

# Test Booklet

Subject: MA, Grade: 8

Summer Packet 2017\_ 8th Algebra 1\_Barker  
-SHOW WORK

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## Instructions for Test Administrator

**Question 52:** You may use your reference sheet and MCAS ruler during this session. You may not use a calculator during this session.

**Question 87:** You may use your reference sheet and MCAS ruler during this session. You may not use a calculator during this session.

1 What is the value of  $(3^6) (3^{-2}) (3)$  ?

- A 9
- B 27
- C 81
- D 243

2 What is the value of this expression?

$$8 \div 2 + 2(6 - 9)^2$$

- A -161
- B -14
- C 22
- D 26

3 What is the value of the expression?

$$\frac{2 + 2(3 + 7)^2 - \sqrt[3]{73 - 9}}{3}$$

- A 34
- B 64
- C 66
- D 132

4 Solve for  $f$  :

$$e = 4g - 2f$$

- A  $f = 2g + \frac{1}{2}e$
- B  $f = 2g - e$
- C  $f = 2g - \frac{1}{2}e$
- D  $f = 2g + e$

5 Which statement is true?

- A The number  $\frac{5}{8}$  is rational.
- B The number  $\sqrt{\pi}$  is rational.
- C The number  $\frac{\sqrt{5}}{\sqrt{20}}$  is irrational.
- D The number 0.625 is irrational.

6 The values in the table below were generated using a rule.

$x$	$y$
0	23
1	30
2	37
3	44
4	51
5	58

Which rule could have been used to generate the values in the table?

- A  $y = 7x + 23$
- B  $y = 23x$
- C  $y = x + 23$
- D  $y = 7 + 23x$

7 Which equation can be used to find  $m$ , the number of minutes in  $h$  hours?

- A  $m = 60 - h$
- B  $m = h + 60$
- C  $m = h \div 60$
- D  $m = 60h$

- 8 Students in Mrs. Munson’s mathematics class measured the outside temperature each day for 4 days. They recorded their measurements in tables. Which table shows a **varying rate** of change in the temperature?

**Monday**

Time	Temperature (°F)
9:00	45
9:15	47
9:30	49
9:45	51
10:00	53

**A**

**Wednesday**

Time	Temperature (°F)
9:00	60
9:15	60
9:30	60
9:45	60
10:00	60

**C**

**Tuesday**

Time	Temperature (°F)
9:00	50
9:15	52
9:30	53
9:45	55
10:00	56

**B**

**Thursday**

Time	Temperature (°F)
9:00	60
9:15	59
9:30	58
9:45	57
10:00	56

**D**

- 9 Barb purchased a loaf of bread for \$2 and  $p$  pounds of sliced ham at \$5 per pound for a total of \$13.25. The relationship between what she purchased and her total purchase price is represented by the equation below.

$$5p + 2 = 13.25$$

What was the total number of pounds of ham that Barb purchased?

- A** 2.25 pounds
- B** 2.65 pounds
- C** 3.05 pounds
- D** 4.65 pounds

- 10 A school principal ordered 100 pizzas for a total of \$1255. Cheese pizzas cost \$11.50 each, and pepperoni pizzas cost \$13.00 each. Which of the following systems of linear equations can be used to determine  $c$ , the number of cheese pizzas the principal ordered, and  $p$ , the number of pepperoni pizzas the principal ordered?

- A**  $c + p = 100$   
 $13c + 11.50p = 1255$
- B**  $c - p = 100$   
 $13c + 11.50p = 1255$
- C**  $c + p = 100$   
 $11.50c + 13p = 1255$
- D**  $c - p = 100$   
 $11.50c + 13p = 1255$

11 The total cost in dollars,  $y$ , of a membership at each of four health clubs is represented below in terms of  $x$ , the number of months of the membership.

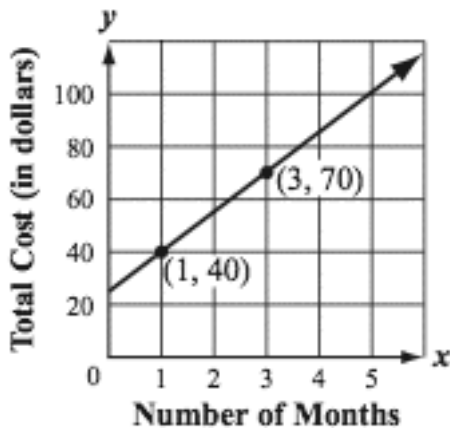
- Health Club A:

$$y = 12x + 60$$

- Health Club B:

$x$	$y$
0	\$ 0
1	\$21
2	\$42
3	\$63
4	\$84

- Health Club C:



- Health Club D:

A customer pays a one-time fee of \$20 plus \$20 each month for  $x$  months.

Which representation has the greatest rate of change?

- A Health Club A
- B Health Club B
- C Health Club C
- D Health Club D

12 Which graph best represents the solution to the inequality below?

$$-4x + 10 < -6$$

- A
- B
- C
- D

13 Which of the following numbers is **not** a rational number?

- A  $-3$
- B  $2.7$
- C  $\sqrt{4}$
- D  $\sqrt{5}$

14 At the school carnival, Luke bought a hot dog for \$2. He also bought  $g$  game tickets for \$0.25 each. Luke spent a total of \$10.

Which of the following equations can be used to find the number of game tickets that Luke bought?

- A  $2g + 0.25 = 10$
- B  $2g - 0.25 = 10$
- C  $0.25g + 2 = 10$
- D  $0.25g - 2 = 10$

15 Which equation is equivalent to

$$3(2x - 5) = 4(x + 3)?$$

- A  $2x = -27$
- B  $2x = 27$
- C  $10x = -27$
- D  $10x = -3$

16 Which statement describes the relationship between the line graphs of the equations below?

$$y = -2x + 4$$

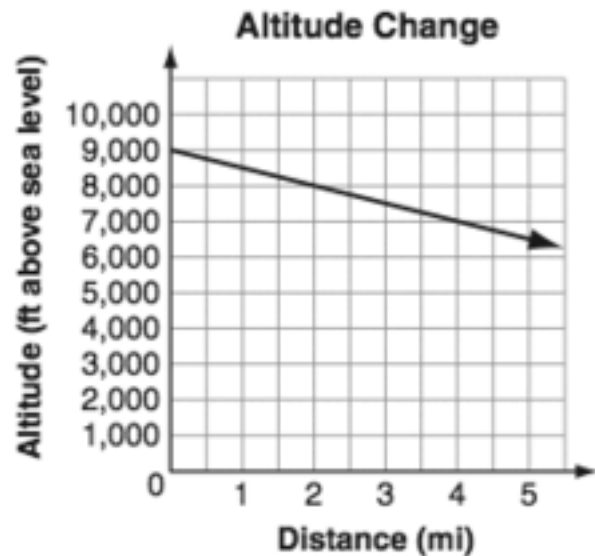
$$y = \frac{1}{2}x + 4$$

- A The line graphs are the same line.
- B The line graphs are parallel lines.
- C The line graphs are perpendicular lines.
- D The line graphs intersect, but are not perpendicular.

