1 A bakery sells 5 apple muffins for every 2 bran muffins sold. Which table shows this ratio?

A

Apple	Bran
5	2
10	12
20	22

C

Apple	Bran
5	2
18	8
20	10

B

Apple	Bran
10	4
15	6
35	14

D

Apple	Bran
20	4
30	6
40	8

2 In which set do all of the values make the inequality $2x - 1 < 10$ true?

A {10, 15, 20}

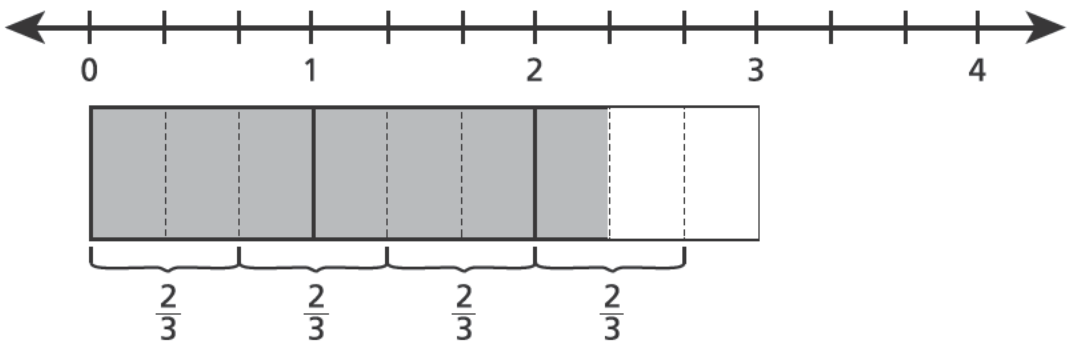
B {5, 7, 9}

C {4, 6, 8}

D {2, 3, 4}

GO ON

3 The model below represents a division problem.



Which equation is represented by the model?

