and distances on the graph below.



Which measure best describes the slope of the graph?

- A. miles per day
 - B. hours per day
 - C. miles per hour
 - D. hours per mile
45. Mandy kept track of the trade-in value of a collector's coin for several months through February of this year. She determined the line of best fit for the data was $y = 4x + 12$, where y is the trade-in value, in dollars, x months after February of this year. According to the equation, when will the trade-in value of the coin be \$44?
- A. October of the same year
 - B. December of the same year
 - C. April of the following year
 - D. June of the following year

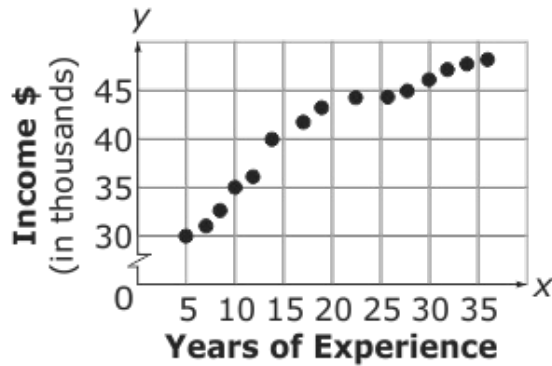
46. The scatterplot below shows the amount of water in a swimming pool based on the amount of time the pool is draining.



Using a linear model, what is the **approximate** amount of water in the pool after it has been draining for 16 hours?

- A. 3,000 gallons
- B. 4,000 gallons
- C. 5,000 gallons

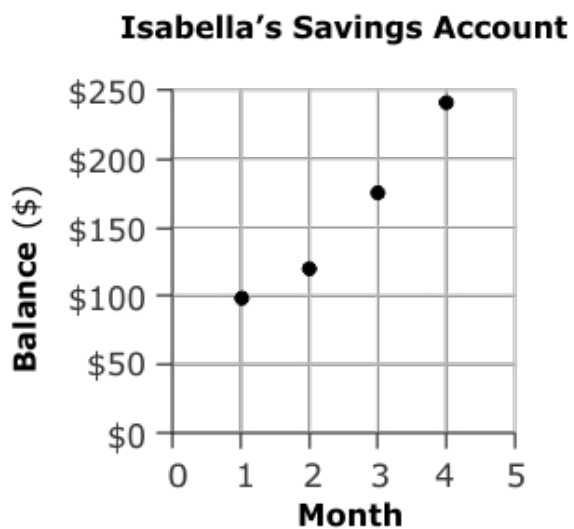
47. The scatterplot below shows the relationship between years of experience on a job and the income earned at that job.



What is the relationship between years of experience and income earned?

- A. The income at 15 years and 25 years is the same.
 - B. The more years of experience a person has, the less the income.
 - C. The more years of experience a person has, the higher the income.
 - D. The income stays the same no matter how many years of experience.
48. The linear model $y = 0.6x + 45$ represents the number of pairs of sandals sold, y , for a given outdoor temperature of x degrees at a certain shoe store. How many pairs of sandals should the company expect to sell if the outside temperature is 90 degrees?
- A. 45 pairs
 - B. 54 pairs
 - C. 90 pairs
 - D. 99 pairs

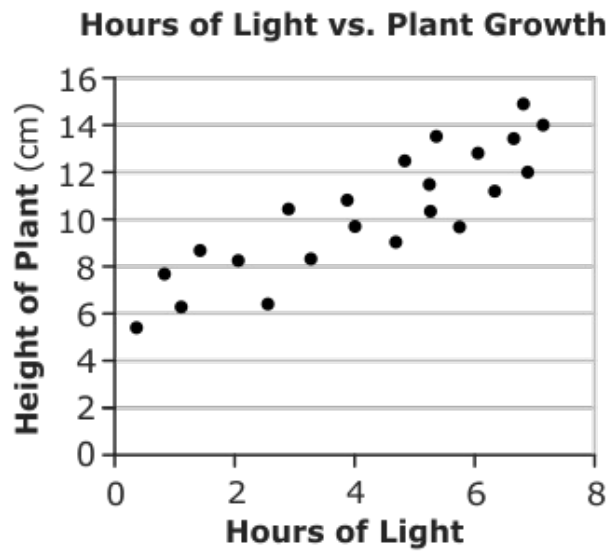
49. The graph shows Isabella's savings account over several months.



Using a linear model, what is Isabella's **approximate** balance in month 5?

- A. \$200
- B. \$250
- C. \$300
- D. \$350

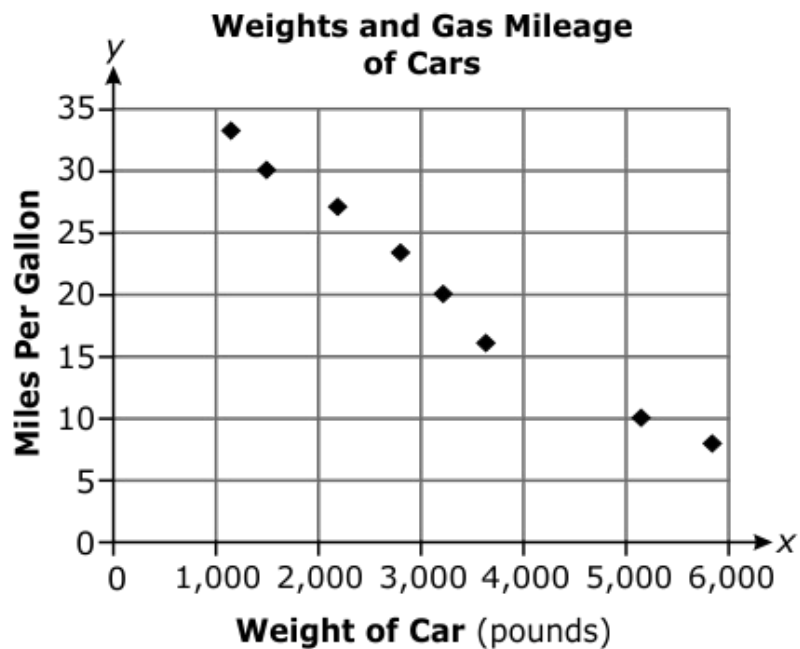
50. The scatterplot below shows the effect the amount of light a plant receives each day has on the growth of the plant over a 30-day period.



