1. On Thursday, 240 adults and children attended a show. The ratio of adults to children was 5 to 1. How many children attended the show?

   A) 40

   B) 48

   C) 192

   D) 200

2. On an architect's drawing of the floor plan for a house, 1 inch represents 3 feet. If a room is represented on the floor plan by a rectangle that has sides of lengths 3.5 inches and 5 inches, what is the actual floor area of the room in square feet?

   A) 17.5

   B) 51.0

   C) 52.5

   D) 157.5

3. Scientists estimate that the Pacific Plate, one of Earth's tectonic plates, has moved about 1,060 kilometers in the past 10.3 million years. What was the average speed of the Pacific Plate during that time period, in centimeters per year?

   A) 1.03

   B) 10.3

   C) 103

   D) 1,030

4. County Y consists of two districts. One district has an area of 30 square miles and a population density of 370 people per square mile, and the other district has an area of 50 square miles and a population density of 290 people per square mile. What is the population density, in people per square mile, for all of County Y?

5. A furniture store buys its furniture from a wholesaler. For a particular table, the store usually charges its cost from the wholesaler plus 75%. During a sale, the store charged the wholesale cost plus 15%. If the sale price of the table was $299, what is the usual price for the table?

   A) $359

   B) $455

   C) $479

   D) $524
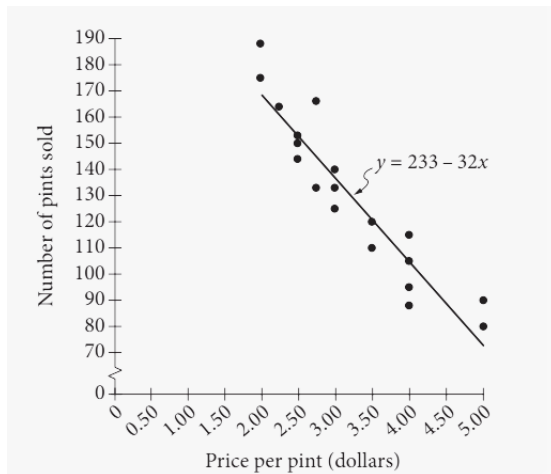
6.

A grocery store sells pints of raspberries and sets the price per pint each week. The scatterplot above shows the price and the number of pints of raspberries sold for 19 weeks, along with the line of best fit and the equation for the line of best fit.

(a) According to the line of best fit, how many pints of raspberries would the grocery store expect to sell in a week when the price of raspberries is $4.50 per pint?

(b) For how many of the 19 weeks shown was the number of pints of raspberries sold greater than the amount predicted by the line of best fit?

Time (hours)	Number of bacteria
0	1×10^3
1	4×10^3
2	1.6×10^4
3	6.4×10^4

7.

The table above gives the initial number (at time $t = 0$) of bacteria placed in a growth medium and the number of bacteria in the growth medium over 3 hours. Which of the following functions models the number of bacteria, $N(t)$, after t hours?

A) $N(t) = 4,000t$

B) $N(t) = 1,000 + 3,000t$

C) $N(t) = 1,000(4^{-t})$

D) $N(t) = 1,000(4^t)$

8. A bank has opened a new branch and, as part of a promotion, the bank branch is offering $1,000 certificates of deposit at simple interest of 4% per year. The bank is selling certificates with terms of 1, 2, 3, or 4 years. Which of the following functions gives the total amount, A, in dollars, a customer will receive when a certificate with a term of k years is finally paid?

A) $A = 1,000(1.04k)$

B) $A = 1,000(1 + 0.04k)$

C) $A = 1,000(1.04)^k$

D) $A = 1,000(1 + 0.04^k)$

9. A bank has opened a new branch and, as part of a promotion, the bank branch is offering $1,000 certificates of deposit at an interest rate of 4% per year, compounded semiannually. The bank is selling certificates with terms of 1, 2, 3, or 4 years. Which of the following functions gives the total amount, A, in dollars, a customer will receive when a certificate with a term of k years is finally paid?

A) $A = 1,000(1 + 0.04k)$

B) $A = 1,000(1 + 0.08k)$

C) $A = 1,000(1.04)^k$

D) $A = 1,000(1.02)^{2k}$
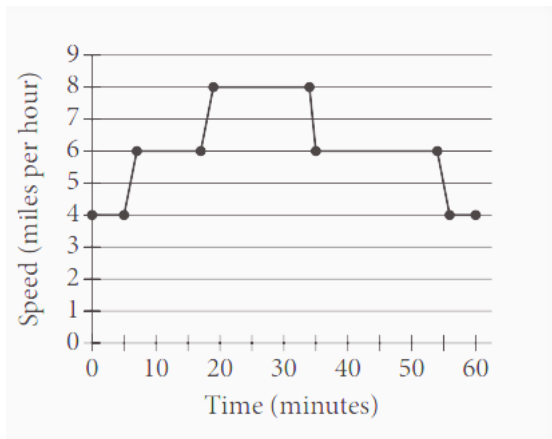
10.