17 The perimeter of a rectangular wooden deck is 90 feet. The deck's length,  $l$ , is 5 feet less than 4 times its width,  $w$ . Which system of linear equations can be used to determine the dimensions, in feet, of the wooden deck?

- A  $2l + 2w = 90$   
 $l = 5 - 4w$
- B  $2l + 2w = 90$   
 $l = 5w - 4$
- C  $2l + 2w = 90$   
 $l = 4 - 5w$
- D  $2l + 2w = 90$   
 $l = 4w - 5$

18 This graph shows the relationship between the altitude of an airplane and the distance it travels while it is descending.



Which statement describes the slope of this line?

- A The altitude decreases by 500 feet every mile.
- B The altitude decreases by 1000 feet every mile.
- C The altitude decreases by 1 foot every 500 miles.
- D The altitude decreases by 1 foot every 1000 miles.

19 A system of equations is shown below.

$$\begin{aligned} 3x + 2y &= 19 \\ 2x - y &= 1 \end{aligned}$$

What is the solution to the system of equations?

- A  $x = 1, y = 1$
- B  $x = 3, y = 5$
- C  $x = 7, y = -1$
- D  $x = 19, y = 1$

20 What is the solution to the equation below?

$$2(x - 3) = 2x + 5$$

- A  $x = 2\frac{3}{4}$
- B  $x = -2\frac{3}{4}$
- C There is no solution.
- D There are infinitely many solutions.

21 The coordinates in the table below were found using a linear equation.

x	y
1	5
2	8
3	11

Which linear equation could be used to find the coordinates in the table?

- A  $y = 2x + 3$
- B  $y = 2x - 3$
- C  $y = 3x + 2$
- D  $y = 3x - 2$

22 The table represents a linear function.

x	y
-2	0
-1	9
0	18
1	27
2	36

What is the slope of the linear function?

- A -9
- B  $-\frac{1}{9}$
- C  $\frac{1}{9}$
- D 9

23 What is the solution to this system of linear equations?

$$\begin{aligned} 3x + y &= 2 \\ x - 2y &= 10 \end{aligned}$$

- A (2, -4)
- B (-4, 2)
- C (3, -7)
- D (-7, 3)



24 Which function describes the pattern in the table?

$x$	$y$
2	3
3	5
4	7
5	9
6	11

- A  $y = x - 1$
- B  $y = 2x + 2$
- C  $y = x + 2$
- D  $y = 2x - 1$

25 Solve the equation below for  $x$ .

$$9(x - 5) = 4x - 5$$

- A 8
- B 10
- C -8
- D -10

26 What is the  $y$ -intercept of the linear function

$$4x + 3y = -24?$$

- A  $(0, -6)$
- B  $(-6, 0)$
- C  $(0, -8)$
- D  $(-8, 0)$

27 A ticket company charges a transaction fee for each sale. The transaction fee is the same for any number of tickets sold. The equation below is used to determine the total price,  $P$ , for any number of tickets sold,  $n$ .

$$P = 18n + 7$$

What is the transaction fee?

- A \$ 7.00
- B \$11.00
- C \$18.00
- D \$25.00

28 Which inequality represents the statement below?

One more than 2 times  $n$  is greater than 21.

- A  $2n > 21$
- B  $n + 3 > 21$
- C  $2n + 21 > 1$
- D  $2n + 1 > 21$

29 A line has a slope of  $\frac{2}{3}$  and a  $y$ -intercept of  $-4$ . Which of the following is an equation of the line?

- A  $2x - 3y = 12$
- B  $2x - 3y = -4$
- C  $3x - 2y = -4$
- D  $3x - 2y = 12$



**30** Which relation does NOT represent a function?

**A**  $(3, 2), (-3, 2), (2, 3)$

**Input**      **Output**

-3      -1

3      -2

**B**

4      0

5      7

6      7

**C**  $x = -2$

$x$	$y$
3	4
5	7
7	10
9	13

**D**

**31** Which number is irrational?

**A** 2.001678

**B** 1.02002000200002...

**C** 0.245245245 ...

**D** 0.2

**32** Which of the following tables does not represent a function?

**A**

$x$	$y$
-3	5
-2	5
-1	5
0	5

**B**

$x$	$y$
-1	-1
0	0
1	1
2	2

**C**

$x$	$y$
3	0
4	1
5	2
5	3

**D**

$x$	$y$
2	8
4	6
6	4
8	2

- 33** A phone company charges 25 cents for each call plus 5 cents per minute.

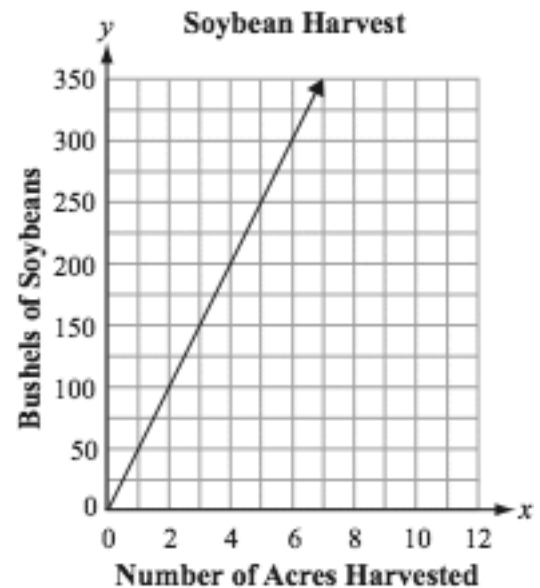
Phone Calls

Minutes ( $t$ )	Price ( $c$ ) (in cents)
0	25
1	30
2	35
3	40

Which number sentence shows the relationship between the number of minutes ( $t$ ) and the price ( $c$ ), in cents?

- A**  $c = 25t + 25$   
**B**  $c = 8t + 40$   
**C**  $c = 20 + 5t$   
**D**  $c = 5t + 25$

- 34** The graph below shows the number of bushels of soybeans a farmer harvested from his field.



Which set of ordered pairs could have been used to make the graph?