A $2\frac{1}{3} \div \frac{2}{3} = 3\frac{1}{2}$

B $2\frac{1}{3} \div \frac{2}{3} = 3\frac{1}{3}$

C $\frac{7}{1} \div \frac{1}{3} = 2\frac{1}{3}$

D $\frac{2}{3} \div 3\frac{1}{2} = 2\frac{1}{3}$

4 What is the value of the expression below?

$$2[3(4^2 + 1)] - 2^3$$

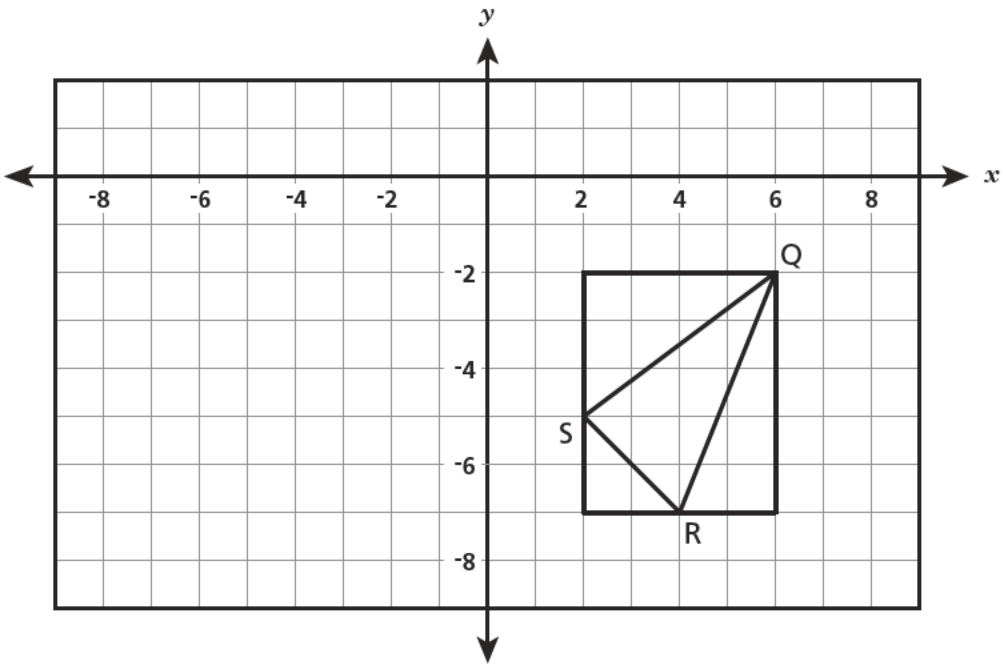
A 156

B 110

C 94

D 48

9 Triangle QRS, with vertices Q(6, –2), R(4, –7), and S(2, –5), is drawn inside a rectangle, as shown below.



What is the area, in square units, of triangle QRS?

A 7

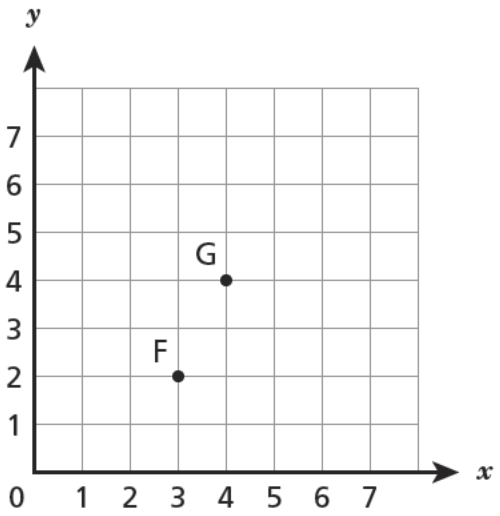
B 10

C 13

D 18

GO ON

10 Points F and G have been plotted on the coordinate plane below.



Point G and point H are the same distance from point F. Which coordinates could be the location of point H?

A (1, 2)

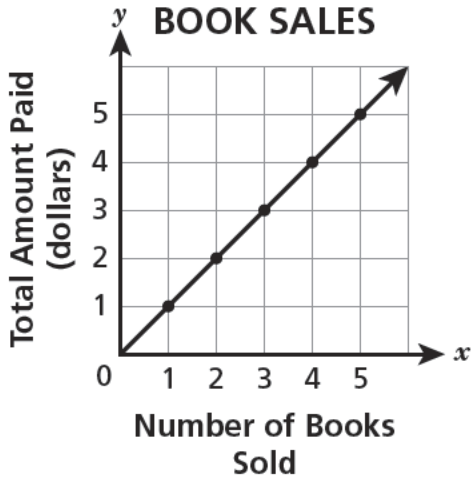
B (4, 2)

C (5, 1)

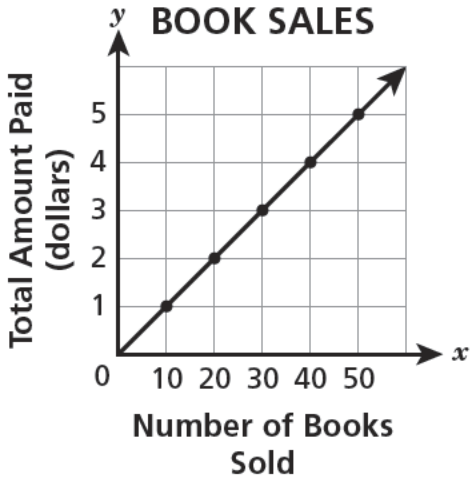
D (2, 5)

13 A bookstore is selling books for $10 each. Which graph shows the relationship between the number of books, *x*, the store sold and the total amount of money, *y*, paid from the book sales?

