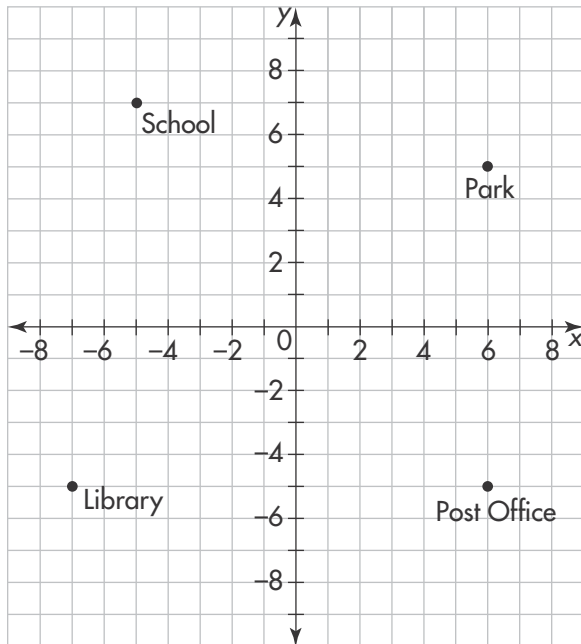


Expressions, Equations, and Functions

Read each question. Then mark your answer on the sheet.

Use the graph for Exercises 1–6.



1 unit = 1 block

- Which ordered pair names the location of the library?
 - $(-7, -5)$
 - $(7, -5)$
 - $(-5, -7)$
 - $(-5, -7)$
- Which is the distance from the park to the post office?
 - 8 blocks
 - 9 blocks
 - 10 blocks
 - 11 blocks
- Which of these is equal to the number of blocks from the library to the post office? Choose all that apply.
 - $|6| + |-7|$
 - $7 + -6$
 - $7 + 6$
 - $-|7| + 6$
- Which two places are the same distance from $(0, 0)$?
 - The library and the post office
 - The post office and the park
 - The library and the park
 - The school and the post office
- If the bank is located at $(-3, 4)$, which quadrant is it in?
 - Quadrant I
 - Quadrant II
 - Quadrant III
 - Quadrant IV
- If the point $(3, 5)$ is reflected across the x -axis, what are the coordinates of the reflected point?

A $(-3, 5)$	C $(-3, -5)$
B $(3, 5)$	D $(3, -5)$

Expressions, Equations, and Functions

(continued)

Read each question. Then mark your answer on the sheet.

7. Evaluate $5 + 2 \times 3^2 + 4$.
- A** 21 **C** 46
B 27 **D** 67
-
8. Evaluate the expression $3x + 21$ for $x = 3$.
- A** 24 **C** 30
B 27 **D** 54
-
9. Evaluate the expression $12t - 8$ for $t = 2$.
- A** 16 **C** 32
B 18 **D** 114
-
10. Leo is 13 years old. His sister, Isabel, is n years younger than Leo. Which expression could be used to find Isabel's age, in years?
- A** $13 + n$ **C** $n - 13$
B $13 - n$ **D** $n + 13$
-
11. Which expressions are equivalent to $2(9 + 4)$? Choose all that apply.
- A** $2(9) + 2(4)$
B $2(13)$
C $18 + 8$
D 22
-
12. Which expressions are equivalent? Choose all that apply.
- A** $3(5x + y)$ and $15x + y$
B $12x + 6y$ and $6(2x + y)$
C $3(x + 4y)$ and $3x + 4y$
D $20x + 5y$ and $5(4x + y)$
-
13. Which expressions are equivalent to $2(3x + 4y)$? Choose all that apply.
- A** $6x + 8y$
B $6x + 4y$
C $3x + 3x + 4y + 4y$
D $6x + 4y$
-
14. Movies are on sale this week for 15% off the regular price. If y represents the regular price before discount, which expression could be used to calculate the sale price of a video game?
- A** $y - 0.15$ **C** $y - 15y$
B $y - 0.15y$ **D** $y - 15$
-
15. Which statements are true for $x = 3$? Choose all that apply.
- A** $2x + 3 < 10$
B $2x - 3 < 4$
C $5 + 3x > 15$
D $12 - 3x > 2$

Name _____

Expressions, Equations, and Functions

(continued)

Read each question. Then mark your answer on the sheet.

- 16.** Water boils at 212°F . Let t = the temperature of the water. Which of these could represent the temperature of water that is boiling? Choose all that apply.