- A** (3, 125), (4, 200), (5, 225)  
**B** (50, 1), (200, 4), (300, 6)  
**C** (100, 2), (250, 5), (350, 7)  
**D** (2, 100), (3, 150), (5, 250)

35 Which equation represents a nonlinear function?

- A  $y = x$
- B  $y = 2x$
- C  $y = x^2$
- D  $y = x + 2$

36 Which table of values represents a linear function?

A

x	y
-2	-1
-1	-4
0	-5
1	4

B

x	y
-2	4
-1	1
0	0
1	-1

C

x	y
-2	6
-1	3
0	0
1	3

D

x	y
-2	0
-1	2
0	4
1	6

37 A 5-character key code is randomly generated by a computer using the 26 letters of the alphabet and the 10 digits 0—9. What is the probability that the 5 characters in a key code, listed as they are randomly generated, will spell the word “GREAT”?

- A  $\frac{1}{60,466,176}$
- B  $\frac{1}{45,239,040}$
- C  $\frac{5}{60,466,176}$
- D  $\frac{5}{45,239,040}$

38 Three linear equations are shown below.

$$y_1 = -2x - 5$$

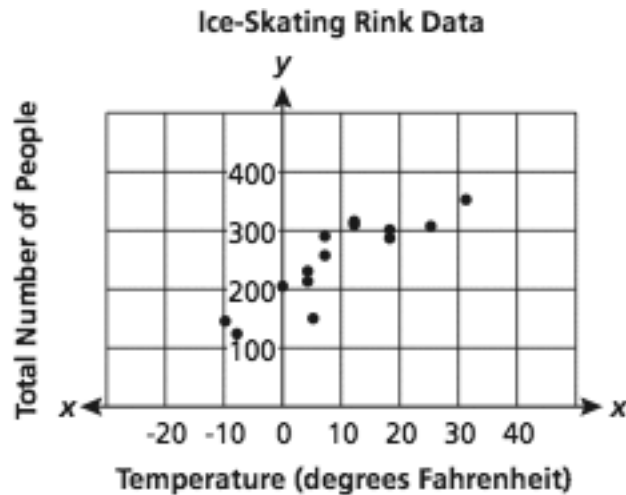
$$y_2 = -\frac{1}{2}x - 5$$

$$y_3 = 3x - 5$$

Which statement about the three linear equations is incorrect?

- A All three equations have the same slope.
- B Equations  $y_1$  and  $y_2$  have negative slopes.
- C All three equations have the same  $y$ -intercept.
- D Equations  $y_2$  and  $y_3$  have the same  $y$ -intercept.

- 39 Trina recorded the total number of people at the ice-skating rink and the highest temperature during the day over a period of fourteen days.



Based on the scatter plot, what can Trina interpret about the relationship between the highest temperature during the day and the number of people at the ice skating rink.

- A As the temperature increased, fewer people skated.
- B As the temperature increased, more people skated.
- C No one likes to skate when the temperature is below zero.
- D There is no relationship between the temperature and the people skating.

40 Mr. Wallace surveyed 75 students at Poole Middle School to find out the students' favorite place to eat lunch. The results are shown below.

**FAVORITE PLACE TO EAT LUNCH**

	Cafeteria	Outside	Total
Boys	16	21	37
Girls	24	14	38
Total	40	35	75

Which table shows the approximate relative frequencies of Mr. Wallace's data?

**FAVORITE PLACE TO EAT LUNCH**

A

	Cafeteria	Outside	Total
Boys	16%	21%	37%
Girls	24%	14%	38%
Total	40%	35%	75%

**FAVORITE PLACE TO EAT LUNCH**

C

	Cafeteria	Outside	Total
Boys	40%	60%	49%
Girls	60%	40%	51%
Total	100%	100%	100%

**FAVORITE PLACE TO EAT LUNCH**

B

	Cafeteria	Outside	Total
Boys	21%	28%	49%
Girls	32%	19%	51%
Total	53%	47%	100%

**FAVORITE PLACE TO EAT LUNCH**

D

	Cafeteria	Outside	Total
Boys	43%	57%	100%
Girls	63%	37%	100%
Total	53%	47%	100%



- 41** Jerome asked students at his school if they played a musical instrument and how many different sports they played in a year and how many minutes they spent on homework each week.

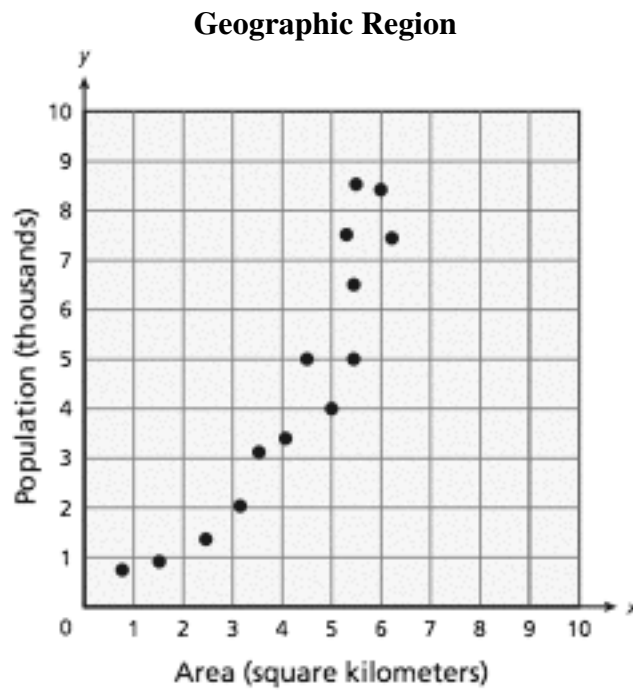
	<b>Less than 2 hours</b>	<b>2 to 5 hours</b>	<b>5 to 10 hours</b>	<b>More than 10 hours</b>	<b>Totals</b>
<b>No Sports</b>	2	3	6	5	16
<b>1 Sport</b>	1	6	12	8	27
<b>2 Sports</b>	2	8	20	10	40
<b>3 Sports</b>	1	10	6	3	20
<b>4 Sports</b>	3	6	5	1	15
<b>Totals</b>	9	33	49	27	118

Which statement is incorrect?

- A** Students who play 4 sports are more likely to spend 2 to 5 hours on homework than students who play 1 sport.
- B** Students who play 4 sports are less likely to spend 5 to 10 hours on homework than students who play 3 sports.
- C** Students who play 1 sport and students who play 3 sports are equally likely to spend less than 2 hours on homework.
- D** Students who play 2 sports are more likely to spend 10 or more hours on homework than students who play 1 sport.