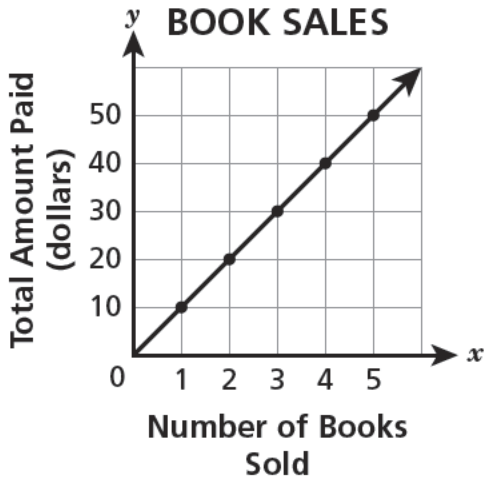
A



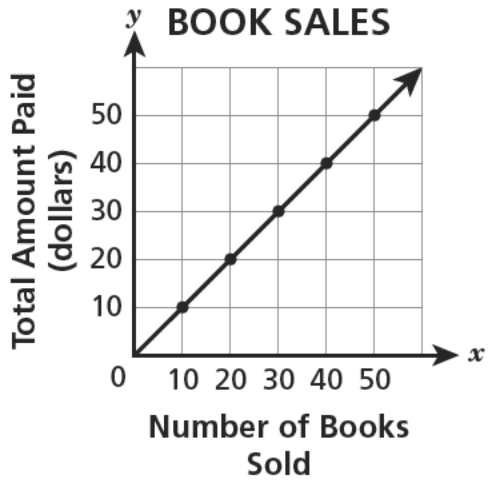
C



B



D



14 The ratio of students to adults on a field trip is 8 to 1. Which table correctly shows this ratio for each grade?

A

Grade	Number of Students	Number of Adults
6	96	88
7	120	112
8	136	128

C

Grade	Number of Students	Number of Adults
6	96	12
7	120	15
8	136	17

B

Grade	Number of Students	Number of Adults
6	96	104
7	120	128
8	136	144

D

Grade	Number of Students	Number of Adults
6	96	11
7	120	13
8	136	15

15 Which phrase is a description of $2m + 7$?

A 7 more than 2 times m

B 2 more than 7 times m

C 2 times the sum of 7 and m

D 7 times the sum of 2 and m

16 George has $23 to spend on art supplies. He wants to buy markers, paper, and glue. If the total cost of the markers and paper is more than $14, which inequality represents the dollar amount, p, George can spend on glue?

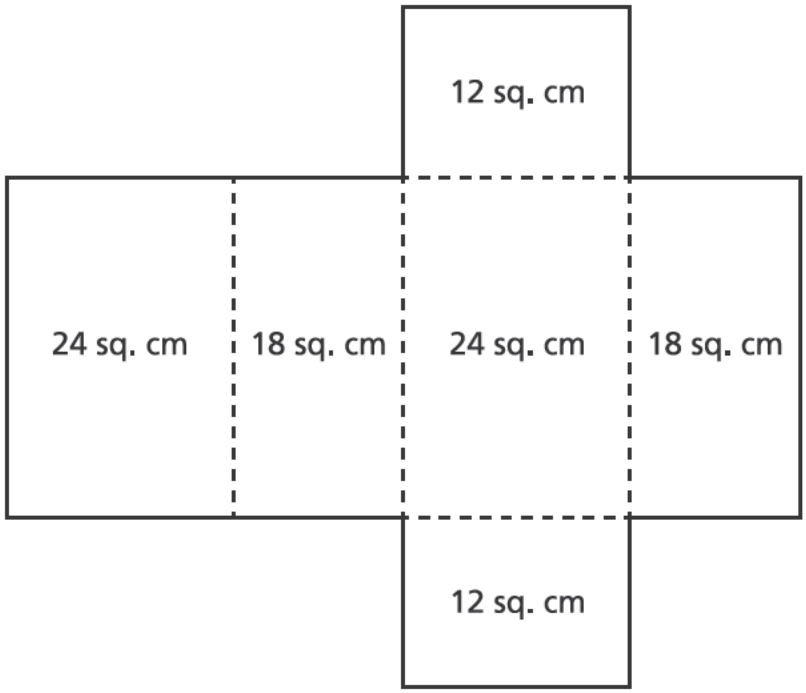
A $p < 9$

B $p > 9$

C $p < 37$

D $p > 37$

17 The net of a rectangular prism is shown below. The surface area of each face is labeled.



Which values represent the dimensions, in centimeters, of the rectangular prism?