Based on a linear model, **about** how tall would a plant be if it received 6 hours of light each day?

- A. 8 cm
- B. 12 cm
- C. 14 cm

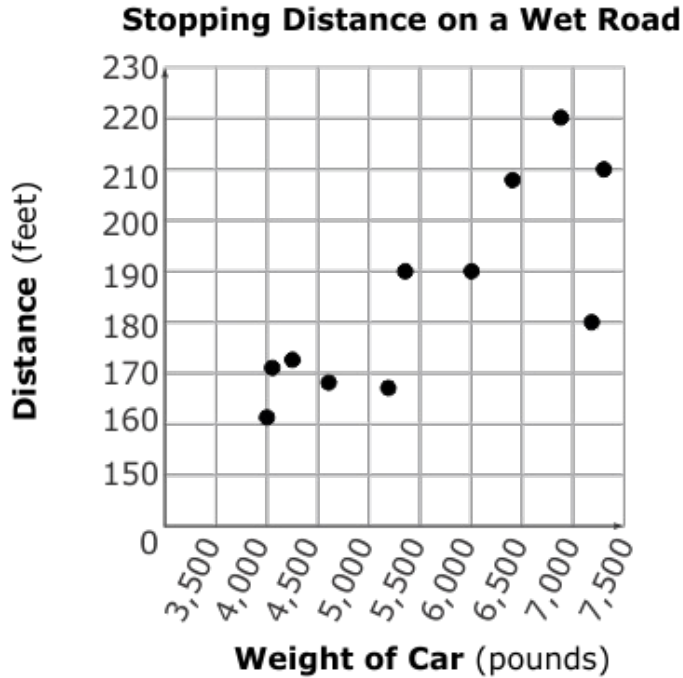
51. The scatterplot below shows the effect the weight of a car has on its gas mileage.



Using a linear model, **about** how many miles per gallon will a car get that weighs 4,500 pounds?

- A. 8 miles per gallon
- B. 10 miles per gallon
- C. 13 miles per gallon

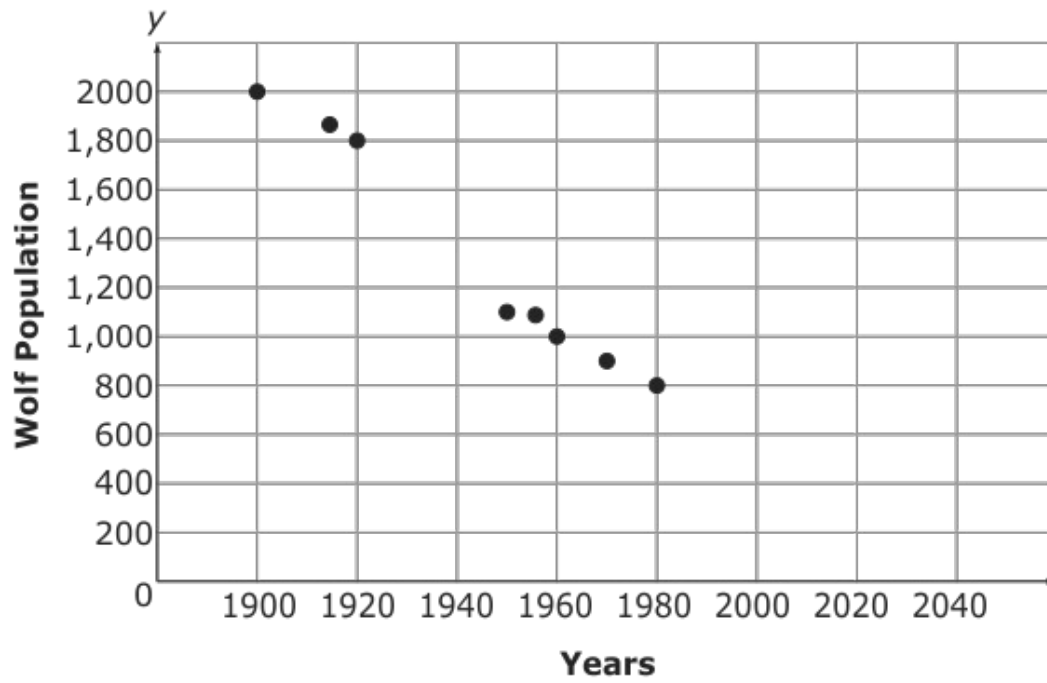
52. The scatterplot below displays the stopping distance on a wet road for 10 cars with different weights.



Which statement is true about the scatterplot?

- A. The heaviest car has the longest stopping distance.
- B. Cars weighing more than 6,000 pounds have a stopping distance over 200 feet.
- C. Cars weighing less than 5,500 pounds have a stopping distance less than 170 feet.
- D. There is at least one car weighing over 6,000 pounds whose stopping distance is under 200 feet.