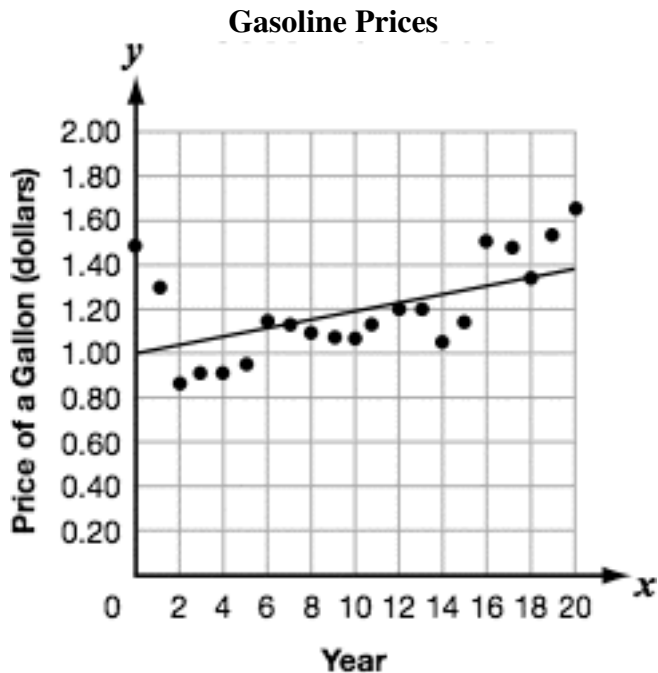
42 The scatter plot below represents the areas and populations of the towns in one geographic region.



Which pair of words best describes the relationship between the variables in the scatter plot?

- A Negative, linear
- B Positive, linear
- C Negative, nonlinear
- D Positive, nonlinear

43 The scatter plot and line of best fit below show the average price of a gallon of gasoline, in dollars, for a 20-year span.



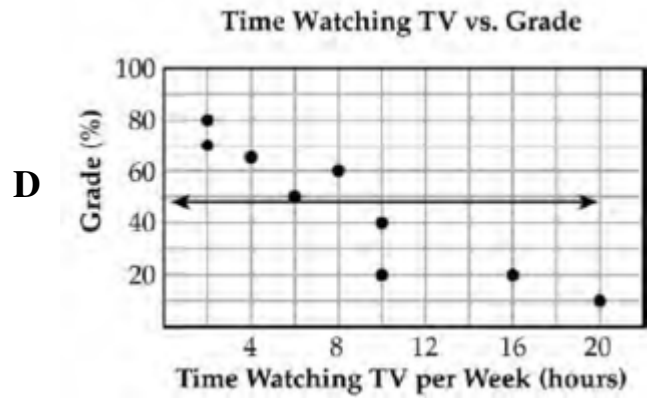
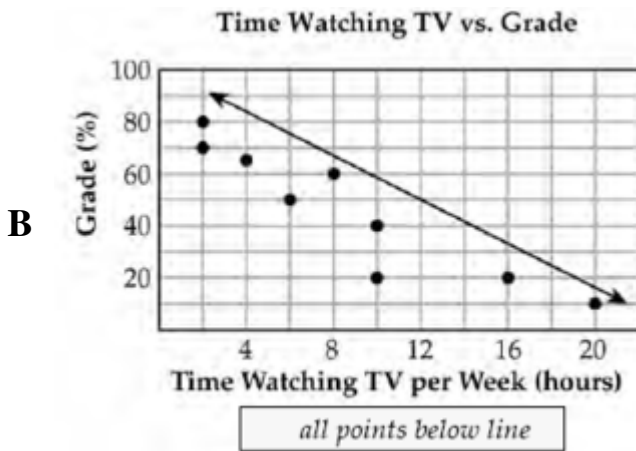
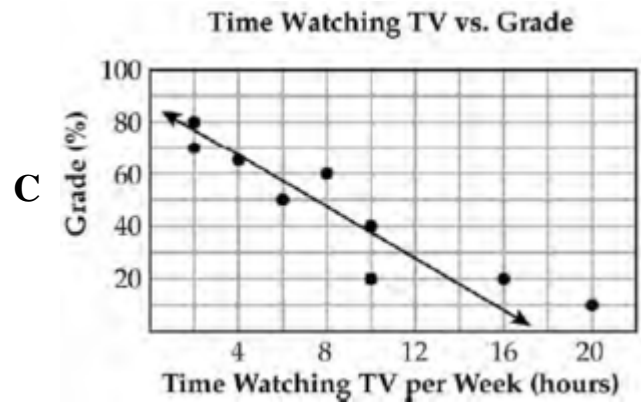
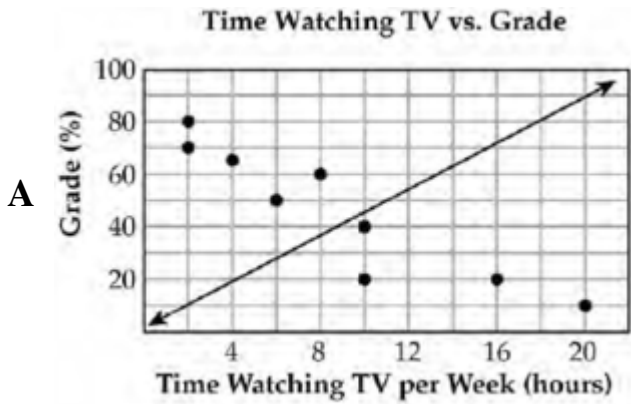
The data for year 0, year 1, and year 20 will be removed. How will this affect the line of best fit?

- A The line of best fit will not be affected.
- B The line of best fit will become horizontal.
- C The y-intercept of the line of best fit will increase.
- D The y-intercept of the line of best fit will decrease.