A 12, 18, 24

B 3, 4, 8

C 3, 4, 6

D 2, 9, 12

18 A salesperson had $240,000 in sales last year, which is 60% of the sales she had this year. Which equation could be used to determine x, the salesperson's total amount of sales, in dollars, for this year?

A $\frac{240,000}{x} = \frac{60}{100}$

B $\frac{240,000}{100} = \frac{x}{60}$

C $\frac{60}{240,000} = \frac{x}{100}$

D $\frac{60}{100} = \frac{x}{240,000}$

19 A student formed a pattern in which each term is represented by a sum. The first four terms of the pattern are shown below.

n	Sum
1	1
2	$1 + 3$
3	$1 + 3 + 5$
4	$1 + 3 + 5 + 7$

Which expression can be used to determine the value of the sum in any term, n?

A n^2

B $4n$

C $n + 3$

D 2^n

20 Jason will use a $\frac{1}{3}$-gallon pitcher to fill an empty $\frac{3}{4}$-gallon water jug. How much water will he need in order to completely fill the water jug?

A between 1 and 2 full pitchers

B between 2 and 3 full pitchers

C about $\frac{1}{2}$ of a full pitcher

D about $\frac{1}{4}$ of a full pitcher

23 Which expression is equivalent to $5(6x + 3y)$?

A $11x + 3y$

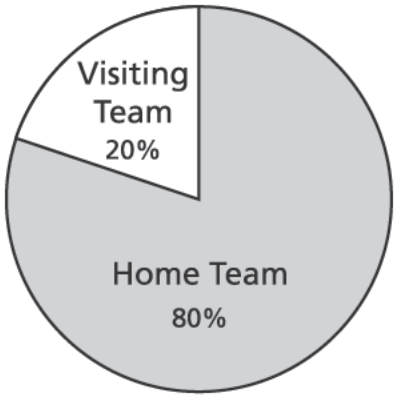
B $11x + 8y$

C $30x + 3y$

D $30x + 15y$

24 The diagram below shows the percentages of people attending a football game who were supporters of either the home team or the visiting team.

SUPPORTERS AT FOOTBALL GAME



If the total number of people attending the game was 64,000, how many people were supporters of the home team?

A 12,800

B 38,400

C 48,000

D 51,200

25 Which pair of expressions is equivalent for any variable value greater than zero?

A $3(x + 2)$ and $3x + 2$

B $4d + 2e$ and $8d + e$

C $f + f + f + g$ and $3fg$

D $b + b + 3c$ and $2b + 3c$

26 What is the greatest common factor of 42 and 84?

A 7

B 21

C 42

D 84

STOP

27 Kira studied data collected on the school basketball team for one season. She noticed that a player on the team had 13 successful free throws out of a total of 20 attempted free throws. To find the percentage of the total free throws attempted by this player that were successful, Kira set up the equivalent ratios below.

$$\frac{13}{20} = \frac{m}{n}$$

What are the values for m and n in Kira's equation?

A $m = 65$, $n = 1$

B $m = 100$, $n = 65$

C $m = 93$, $n = 100$

D $m = 65$, $n = 100$

28 What is the least common multiple of 4 and 10?

A 14

B 20

C 40

D 60

GO ON

29 The surface area, S, of a right rectangular prism with length l, width w, and height h can be found using the formula below.

$$S = 2(lw + wh + hl)$$

What is the surface area, in square inches, of a prism with a length of 12 inches, a width of 9 inches, and a height of 2 inches?