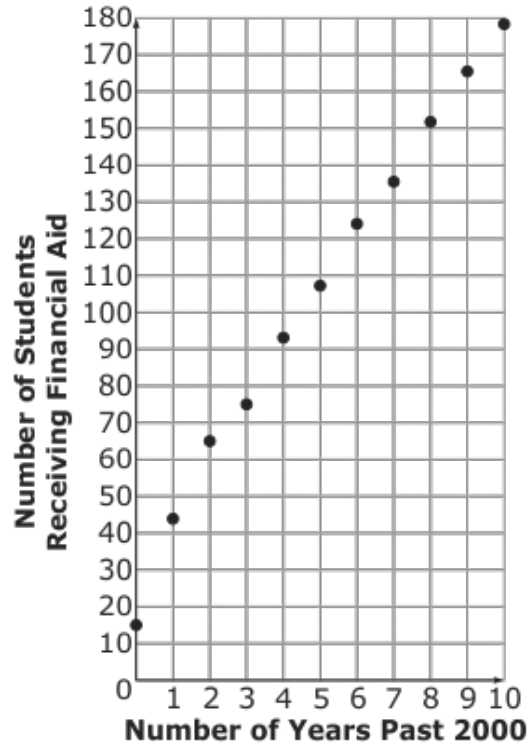
53. The graph shows the wolf population near a city.



Using a linear model, what is the **best** estimate of the wolf population in 2020?

- A. 100
- B. 400
- C. 500
- D. 800

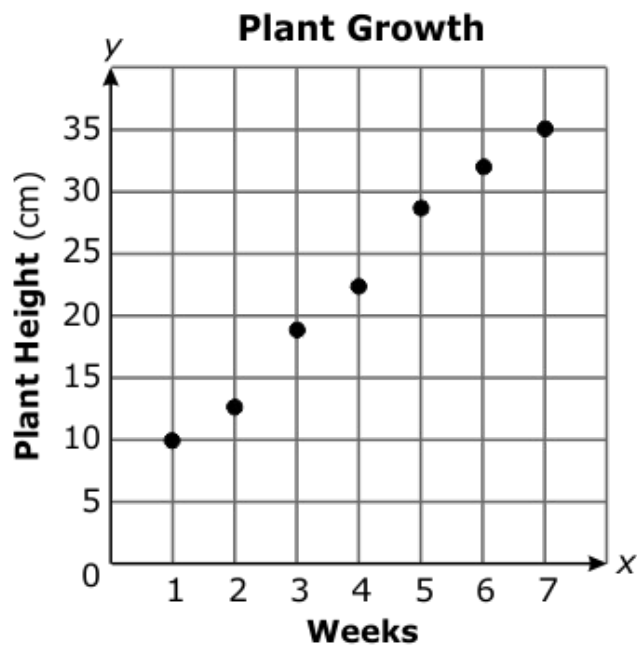
54. The scatterplot below shows the number of students receiving any type of financial aid at a school from 2000–2010.



Based on the model, which is the **best** prediction for the number of students who will be receiving financial aid in 2013?

- A. 200 students
- B. 210 students
- C. 225 students
- D. 250 students

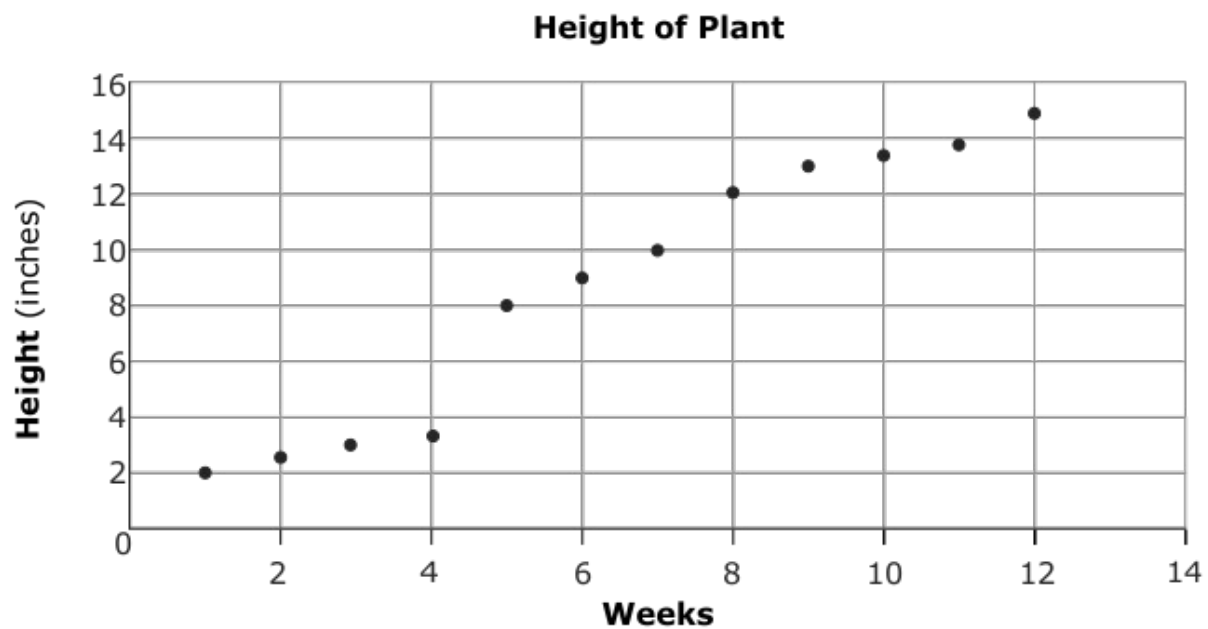
55. Emma bought a new plant. She recorded the growth of her new plant each week for 7 weeks. She created the scatterplot below with her data.



Based on a linear model, what does the slope represent?