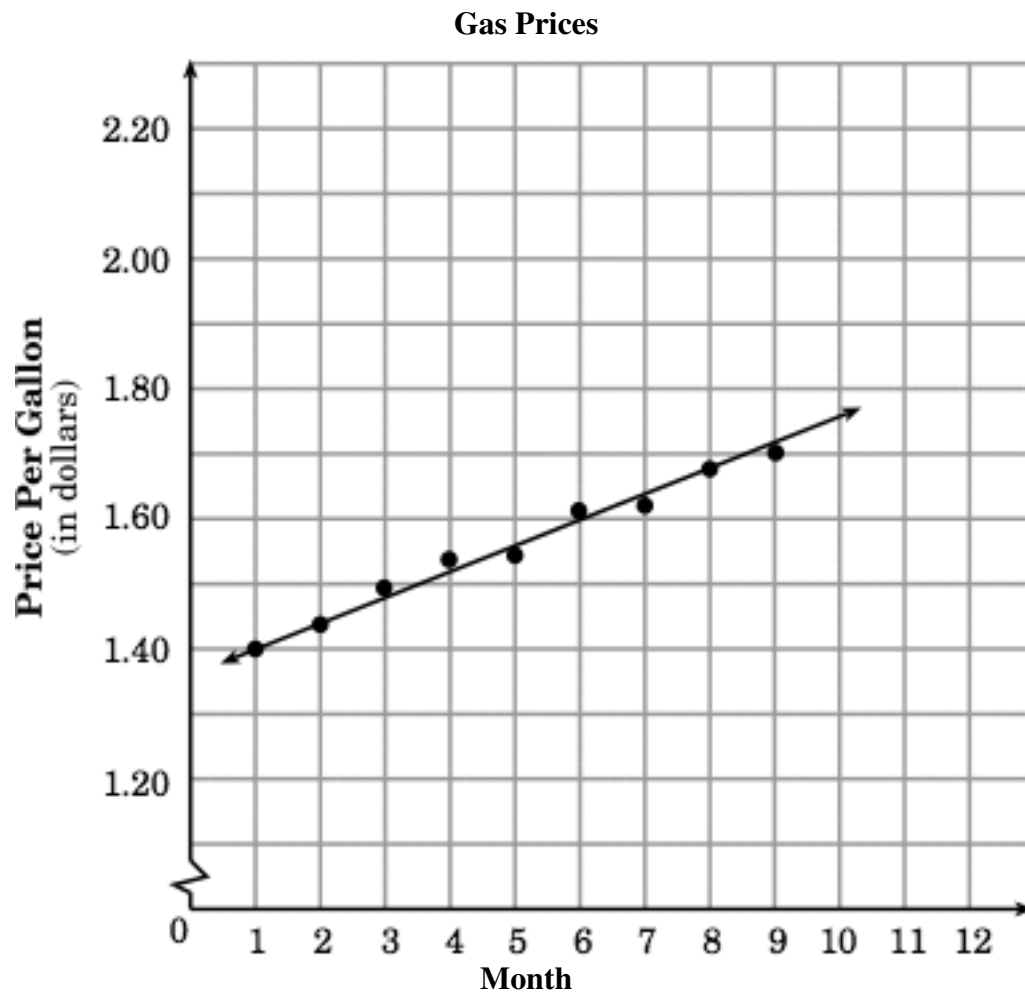




44 Which graph shows a line of best fit for the scatter plot?



45 Jessica kept track of gas prices for 9 months.



According to the line of best fit shown, what will be the predicted price per gallon of gasoline in month 13?

- A \$1.88
- B \$1.80
- C \$1.72
- D \$1.40

- 46 Which linear function has a graph that includes all of the points in the table below?

$x$	$y$
-3	4
-2	3
0	1
1	0

- A  $y = -2x - 2$   
 B  $y = -x + 1$   
 C  $y = x - 1$   
 D  $y = 2x + 1$
- 47 Which set of ordered pairs represents a linear relationship?
- A  $\{(0, 1), (0, -1), (-1, 1), (-1, 2)\}$   
 B  $\{(2, 2), (3, 3), (4, 3), (5, 3)\}$   
 C  $\{(-1, -4), (-1, 0), (0, 1), (1, -4)\}$   
 D  $\{(2, 3), (3, 4), (4, 5), (5, 6)\}$
- 48 After 3 years, the value of a savings bond was  $(1.02^4)^3$  times larger than its original value. What is the simplified form of  $(1.02^4)^3$ ?

- A  $1.02^7$   
 B  $1.02^{12}$   
 C  $3 \cdot 1.02^4$   
 D  $3 \cdot 1.02^{12}$

- 49 Andrea went to an amusement park.

- The cost of admission was \$5.
- The cost for each ride was \$0.75.

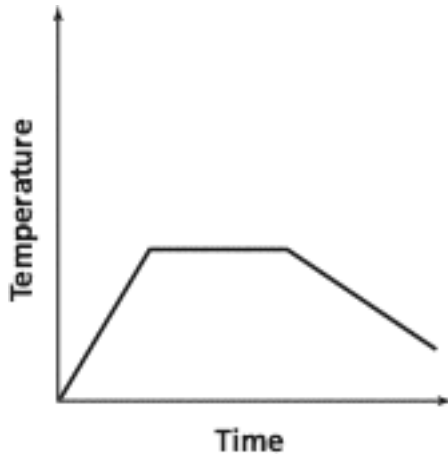
The equation below shows  $c$ , Andrea's total cost to go to the amusement park and go on  $r$  rides.

$$c = 5 + 0.75r$$

Based on the equation, which of the following statements is true?

- A As the value of  $r$  increases, the value of  $c$  increases.  
 B As the value of  $r$  decreases, the value of  $c$  stays the same.  
 C As the value of  $c$  decreases, the value of  $r$  increases.  
 D As the value of  $c$  increases, the value of  $r$  stays the same.
- 50 The city council budgeted money to encourage everyone in the city to become more physically fit. They decided to send out a survey to help determine how to spend this money. Which group of people would be the most appropriate to survey?
- A Every adult who has school-age children  
 B Every member of the Small Business Association  
 C A random sample of people who belong to a fitness center  
 D A random sample of people chosen from the entire city population

- 51 The graph below represents the temperature inside an oven over a period of time.



Which statement **best** describes the change in temperature?

- A The temperature increased and then decreased.
- B The temperature was constant and then decreased.
- C The temperature increased, remained constant, and then decreased.
- D The temperature increased, decreased for a while, and then remained constant.

- 52 What is the slope of the line represented by the table of values below?

$x$	$y$
0	-20
1	-10
2	0
3	10

- A 2
- B 3
- C 10
- D 20

- 53 Which expression is **not** equivalent to  $\frac{6^3}{6^6}$  ?

- A  $\frac{1}{6^2}$
- B  $6^{-3}$
- C  $\frac{1}{216}$
- D  $\frac{1}{6^3}$

- 54 Which of the following is equivalent to the expression below?

$$x^6 \cdot x^2$$

- A  $x^3$
- B  $x^4$
- C  $x^8$
- D  $x^{12}$

- 55 Which expression is equivalent to  $6^{-4}$  ?

- A  $\frac{1}{6 \cdot 4}$
- B  $6 \cdot (-4)$
- C  $\frac{1}{6} \cdot \frac{1}{6} \cdot \frac{1}{6} \cdot \frac{1}{6}$
- D  $-6 \cdot -6 \cdot -6 \cdot -6$

- 56 Which expression is equivalent to  $4^{-4} \times 4^2$  ?

- A  $\frac{1}{16^2}$
- B  $\frac{1}{4^2}$
- C  $4^2$
- D  $16^2$

57 Which statement is true about the equation below?

$$3(2 - k) = -3k + 2$$

- A The equation has no solution.
- B The equation has one solution.
- C The equation has two solutions.
- D The equation has infinitely many solutions.