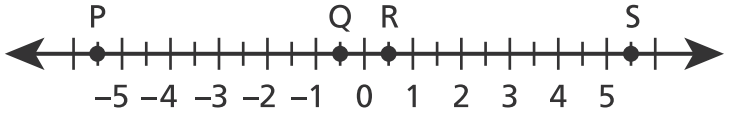
A 300

B 258

C 150

D 92

30 Which point on the number line below represents the number opposite the number $-5\frac{1}{2}$?



A point P

B point Q

C point R

D point S

34 In 2010, Kim-Ly earned $17.50 for 2 hours of work. Which table shows the relationship between the number of hours worked and Kim-Ly's total earnings, if her rate per hour is constant?

A

Number of Hours	Total Earnings
1	$17.50
2	$35.00
3	$52.50
4	$70.00

C

Number of Hours	Total Earnings
1	$16.50
2	$17.50
3	$18.50
4	$19.50

B

Number of Hours	Total Earnings
1	$17.50
2	$17.50
3	$17.50
4	$17.50

D

Number of Hours	Total Earnings
1	$8.75
2	$17.50
3	$26.25
4	$35.00

35 Susan reads a book at a rate of 1 page every 3 minutes. If her reading rate remains the same, which method could be used to determine the number of minutes for her to read 18 pages?

A add 18 and 3

B divide 18 by 3

C multiply 3 by 18

D subtract 3 from 18

36 A triangle has vertices on a coordinate grid at points J(-1, 5), K(4, 5), and L(4, -2). What is the length, in units, of $\overline{KL}$?

A 3

B 7

C 8

D 11

37 Rosa has a goal of running a total of 100 miles this month. Each day that she ran, she ran 5 miles. Which expression could Rosa use to determine how many miles she has left to run after running for d days?

A $100 - 5d$

B $5d + 100$

C $\frac{100}{5d}$

D $5d$

GO ON

38 The inequality below compares two rational numbers.

$$-\frac{8}{18} > -\frac{17}{27}$$

If the two numbers were plotted as values on a horizontal number line, which statement would be true?

A Both numbers lie to the right of 0, and $-\frac{8}{18}$ lies to the left of $-\frac{17}{27}$.

B Both numbers lie to the left of 0, and $-\frac{8}{18}$ lies to the left of $-\frac{17}{27}$.

C Both numbers lie to the right of 0, and $-\frac{8}{18}$ lies to the right of $-\frac{17}{27}$.

D Both numbers lie to the left of 0, and $-\frac{8}{18}$ lies to the right of $-\frac{17}{27}$.

39 Which value or values for the variable c from the set below will make $5.6 + 0.4c \leq 6c$ true?

$$\{0,\ 0.875,\ 1,\ 2.5\}$$

A only 2.5

B 1 and 2.5

C 0.875, 1, and 2.5

D all values in the set

40 Steve ordered plastic cases for storing his baseball cards. Each case has a length of 12 centimeters, a width of 6.5 centimeters, and a height of 1.25 centimeters. What is the volume, in cubic centimeters, of one baseball card case?

A 39.5

B 97.5

C 118.5

D 202.25

41 Kim rode her bicycle 135 miles in 9 weeks, riding the same distance each week. Eric rode his bicycle 102 miles in 6 weeks, riding the same distance each week. Which statement correctly compares the number of miles per week they rode?

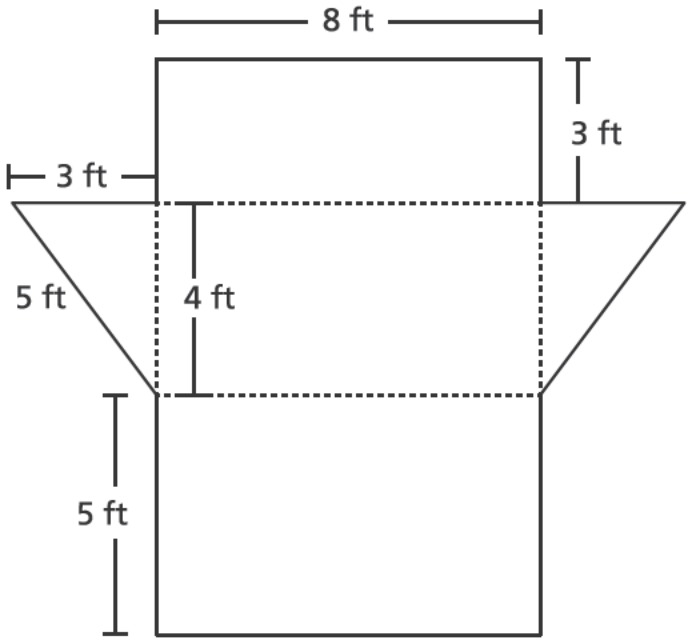
A Eric rode 2 more miles per week than Kim rode.