Each evening, Maria walks, jogs, and runs for a total of 60 minutes. The graph above shows Maria's speed during the 60 minutes. Which segment of the graph represents the times when Maria's speed is the greatest?

A) The segment from (17, 6) to (19, 8)

B) The segment from (19, 8) to (34, 8)

C) The segment from (34, 8) to (35, 6)

D) The segment from (35, 6) to (54, 6)

11. A store is deciding whether to install a new security system to prevent shoplifting. The security manager of the store estimates that 10,000 customers enter the store each week, 24 of whom will attempt to shoplift. The manager estimates the results of the new security system in detecting shoplifters would be as shown in the table below.

	Alarm sounds	Alarm does not sound	Total
Customer attempts to shoplift	21	3	24
Customer does not attempt to shoplift	35	9,941	9,976
Total	56	9,944	10,000

According to the manager's estimates, if the alarm sounds for a customer, what is the probability that the customer did not attempt to shoplift?

A) 0.03%

B) 0.35%

C) 0.56%

D) 62.5%
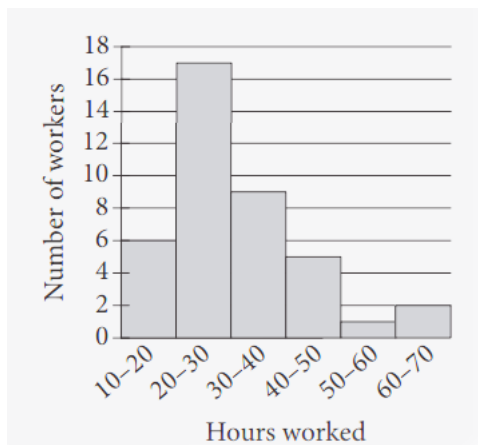
12.

The histogram above summarizes the number of hours worked last week by the 40 employees of a landscaping company. In the histogram, the first bar represents all workers who worked at least 10 hours but less than 20 hours; the second represents all workers who worked at least 20 hours but less than 30 hours; and so on. Which of the following could be the median and mean number of hours worked for the 40 employees?

A) Median = 22, Mean = 23

B) Median = 24, Mean = 22

C) Median = 26, Mean = 32

D) Median = 32, Mean = 30
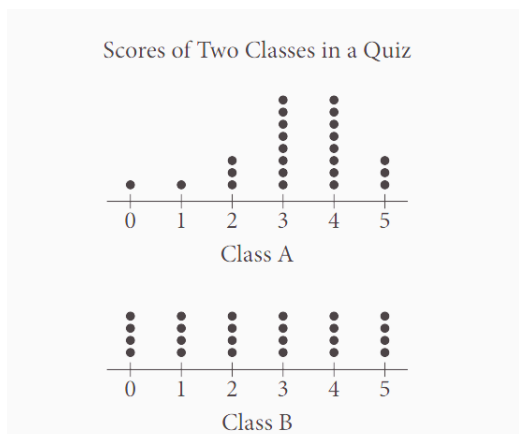
13.

The dot plots above summarize the scores that two classes, each with 24 students, at Central High School achieved on a current events quiz. Which of the following correctly compares the standard deviation of the scores in each of the classes?

A) The standard deviation of the scores in Class A is smaller.

B) The standard deviation of the scores in Class B is smaller.

C) The standard deviation of the scores in Class A and Class B is the same.

D) The relationship cannot be determined from the information given.

14. A quality control researcher at an electronics company is testing the life of the company's batteries in a certain camera. The researcher selects 100 batteries at random from the daily output of the batteries and finds that the average life of the batteries has a 95% confidence interval of 324 to 360 camera pictures. Which of the following conclusions is the most reasonable based on the confidence interval?

    A) 95% of all the batteries produced by the company that day have a life between 324 and 360 pictures.

    B) 95% of all the batteries ever produced by the company have a life between 324 and 360 pictures.

    C) It is plausible that the true average life of batteries produced by the company that day is between 324 and 360 pictures.

    D) It is plausible that the true average life of all the batteries ever produced by the company is between 324 and 360 pictures.

15. A community center offers a Spanish course. This year, all students in the course were offered additional audio lessons they could take at home. The students who took these additional audio lessons did better in the course than students who didn't take the additional audio lessons. Which of the following is an appropriate conclusion?

    A) Taking additional audio lessons will cause an improvement for any student who takes any foreign language course.

    B) Taking additional audio lessons will cause an improvement for any student who takes a Spanish course.

    C) Taking additional audio lessons was the cause of the improvement for the students at the community center who took the Spanish course.

    D) No conclusion about cause and effect can be made regarding students at the community center who took the additional audio lessons at home and their performance in the Spanish course.

ANSWER KEY

1. A
2. D
3. B
4. 320
5. B
6. (a) 89, (b) 8
7. D
8. B
9. D
10. B
11. D
12. C
13. A
14. C
15. D