- A. The plant grows about 4 cm a week.
- B. The plant grows about 10 cm a week.
- C. The plant was about 5 cm tall when Emma bought it.

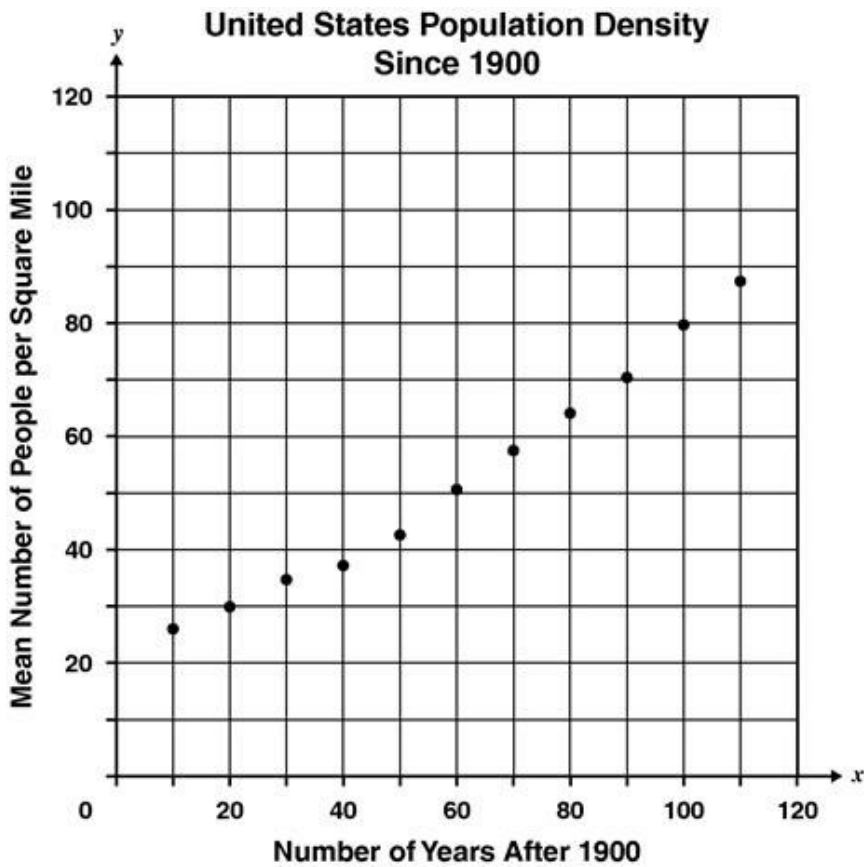
56. The graph shows the height of a plant over several weeks.



Using a linear model, what is the *approximate* height of the plant after 14 weeks?

- A. 11 in.
- B. 14 in.
- C. 17 in.
- D. 21 in.

57. The scatterplot below shows the mean number of people per square mile in the United States during every tenth year since 1900.



The equation $y = 0.62x + 15.54$ is an approximation of the line of best fit for the data on the scatterplot. Based on the line of best fit, which value is the best prediction for the mean number of people per square mile in the United States in the year 2100?

- A. 108
- B. 124
- C. 134
- D. 140

58. The maximum temperatures, in degrees Fahrenheit, for Findlay, Ohio, and Raleigh, North Carolina, for five days are shown in the table.

Maximum Temperatures in Findlay and Raleigh

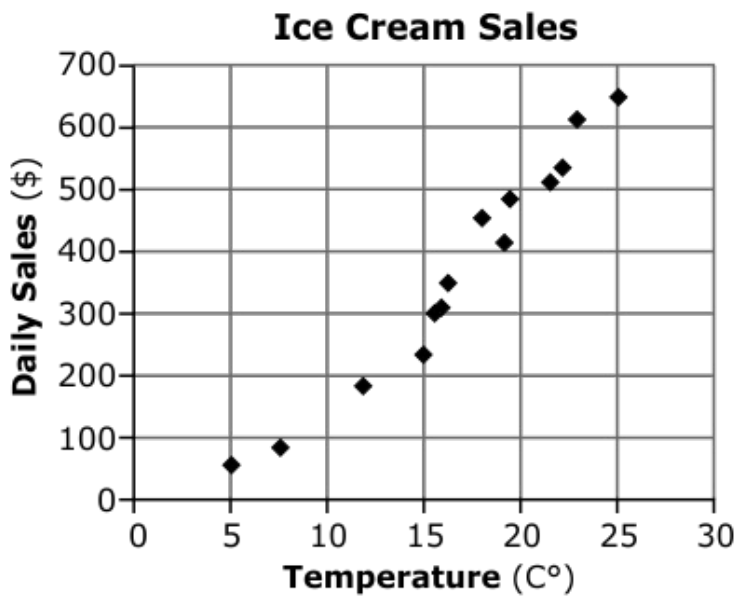
Day	Findlay Maximum Temperature (°F)	Raleigh Maximum Temperature (°F)
January 18	31	50
February 3	20	51
October 23	65	79
December 8	38	54
December 26	36	57

If x represents the maximum temperature in Findlay and y represents the maximum temperature in Raleigh, then the linear model $y = 0.68x + 32.4$ can be used to represent the data in the table. Based on the linear model, which temperature would be closest to the expected maximum temperature in Findlay when the maximum temperature in Raleigh is 70° Fahrenheit?

