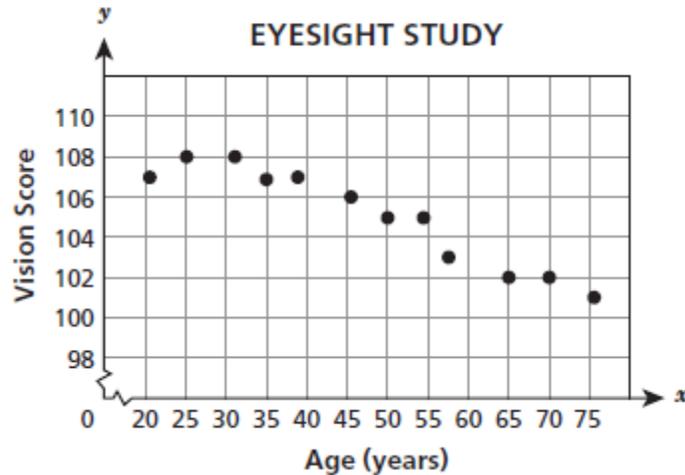


Name: _____

Date: _____

8.SP.3

- _____ 1. A researcher studied the eyesight of people at different ages. She calculated a vision score for each person in the study and plotted the data on the graph below. (2014)



The researcher used the line $y = -0.1x + 110$ to model the data. When she substituted the value $x = 65$ into this equation, what did the result tell her?

- A. the exact value for the vision score of a 65-year-old
 - B. the predicted value for the vision score of a 65-year-old
 - C. the minimum possible value for the vision score of a 65-year-old
 - D. the maximum possible value for the vision score of a 65-year-old
- _____ 2. Annette plans to visit an amusement park where she must pay for admission and purchase tickets to go on the rides. Annette wants to find the total cost for a day at the amusement park. She wrote the equation $c = 1.50x + 12$ to predict c , the total cost for a day at the amusement park. What could the number 12 represent in Annette's equation? (2014)

- A. the number of rides
- B. the cost of admission
- C. the cost of each ticket
- D. the number of tickets

- _____ 3. The winning time for the men's 400-meter race in each of the Olympic Games from 1976 to 1996 can be modeled by the equation $y = -0.054x + 44.54$, where x is the number of years after 1976 and y is the winning time in seconds. If the relationship continues, which equation could be used to predict the winning time in the year 2020? (2015)

- A. $y = -0.054(1976) + 44.54$
- B. $y = -0.054(2020) + 44.54$
- C. $y = -0.054(24) + 44.54$
- D. $y = -0.054(44) + 44.54$

- _____ 4. The scatter plot below shows the numbers of customers in a restaurant for four hours of the dinner service on two different Saturday nights. The line shown models this relationship, and $x = 0$ represents 7 p.m. (2015)



What does the value of the y -intercept represent?

- A. the average number of customers at 7 p.m.
 - B. the average number of customers at 11 p.m.
 - C. the average change in the number of customers each hour
 - D. the average change in the number of customers during four hours of the dinner service
- _____ 5. A company performed power tests on a set of batteries of the same type. The company determined that the equation $y = 100 - 8.9x$, where x is the number of hours of use and y is the percent of battery power remaining, models the battery life. Based on the equation, what is the **best** prediction of the percent of remaining power for a battery after 11 hours of use? (2017) no calculator