B Kim rode 3 more miles per week than Eric rode.

C Kim rode 11 more miles per week than Eric rode.

D Eric rode 17 more miles per week than Kim rode.

42 A net of a triangular prism is shown below.



What is the surface area, in square feet, of the triangular prism?

A 44

B 96

C 108

D 120

43 The two expressions below are equivalent.

$y(2.5 + 7) + y - 2$

$10.5y - 2$

Which statement **best** explains why the expressions are equivalent?

A The expressions have the same value for any value of *y*.

B The expressions have the same value for only whole number values of *y*.

C The expressions have the same value only when *y* is an odd number.

D The expressions have the same value only when *y* is an even number.

44 Two whole numbers have a least common multiple of 60.

- Each number is less than or equal to 12.
- The greatest common factor of the two numbers is 2.

What are the two numbers?

A 6 and 10

B 5 and 12

C 10 and 12

D 12 and 15

GO ON

45 Which quantity could go in the blank to make the equation below true?

$$x + 2x + \_\_\_\_ = 5x$$

A 2

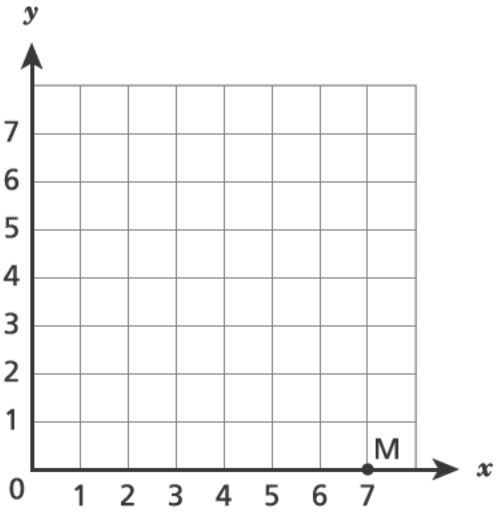
B 3

C $2x$

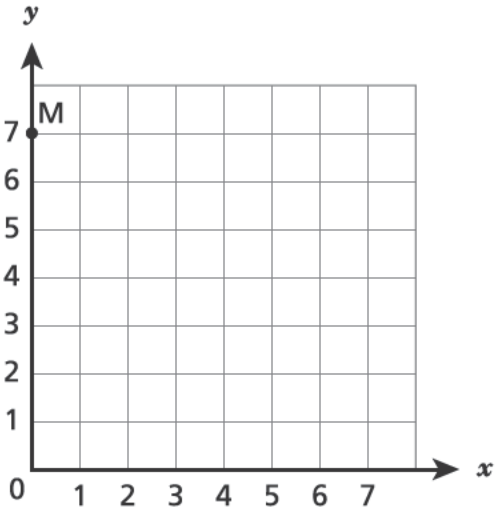