- A. 44°F
 - B. 48°F
 - C. 55°F
 - D. 69°F
59. A car rental business charges a daily fee along with a one-time fixed charge to refuel the car when it is returned. The equation the business uses to calculate the total rental cost, c , is $c = 15d + 24$, where d represents the number of rental days. What is the daily increase in the total cost of the rental?
- A. \$9
 - B. \$15
 - C. \$24
 - D. \$39

60. A student bought two identical plants that are each 18 inches tall. The equation $h=0.2w+18$ can be used to represent both plants' base growth rate, where h is the height, and w is the number of weeks of growth. On Plant 2, however, the student used fertilizer, which increased Plant 2's weekly growth by 50%. Which equation gives the height of Plant 2 each week?
- A. $h=0.3w+18$
 - B. $h=0.3w+27$
 - C. $h=0.5w+18$
 - D. $h=0.5w+27$

61. The scatterplot below compares the average daily sales of ice cream at a store to the outside average temperature.



Using a linear model, what is the **approximate** amount of ice cream sales a store could expect if the outside temperature were 10°C?

- A. \$100
- B. \$150
- C. \$250

62. The Hernandez family is taking a trip. The table below shows the total distance they have traveled the first 4 hours of their trip.

Time (hours)	Total Distance (miles)
1	50
2	110
3	160
4	205

Based on the table, **approximately** how many miles will the Hernandez family travel in 8 hours?

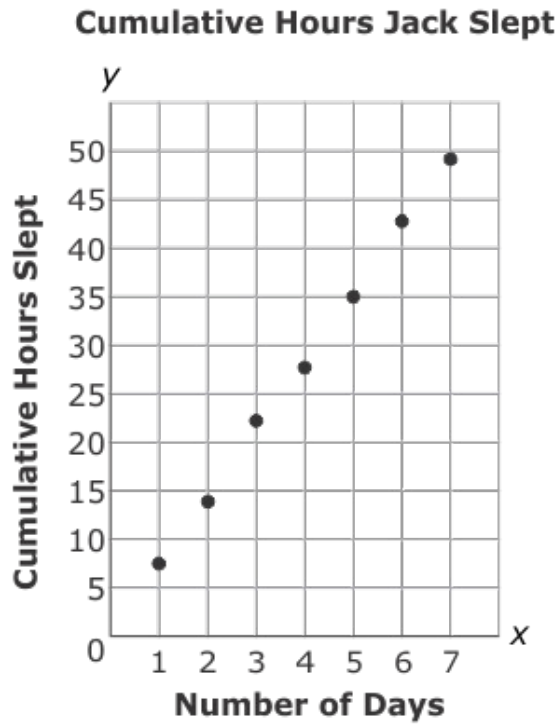
- A. 385 miles
 - B. 400 miles
 - C. 415 miles
63. A teacher asked his students how much time they spent study for a test. He modeled the relationship between the amount of time a student spent studying for the test (t), in hours, and the student's score on the test (y) with the equation below.

$$y = 10t + 60$$

Which statement is an accurate interpretation of the model?

- A. The model associates a score of 60 with 10 hours of studying.
- B. The model associates a score of 70 with 0 hours of studying.
- C. The model associates a score of 80 with 2 hours of studying.
- D. The model associates a score of 100 with 1 hour of studying.

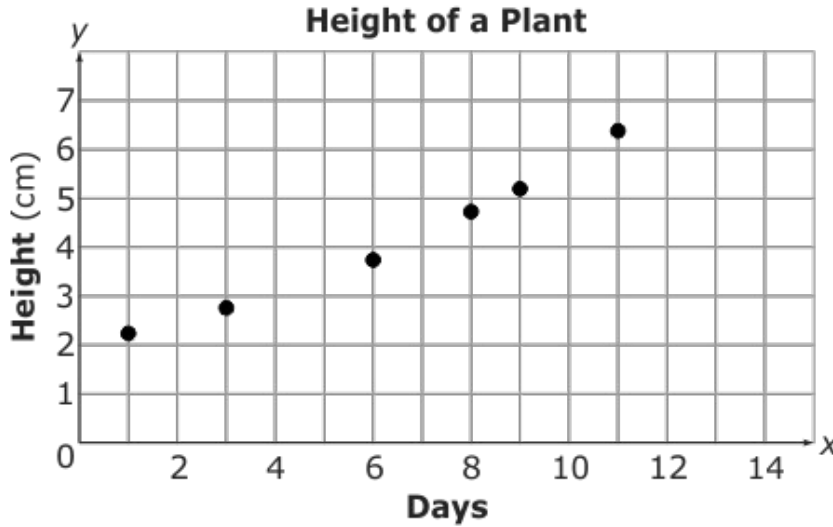
64. The graph below represents the cumulative number of hours Jack slept during a week.



Using a linear model for the data, what is the meaning of the slope?

- A. the amount of hours Jack slept per night
- B. the amount of sleep Jack got the first night
- C. the amount of nights Jack slept per week
- D. the number of hours Jack was awake

65. Taylor planted a seedling and measured its height each day. Her results are recorded in the graph below.



Using a linear model, **approximately** how tall will the seedling be in 20 days?

- A. 16 cm
 - B. 14 cm
 - C. 12 cm
 - D. 9 cm
66. Research shows that the number of years of college education that a person earns, x , the higher that person's salary will be, y . Using the linear model $y = 5,000x + 20,000$, what does the y -intercept represent?
- A. A person with no college education will typically have a salary of \$20,000.
 - B. A person with no college education will typically have a salary of \$5,000.
 - C. A person will receive a \$5,000 raise for each year worked.
 - D. All jobs pay \$20,000 the first year.