- A. 1.2%
- B. 2.1%
- C. 10%
- D. 97.9%

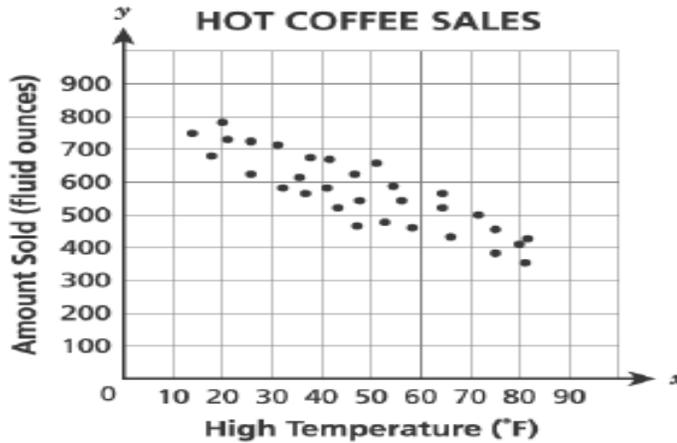
- _____ 6. In city W, the average cost for a gym membership is given by the equation $y = 34.99x + 49$, where y is the total cost, in dollars, for x months of membership. What is the meaning of the y -value when $x = 1$? (2018)

- A. The average sign-up fee for a gym membership
- B. The average monthly charge for a gym membership
- C. The average total cost for the first month of a gym membership
- D. The average total cost for the first two months of a gym membership

- _____ 7. A study was conducted to determine the relationship between the age, x , in years, of a certain brand of motorcycle and its value, y , in dollars. The equation $y = -750x + 8,500$ best models the data. Based on the equation, what is the estimated value of a motorcycle that is 5 years old? (2021)

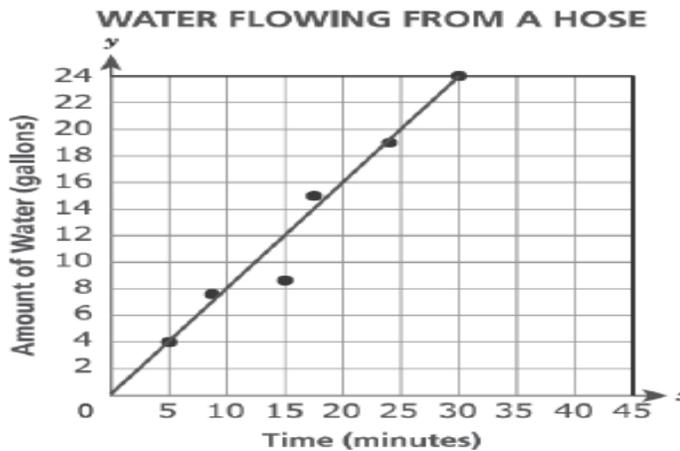
- A. \$3,750
- B. \$4,750
- C. \$7,750
- D. \$12,250

8. The owner of a coffee shop compared the amount of hot coffee per day, in fluid ounces, sold and the daily temperature, in degrees Fahrenheit, per day. Her data is shown in the scatter plot below.



If these data are modeled by the line $y = -5.9x + 850$, which statement **best** describes a valid prediction the owner could make? (2017)

- A. For each temperature increase of 10°F , the shop can expect to sell about 60 fluid ounces more hot coffee.
 - B. For each temperature decrease of 10°F , the shop can expect to sell about 6 fluid ounces more hot coffee.
 - C. On a day with a high temperature of 0°F , the shop can expect to sell about 145 fluid ounces of hot coffee.
 - D. On a day with a high temperature of 0°F , the shop can expect to sell about 850 fluid ounces of hot coffee.
9. The scatter plot below can be used to find the approximate rate as which water flows through a garden hose. The line of best fit for the scatter plot can be described by the equation $y = \frac{4}{5}x$.



If the rate, in gallons per minute, continues, approximately how many gallons of water will flow from the hose in 45 minutes? (2018)

- A. 24
- B. 36
- C. 39
- D. 56

_____10. Cory drinks water from a bottle during a bike ride. The average amount of water, in ounces, in his water bottle can be represented by the equation $y = -8x + 32$, where y is the amount of water remaining after x hours. Based on the equation, what amount of water, in ounces, will remain in the bottle after Cory rides for $2\frac{1}{2}$ hours? (2022)

A. 8

B. 12

C. 20

D. 32

11. A reporter collected data on y , the current market value, in dollars, of a certain car for various years, x , after it had been purchased new. The equation below was fit to the data. (2016)

$$y = 16,500 - 1,500x$$

What does the slope of the graph of this equation represent?

What does the y -intercept of the graph of this equation represent?