D $3x$

46 Which coordinate grid shows point M plotted at (4, 3)?

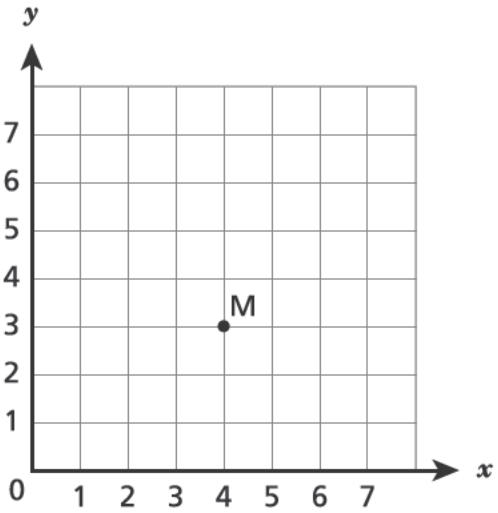
A



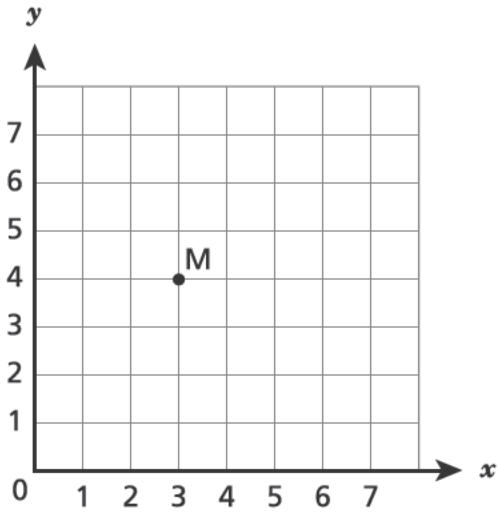
C



B

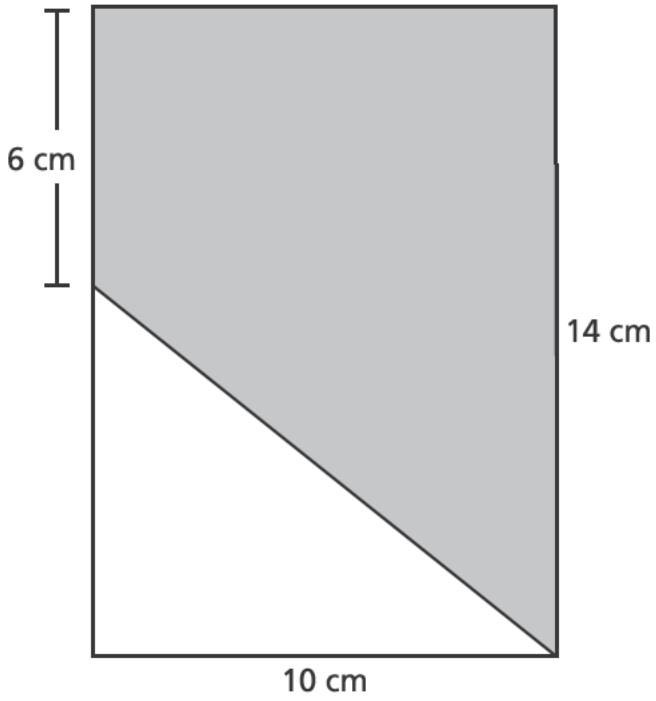


D



GO ON

50 What is the area, in square centimeters, of the shaded part of the rectangle shown below?



A 20

B 60

C 100

D 140

51 A sandwich shop sells sandwiches for $5.95 each, including tax. The shop received a total of $71.40 from the sales of sandwiches one afternoon. Which equation can be used to determine the number of sandwiches, x, sold by the sandwich shop that afternoon?

A $5.95 + x = 71.40$

B $5.95 \div 71.40 = x$

C $5.95x = 71.40$

D $5.95 \div x = 71.40$

STOP

52 Dana and Monique are dog groomers. Dana's workday is 10 hours and Monique's workday is 8 hours. Dana and Monique each work 40 hours per week.

On Monday, Dana groomed 15 dogs in 10 hours and Monique groomed 10 dogs in 8 hours. They each earn $12.75 for each dog groomed. Assuming that for the rest of the week Dana and Monique groom the same number of dogs per workday as they did on Monday, what will be the difference between their weekly earnings?

Show your work.