67. The equation $a = 3.75h + 2$ represents the amount that Jan charges for babysitting, where h is the number of hours worked. How would the babysitting graph change if $a = 3.75h + 3$ represented what Jan charges?
- A. The graph would start higher on the y -axis.
 - B. The graph would start lower on the y -axis.
 - C. The graph would be steeper.
 - D. The graph would be flatter.
68. When t is the time in hours, the equation $d = 2t + 8$ gives the total accumulated snow depth, d , in inches during a storm. Using this equation, how much snow will be added with each hour?
- A. 1 inch
 - B. 2 inches
 - C. 8 inches
 - D. 10 inches
69. Based on the records of the weight of different newborn babies recorded in a pediatrician's clinic last year, the clinic predicted that the weight of a newborn baby for the first 12 months could be modeled by the equation $w = 1.08m + 7.2$, where w represents the weight, in pounds, of the baby after m months. What do the slope and y -intercept of the equation represent?
- A. The weight of a baby at 12 months is 1.08 pounds and increases by 7.2 pounds every 12 months.
 - B. The weight of a baby at 12 months is 7.2 pounds and increases by 1.08 pounds every 12 months.
 - C. The weight of a baby at birth is 7.2 pounds and increases by 1.08 pounds every month.
 - D. The weight of a baby at the time of birth is 1.08 pounds and increases by 7.2 pounds every month.

70. Ryan recorded the total distance he drove his car and the total amount of gasoline he used during each week over a six-week period. His data is shown in the table below.

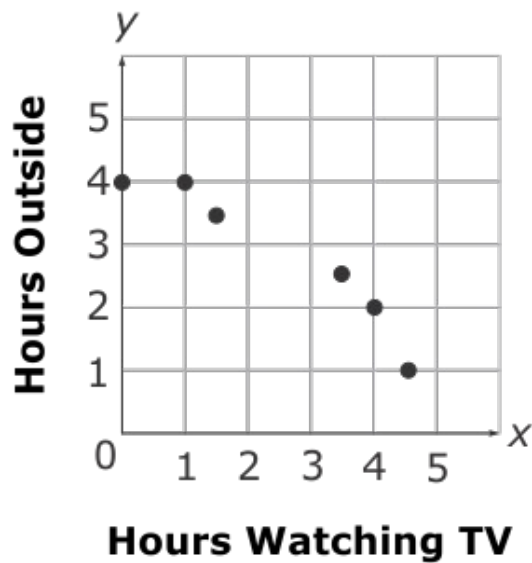
Ryan's Data

Week	Total Distance (miles)	Total Amount of Gasoline Used (gallons)
1	216	9
2	552	24
3	376	16
4	226	12
5	740	31
6	514	21

If the relationship between the distance Ryan drove and the amount of gasoline used is approximately linear, for which week is the data most likely flawed?

- A. Week 2
- B. Week 3
- C. Week 4
- D. Week 5

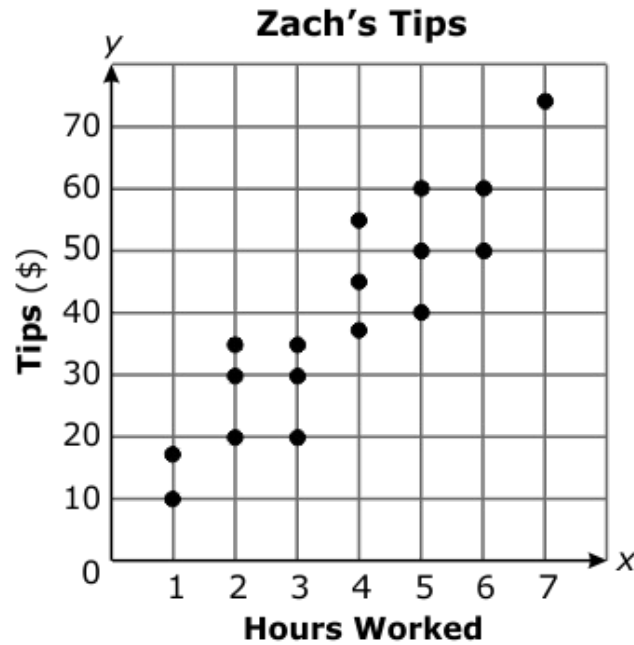
71. James asked six classmates about the amount of time they spend outside and the amount of time they spend watching TV on Saturday. He plotted the results on the graph below.



Which is the **best estimate** for the amount of time someone spends outside if he or she watches 2.5 hours of TV?

- A. 1.5 hours
- B. 2 hours
- C. 3 hours
- D. 3.5 hours

72. Zach works as a waiter and records his tips. He created the scatterplot below comparing the amount of his tips and the number of hours he works.



Using a linear model, **about** how much in tips will Zach earn if he works 8 hours?

- A. \$60
 - B. \$80
 - C. \$90
73. Mikail planted tomato plants in his garden. The average heights of the plants, y , as a function of the time since they were planted in days, x , are shown in the table.