58 Which of the following equations has infinitely many solutions?

- A  $2x + 3 = 5 + 2x$
- B  $2x + 3 = 5 + 3x$
- C  $3x - 5 = -5 + 2x$
- D  $3x - 5 = -5 + 3x$

59 Which steps could be used to solve this equation?

$$\frac{2}{3}x + 9 = 15$$

- A Subtract 9 from both sides, then multiply both sides by the reciprocal of  $\frac{2}{3}$ .
- B Subtract 9 from both sides, then divide both sides by the reciprocal of  $\frac{2}{3}$ .
- C Multiply both sides by the reciprocal of  $\frac{2}{3}$ , then subtract 9 from both sides.
- D Divide both sides by the reciprocal of  $\frac{2}{3}$ , then subtract 9 from both sides.

60 The density ( $D$ ) of an object can be calculated using the formula below, where  $m$  is the mass of the object and  $V$  is its volume.

$$D = \frac{m}{V}$$

Which shows this equation solved for  $m$  ?

- A  $m = D + V$
- B  $m = \frac{D}{V}$
- C  $m = D - V$
- D  $m = DV$

61  $\frac{2}{3}(2x - 1) + 2\frac{1}{3} = 7 + \frac{1}{2}x$

Which step would **not** be a possible first step for solving this equation algebraically?

- A multiplying every term in the equation by six
- B subtracting  $2\frac{1}{3}$  from 7
- C subtracting  $\frac{1}{2}x$  from  $2x$
- D multiplying  $-1$  by  $\frac{2}{3}$

62 Which equation shows the correct use of the Distributive Property?

- A  $-12(2n + 5) = (-12)(2n) + 5$
- B  $-12 + (2n \cdot 5) = (-12 + 2n)(-12 + 5)$
- C  $-12(2n + 5) = (-12)(2n) + (-12)(5)$
- D  $-12 + (2n \cdot 5) = (-12)(2n) + (-12)(5)$

63 What is the value of  $x$  in the equation below?

$$2x + 3x + 5 = 5(2x - 3)$$

- A 0
- B  $\frac{8}{5}$
- C 4
- D No solution

64 Martha was asked to write  $a^{48}$  as a product of two powers with the same base in four different ways, using only positive exponents. Which of the following could be one of Martha's expressions?

- A  $a^5 \cdot b^8$
- B  $a^{15} \cdot a^{23}$
- C  $(a^4)^{12}$
- D  $\frac{a^{12}}{a^{60}}$

65 Which of the following is equivalent to  $-2x^2(-3x + 5)$

- A  $6x^3 - 10$
- B  $-6x^3 - 10$
- C  $6x^3 - 10x^2$
- D  $-6x^3 - 10x^2$

66 A water tank is in the shape of a right circular cylinder with a height of 20 feet and a volume of  $320\pi$  cubic feet. What is the diameter, in feet, of the water tank?

- A 16
- B 10
- C 8
- D 4

67 Pippi calculates her total earnings for the month with the equation

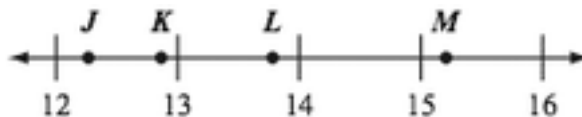
$$E = 15m + 5b,$$

where  $E$  is the total number of dollars she earns,  $m$  is the number of lawns she mows, and  $b$  is the number of hours she baby-sits.

If Pippi mows 6 lawns, how many hours must she baby-sit to earn a total of \$200?

- A 20
- B 22
- C 40
- D 45

68 Which point on the number line below is closest to the value of  $\sqrt{152}$ ?

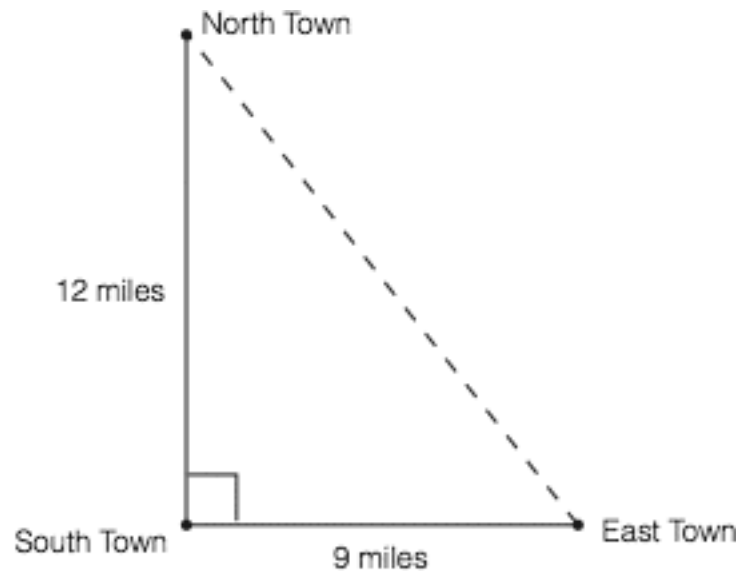


- A point J
- B point K
- C point L
- D point M

69 Which expression results in a rational number?

- A  $1.5 + \sqrt{1.5}$
- B  $12 - \sqrt{12}$
- C  $\frac{3}{4} \cdot \sqrt{\frac{3}{4}}$
- D  $25 \div \sqrt{25}$

- 70 The state wants to build a straight road so there is a direct route from North Town to East Town.



How long will the road be between North Town and East Town?

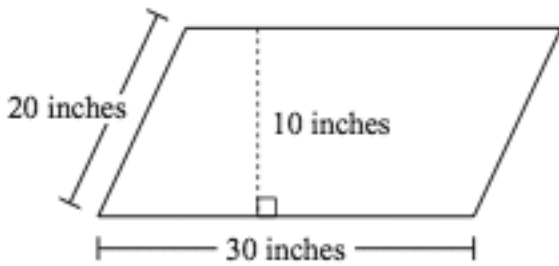
- A** 13 miles  
**B** 15 miles  
**C** 54 miles  
**D** 63 miles
- 
- 71 A cable 31 feet long runs from the top of a utility pole to a point on the ground 16 feet from the base of the pole.  
Which equation expresses the height of the pole as a function of the missing leg?
- A**  $c^2 = a^2 + b^2$   
**B**  $a^2 = c^2 b^2$   
**C**  $b^2 = c^2 - a^2$   
**D**  $c^2 = \frac{a^2 + b^2}{2}$
- 72 A candy is in the shape of a sphere. The candy has a radius of 1.5 centimeters. Which of the following is closest to the volume of the candy? (Use 3.14 for  $\pi$ .)
- A** 113  $\text{cm}^3$   
**B** 19  $\text{cm}^3$   
**C** 14  $\text{cm}^3$   
**D** 2  $\text{cm}^3$