Answer $_____

GO ON

53 The formula below is used to convert a temperature in degrees Celsius, C, to a temperature in degrees Fahrenheit, F.

$$F = 1.8C + 32$$

The high temperature in a mountain city was 15°C. What was the high temperature in degrees Fahrenheit?

Show your work.

Answer _____ °F

54 A seamstress needs to cut 15-inch pieces of ribbon from a roll of ribbon that is 9 feet in length. What is the greatest number of 15-inch pieces the seamstress can cut from 5 of these rolls of ribbon?

Show your work.

Answer _____ pieces

GO ON

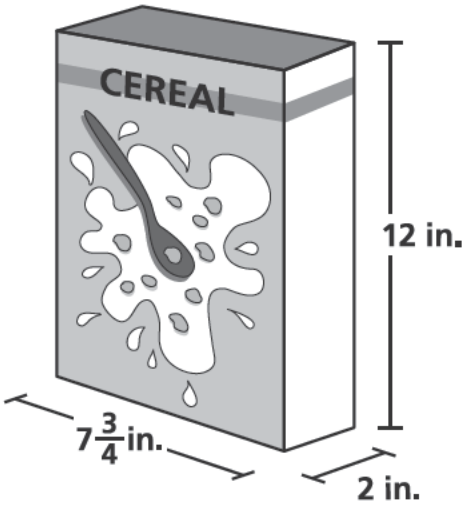
55 It is recommended that one fire extinguisher be available for every 6,000 square feet in a building. Write and solve an equation to determine x, the number of fire extinguishers needed for a building that has 135,000 square feet.

Show your work.

Answer _____ fire extinguishers

56 A company sells cereal in two different-sized boxes. The smaller box has the dimensions shown below.

Smaller Cereal Box



The height of the smaller box is 80% of the height of the larger box, while the other two dimensions are the same for both boxes. What is the difference in the volumes of the two boxes?

Show your work.

Answer _____ cubic inches

GO ON

57 The area of Brian's rectangular garden, in square feet, can be found by using the expression $6(2x + 5y)$. Use the distributive property to write an equivalent expression for the area of Brian's garden.

Equivalent expression _____

Use your equivalent expression to find the area of Brian's garden, in square feet, if $x = 3$ and $y = 4$.

Show your work.

Area _____ square feet

58 A hotel has a number of meeting rooms, m, available for events. Each meeting room has 325 chairs. Write an equation to represent c, the total number of chairs, in all of the meeting rooms at the hotel.

Equation _____

If $m = 7$, use your equation to find the total number of chairs in all of the meeting rooms at the hotel.

Show your work.

Answer _____ chairs

GO ON

59 Jimmy and his family are on their way to visit some family friends who live 780 miles away from them. Based on the route they chose, they expect to complete their trip in three days. The distances and average speeds for the first two days driven are shown below.

- First day: 4 hours at an average speed of 60 miles per hour
- Second day: 6 hours at an average speed of 65 miles per hour

If the average speed on the third day is 60 miles per hour, how many more hours will it take for them to reach their family friends' home?

Show your work.

Answer _____ hours

60 A right rectangular prism has a length of $2\frac{1}{2}$ feet, a width of 3 feet, and a height of $1\frac{1}{2}$ feet. Unit cubes with side lengths of $\frac{1}{2}$ foot are added to completely fill the prism with no space remaining. What is the volume, in cubic feet, of the right rectangular prism?

Show your work.

Answer _____ cubic feet

How many $\frac{1}{2}$-foot unit cubes can be added to fill the prism completely? Use what you know about unit cubes or the side lengths of prisms to show your work or explain your answer.

Answer _____ unit cubes

GO ON

61 The table below shows the elevations at which different artifacts were found during an archeological dig.

Artifact	Elevation
arrow head	15 feet above sea level
bone	721 feet above sea level
clay bowl	sea level
necklace	462 feet above sea level
woven basket	1,200 feet below sea level

Write the name of each artifact and the elevation at which each artifact was found using a positive integer, zero, or negative integer.

Explain how you determined if an elevation required a positive integer, zero, or negative integer.

STOP