Average Plant Heights

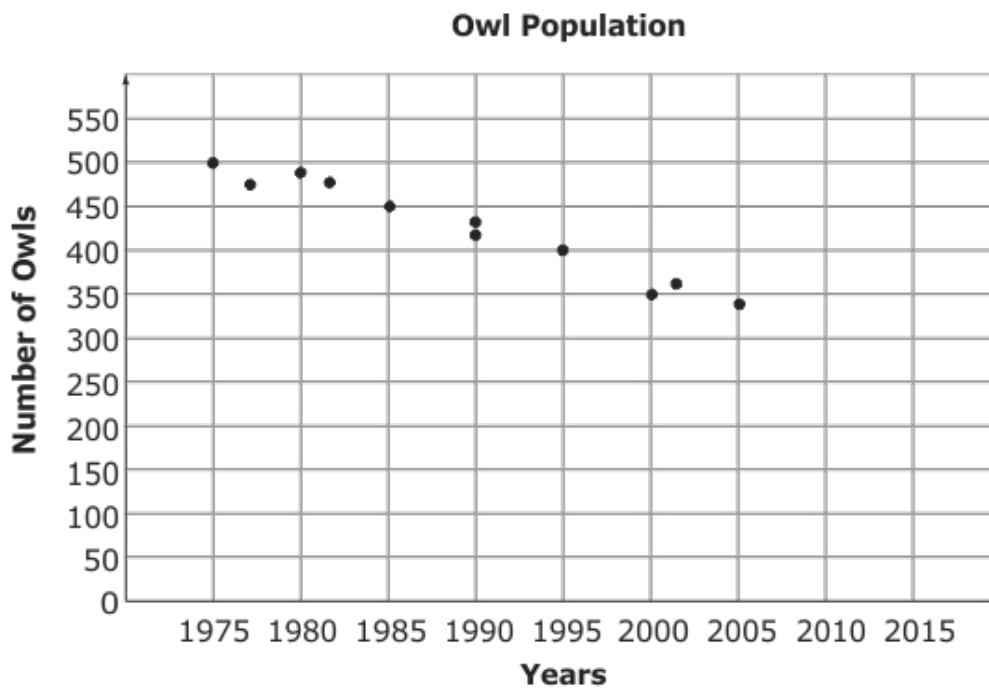
Time (days)	Height (inches)
10	17
20	32
30	45
40	58
50	73

A linear model, $y = 1.38x + 3.6$, can be used to represent the data in the table. Based on the model, which value is closest to the number of days the average height of tomato plants will be 95 inches?

- A. 43
- B. 66
- C. 134
- D. 167

74. The boiling temperature of a solution of calcium chloride dissolved in 200 milliliters of water changes due to the number of grams of calcium chloride dissolved in the solution. If T represents the boiling temperature of the solution in degrees Celsius ($^{\circ}\text{C}$) and g represents the number of grams of calcium chloride in the solution, then this relationship can be modeled by the equation $T = 99.7 + 0.026g$. Which temperature is closest to the expected boiling temperature of a solution that has 100 grams of calcium chloride dissolved in 200 milliliters of water?
- A. 100.0°C
 - B. 102.3°C
 - C. 104.9°C
 - D. 125.7°C

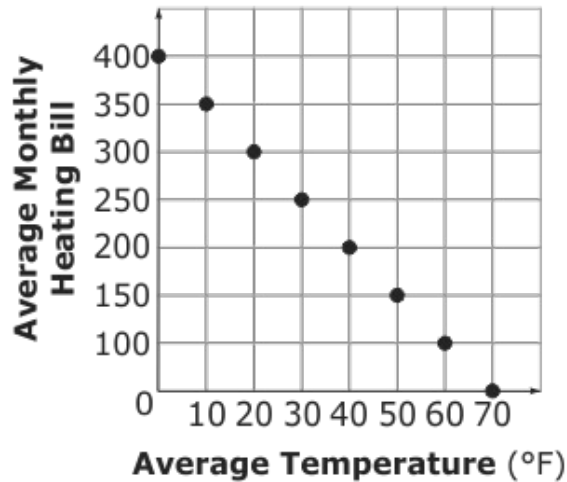
75. The graph below shows the owl population in a city over several years.



Using a linear model, which is the **best** estimate of the owl population in 2010?

- A. 250
- B. 320
- C. 350
- D. 400

76. A family recorded and graphed the average temperature outside and compared it to the monthly heating bill each month.



Based on this linear model, what is the expected heating cost if the average temperature outside was 35°F?

- A. \$75
 - B. \$225
 - C. \$350
 - D. \$400
77. A student had already read some pages in a book when he created the model below. The model tracks p , the total amount of pages read if the student reads for h hours.

$$p = 30h + 60$$

Which statement **best** explains the meaning of the slope in this model?

- A. The student tends to read 30 pages per hour.
- B. The student tends to read 60 pages per hour.
- C. The student will have 30 pages left to read after 1 hour of reading.
- D. The student will have 60 pages left to read after half an hour of reading.

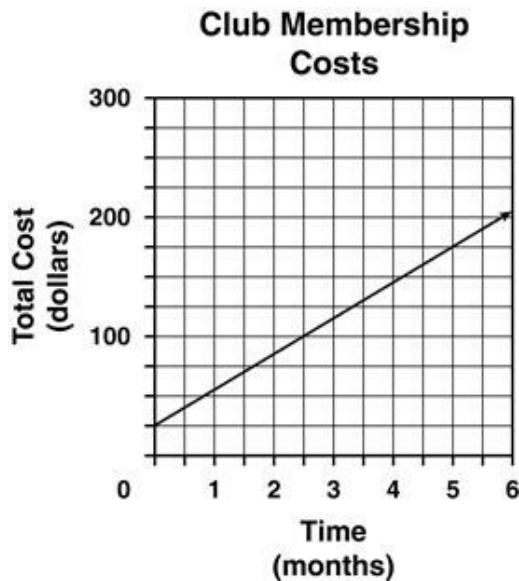
78. The table below shows the temperature of an oven, in degrees Fahrenheit, t minutes after it is turned on.

Oven Temperature

Time, t (in minutes)	Temperature, F (in °F)
0	70
3	160
5	220
10	370

An equation for a line of best fit for these data is $F = 30t + 70$. What is the slope of this line, and what does it represent?