73 Simplify.

$$8 - 2(n + 4)(-3)^2$$

- A  $-2n - 9$
- B  $-18n$
- C  $-18n - 64$
- D  $36n - 216$

74 A parallelogram and some of its dimensions are shown below.



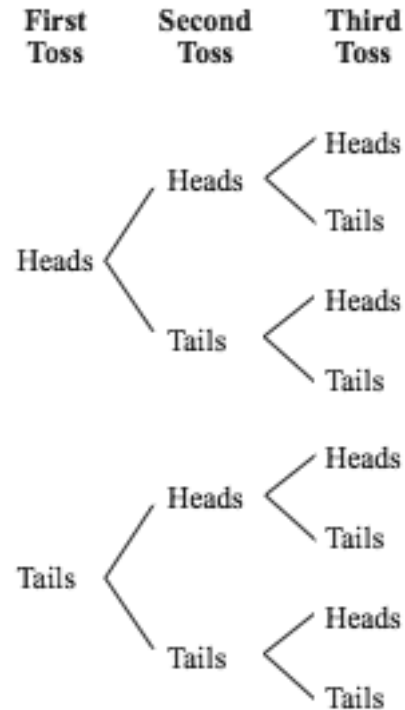
What is the area of the parallelogram?

- A 100 square inches
- B 200 square inches
- C 300 square inches
- D 600 square inches

75 Julie is going to conduct a school survey for a research paper. Which sampling method is NOT a good representation of her school's student population?

- A Survey every fifth student as all students exit the main door at school
- B Survey all students at a shopping mall
- C Survey  $\frac{1}{4}$  of all the students at school randomly
- D Survey all the students whose names have been randomly drawn by the school's computer

76 The tree diagram below shows all of the possible combinations that can occur when a fair coin is tossed three times.

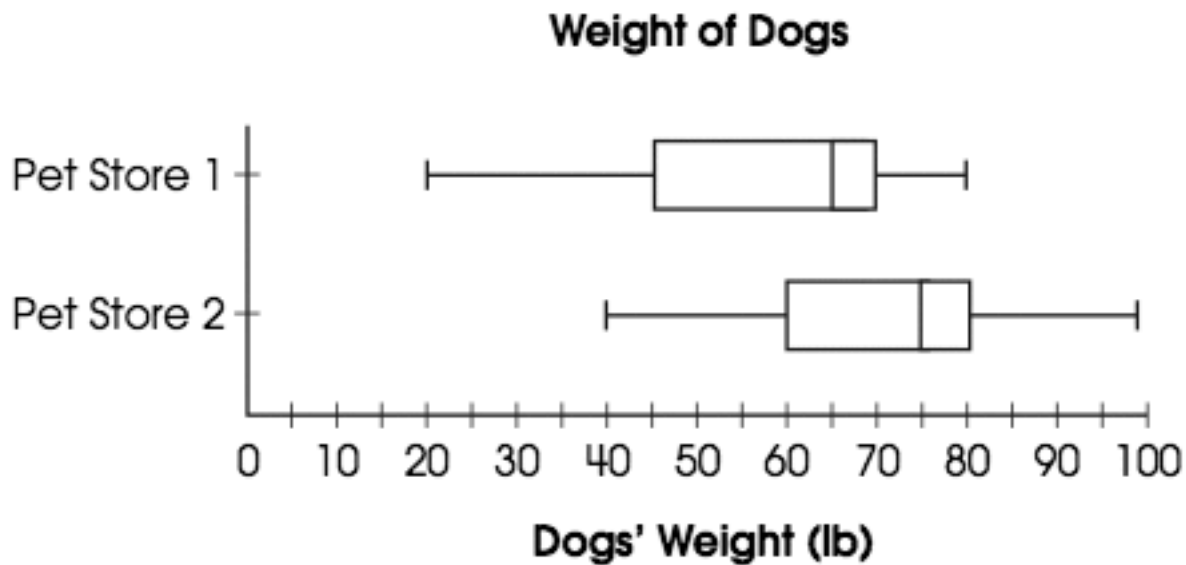


What is the probability that a person who tosses a fair coin three times will get heads twice and tails once in any order?

- A  $\frac{1}{8}$
- B  $\frac{3}{14}$
- C  $\frac{3}{8}$
- D  $\frac{3}{5}$



77 The box-and-whisker plots show the M distribution of weight among dogs in two different pet stores.



How much greater is the median weight of the dogs in Pet Store 2 than in Pet Store 1?

- A 5
- B 10
- C 15
- D 20

78 Which of the following is equivalent to the expression below?

$$(-0.4 - 2) + 13$$

- A  $13 - (0.4 - 2)$
- B  $(2 - 0.4) + 13$
- C  $13 + (-0.4 - 2)$
- D  $(-2 + 0.4) + 13$

79 In 2005, the U.S. Mint in Denver produced  $4.04 \times 10^8$  Oregon state quarters. What is  $4.04 \times 10^8$  written in standard notation?

- A 40,400,000
- B 404,000,000
- C 4,040,000,000
- D 40,400,000,000

**80** David bought a computer that was 20% off the regular price of \$1,080. If an 8% sales tax was added to the cost of the computer, what was the total price David paid for it?

- A \$302.40
- B \$864.00
- C \$933.12
- D \$1,382.40

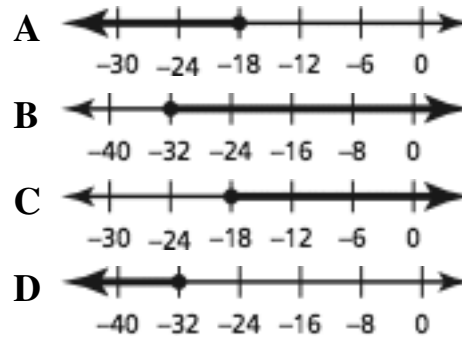
**81** When  $\frac{5}{8}x + 1\frac{1}{3}$  is subtracted from  $1\frac{1}{4}x - 5\frac{1}{6}$ , the result is

- A  $\frac{5}{8}x - 3\frac{5}{6}$
- B  $\frac{5}{8}x - 6\frac{1}{2}$
- C  $-\frac{5}{8}x + 3\frac{5}{6}$
- D  $-\frac{5}{8}x + 6\frac{1}{2}$

**82** Which of these represents the solution for the inequality  $\frac{y+3}{4} < 2$ ?

- A  $y < 3$
- B  $y < 4$
- C  $y < 5$
- D  $y < 11$

**83** Which graph best represents the solution to the inequality  $-\frac{3}{4}n \leq 24$



**84** Jade used mental math to multiply  $7(52)$ . She used the following steps:

First step:  $7(50 + 2)$

Second step:  $7(50) + 7(2)$

What property does this represent?