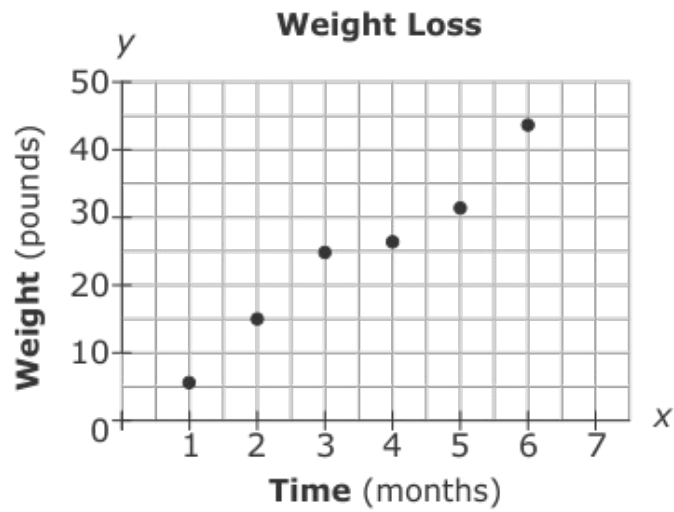
- A. The slope is 30, and it represents the initial temperature, in degrees Fahrenheit, of the oven.
 - B. The slope is 70, and it represents the initial temperature, in degrees Fahrenheit, of the oven.
 - C. The slope is 30, and it represents the increase in temperature, in degrees Fahrenheit, each minute the oven is on.
 - D. The slope is 70, and it represents the increase in temperature, in degrees Fahrenheit, each minute the oven is on.
79. The graph models the total cost of a health club membership over 6 months. The cost includes a one-time application fee and a monthly charge.



Based on the graph, which statement best represents the data?

- A. The application fee is \$30, and the monthly charge is \$25.
- B. The application fee is \$25, and the monthly charge is \$30.
- C. The application fee is \$25, and the monthly charge is \$35.
- D. The application fee is \$50, and the monthly charge is \$40.

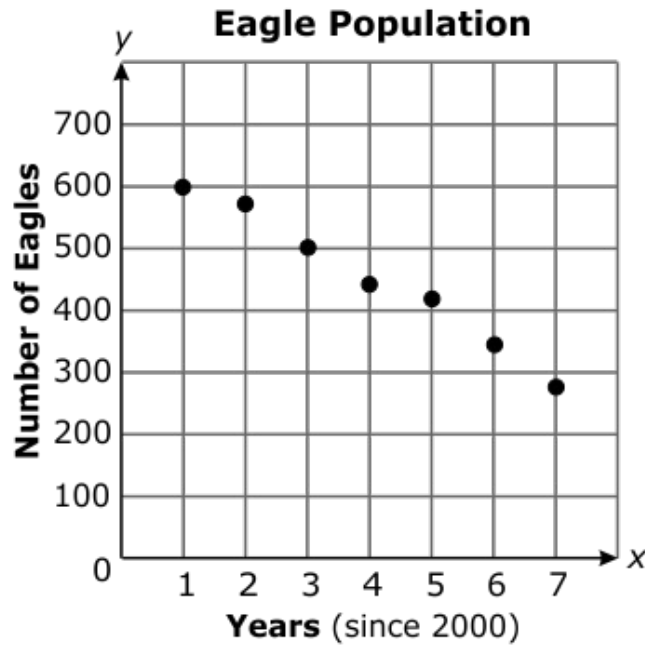
80. Darrell recorded the total number of pounds he lost each month after he started going to the gym. He recorded his data in the scatterplot below.



Based on a linear model, **about** how many pounds will Darrell have lost after 7 months?

- A. 45
- B. 50
- C. 55
- D. 60

81. The scatterplot below represents the approximate population of eagles in an area since 2000.



Using a linear model, what does the y -intercept of the line represent?

- A. There were about 650 eagles in the area in 2000.
 - B. There were about 600 eagles in the area in 2001.
 - C. The eagles are decreasing by about 50 per year.
82. Hillary measured the depth of the snow in her front yard for 7 days. An equation for the line of best fit for Hillary's data is $y = -0.5x + 8$. Let x represent the number of days. Let y represent the depth of the snow in inches.

Which statement best describes the meaning of the slope in this equation?

- A. The depth of the snow decreased 0.5 inch per day.
- B. The depth of the snow increased 0.5 inch per day.
- C. The depth of the snow decreased 8 inches per day.
- D. The depth of the snow increased 8 inches per day.

83. The equation $y = 0.4x$ can be used to predict the number of hours, y , it takes Zula to write x number of articles for a newspaper. Which of these is the best interpretation of the slope of this linear model?
- A. Zula can write 4 articles in 10 hours.
 - B. Zula can write $\frac{4}{10}$ of an article in 1 hour.
 - C. It takes Zula 24 minutes to write each article.
 - D. It takes Zula 0.4 minute to write each article.
84. The model $d = 3n + 4$ gives the depth, in feet, of a hole in the ground since workers began digging the hole n hours ago. What does 4 represent in the model?
- A. the initial depth of the hole
 - B. the change in the depth of the hole per hour
 - C. the number of hours it took for the hole to increase by 1 foot
 - D. the hour in the workday when the workers began digging the hole
85. A server in a restaurant earns a fixed hourly salary plus tips, which depend on the bill amount of the meal he serves. He estimated that the average amount he earns in an hour can be modeled by the equation $y = 8.50 + 0.15x$, where x is the total value of the meals he serves in an hour. Which statement represents the correct interpretation of this equation?
- A. The slope represents that the server earns \$8.65 as his fixed hourly salary.
 - B. The y -intercept represents that the server has \$8.65 as his fixed hourly salary.
 - C. The slope represents that the server's tip is 15% of the value of the meals he serves in an hour.
 - D. The y -intercept represents that the server's tip is 15% of the value of the meals he serves in an hour.