- A Associative Property
- B Additive Inverse Property
- C Commutative Property
- D Distributive Property

**85** Which property is illustrated by  $\frac{1}{2}\left(\frac{3}{3}\right) = \frac{3}{6}$ ?

- A Additive Identity
- B Commutative Property
- C Distributive Property
- D Multiplicative Identity

**86** Which operation will change the value of any nonzero number?

- A adding zero
- B multiplying by zero
- C multiplying by one
- D dividing by one

87 Frank has 2 Massachusetts quarters and 3 “Eagle” quarters in his pocket, as pictured below.



He will select a quarter at random, look at it, and put it back. Then he will select another quarter at random. What is the probability that Frank will select a Massachusetts quarter both times?

- A  $\frac{2}{25}$
- B  $\frac{4}{25}$
- C  $\frac{1}{4}$
- D  $\frac{1}{2}$

88 Olive has 3 fair coins. She will toss each coin one time. Which of the following best describes the probability that all 3 coins will land with “heads” facing up?

- A likely
- B certain
- C unlikely
- D impossible

89 A large bag of cement weighs 80 pounds. The bag weighs 2 pounds less than the weight of 3 small boxes of cement. Which equation can be used to find the weight,  $w$ , in pounds, of each small box of cement?

- A  $2 - 3w = 80$
- B  $3 - 2w = 80$
- C  $2w - 3 = 80$
- D  $3w - 2 = 80$

90 A bakery sells chocolate, vanilla, and strawberry cakes. All of the cakes are filled with either fruit or cream AND topped with either glaze or powdered sugar.

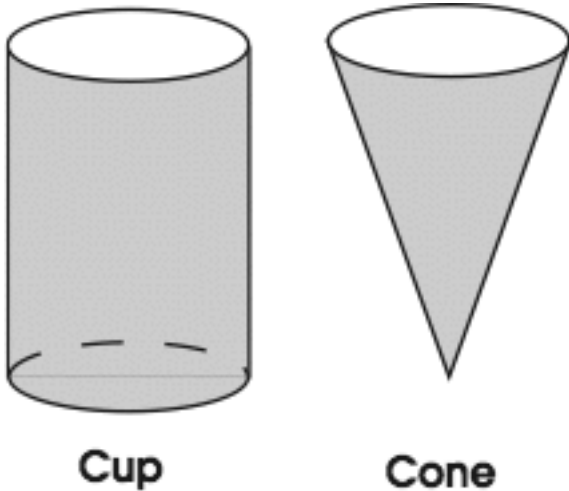
How many different types of cakes does the bakery sell?

- A 7
- B 9
- C 12
- D 24

**91** Jane is playing a game. The probability of Jane spinning the spinner and it landing on a number less than four is  $\frac{3}{8}$ . What is the probability of the spinner NOT landing on a number less than four?

- A  $\frac{1}{8}$
- B  $\frac{3}{8}$
- C  $\frac{5}{8}$
- D  $\frac{8}{8}$

**92** The Smoothie Hut sells smoothies in cones and cups that are filled exactly to the top.



The cups and cones have the same diameter and height.

How much more does the cup hold than the cone?

- A  $\frac{1}{3}$  more
- B  $\frac{1}{2}$  more
- C 2 times more
- D 3 times more

**93** The probability of a particular event is  $\frac{2}{7}$ . How many times could this event be expected to occur for 280 trials?

- A 40
- B 80
- C 200
- D 280

**94** A student randomly chooses one pen from a box containing 1 black, 3 red, and 6 blue pens.

What is the probability that the student chooses a blue pen?

- A  $\frac{1}{6}$
- B  $\frac{2}{3}$
- C  $\frac{6}{10}$
- D  $\frac{6}{4}$

**95** A scientist measured some bacterial cells. The average diameter of the cells was 0.0000032 millimeters.

What is this measurement written in scientific notation?

- A  $3.2 \times 10^{-7}$  millimeters
- B  $3.2 \times 10^{-6}$  millimeters
- C  $3.2 \times 10^6$  millimeters
- D  $3.2 \times 10^7$  millimeters

**96** A company's profit of  $\$ 1.71 \times 10^6$  will be shared equally by its 3,800 employees.

How much money will each employee receive?

- A**  $\$ 4.5 \times 10^1$
- B**  $\$ 4.5 \times 10^2$
- C**  $\$ 4.5 \times 10^3$
- D**  $\$ 4.5 \times 10^5$

**97** Pennsylvania has about  $4.6 \times 10^4$  square miles of land. Montana has about  $1.5 \times 10^5$  square miles of land. About how many more square miles does Montana have than Pennsylvania?

- A** 104 square miles
- B** 1,040 square miles
- C** 10,400 square miles
- D** 104,000 square miles

**98** A store claims it has served more than 3 billion customers. What is 3 billion written in scientific notation?

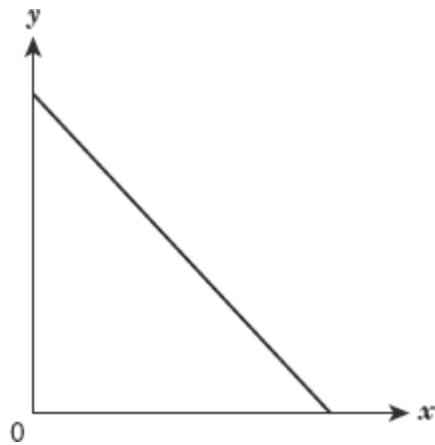
- A**  $3.0 \times 10^6$
- B**  $3.0 \times 10^9$
- C**  $3.0 \times 10^{10}$
- D**  $3.0 \times 10^{12}$

**99** Simplify.

$$\frac{1.2 \times 10^{-6}}{4.8 \times 10^4}$$

- A**  $2.5 \times 10^{-2}$
- B**  $2.5 \times 10^{-9}$
- C**  $2.5 \times 10^{-10}$
- D**  $2.5 \times 10^{-11}$

**100** The function graphed below shows a relationship between  $x$  and  $y$ .



Which of the following relationships can best be represented by this graph?

- A** The total number of gallons of gas left in a gas tank,  $y$ , based on  $x$ , the total number of miles driven
- B** The total cost of a shipment of jeans,  $y$ , based on  $x$ , the number of jeans in the shipment
- C** The total amount of hourly earnings,  $y$ , based on  $x$ , the total number of hours worked
- D** The total number of pounds of flour used,  $y$ , based on  $x$ , the total number of loaves of bread baked