A $t > 212^{\circ}\text{F}$ **C** $t = 212^{\circ}\text{F}$
B $t \geq 212^{\circ}\text{F}$ **D** $t < 212^{\circ}\text{F}$

- 17.** Which symbol makes the statement true?

$$-(-8) \bigcirc 8$$

A $<$ **C** $=$
B $>$ **D** $+$

- 18.** Which day was the coolest?

Day	Temperature
Monday	-5°C
Tuesday	-2°C
Wednesday	-8°C
Thursday	-12°C

A Monday **C** Wednesday
B Tuesday **D** Thursday

- 19.** Which statements are true? Choose all that apply.

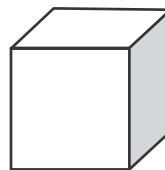
A $8^{\circ}\text{F} > 6^{\circ}\text{F}$
B $4^{\circ}\text{F} > -5^{\circ}\text{F}$
C $4^{\circ}\text{F} < -6^{\circ}\text{F}$
D $-6^{\circ}\text{F} > -8^{\circ}\text{F}$

- 20.** Use mental math to find the product.

$$2,800 \times 20 =$$

A 560 **C** 56,000
B 1,400 **D** 560,000

- 21.** The formula $V = s^3$, where s is a side length, can be used to find the volume of a cube. Use this formula to find the volume of a cube with $s = 2$ cm.



A 8 cm^3 **C** 6 cm^3
B 7 cm^3 **D** 5 cm^3

- 22.** The formula, $A = 6s^2$, where s is a side length, can be used to find the surface area of a cube. What is the surface area of a cube in which the length of each side, $s = 1$ cm?

A 6 cm^2
B 8 cm^2
C 10 cm^2
D 12 cm^2

Numbers and Operations

Read each question. Then mark your answer on the sheet.

- 23.** The temperature at noon was -2°F . At 3:00 P.M. the temperature had dropped by 9°F . What was the temperature at 3:00 P.M.?
- A** -11°F
B -7°F
C 7°F
D 11°F
-
- 24.** At noon, the temperature was 0°F . For the next 5 hours the temperature dropped by 4° each hour. What was the temperature at 5:00 P.M.?
- A** 20°F **C** -10°F
B 10°F **D** -20°F
-
- 25.** Julian's checking account balance is $\$-43.68$. Which statements are true? Choose all that apply.
- A** Julian's debt is greater than $\$40$.
B Julian's debt is less than $\$50$.
C Julian has a negative balance in his account.
D Julian has enough money in his account to withdraw $\$20$.
- 26.** Which of the following statements are true? Choose all that apply.
- A** $|-20| + |-30| = 50$
B $|-20| = 20$
C $-|-20| = -20$
D $|-20| = -20$
-
- 27.** Noreen needs to ship 9,480 candles. If 15 candles are shipped in each box, how many boxes of candles will she ship?
- A** 532 boxes
B 622 boxes
C 632 boxes
D 642 boxes
-
- 28.** Which expressions are equivalent to $8,400 \div 30$? Choose all that apply.
- A** $840 \div 3$
B 280
C 2,800
D $84,000 \div 300$

Numbers and Operations

(continued)

Read each question. Then mark your answer on the sheet.

- 29.** Tyron has \$7,540. He wants to share it equally among his 10 grandchildren. How much can Tyron give each grandchild?
- A** \$75.40
B \$750.40
C \$754.00
D \$7,540.00
-
- 30.** $22 \overline{)18,924}$
- A** 850 R4
B 859 R4
C 860 R4
D 860 R40
-
- 31.** There are 344 boxes and each box can hold 24 bottles. How many bottles can fit in the boxes?
- A** 7,246 bottles
B 8,246 bottles
C 8,256 bottles
D 82,560 bottles
-
- 32.** The soccer team wants to raise \$18,920 for summer camp. How many \$40 donations will they need to collect to raise the money?
- A** 472 donations
B 473 donations
C 4,730 donations
D 756,800 donations
-
- 33.** There were 60,000 fans at the basketball game. If 12,500 of them received a free promotional shirt, how many fans did NOT receive a free shirt?
- A** 47,500 **C** 57,500
B 48,500 **D** 72,500
-
- 34.** What is the greatest common factor of 16 and 20?
- A** 8
B 4
C 2
D 1

Numbers and Operations

(continued)

Read each question. Then mark your answer on the sheet.

- 35.** Sage travels around a go-cart track every 3 minutes. Marcus travels around it every 4 minutes, and Thomas travels around it every 6 minutes. They all start together. How long will it be until they all three get back to the start at the same time?

A 6 minutes **C** 18 minutes
B 12 minutes **D** 24 minutes

- 36.** Louise is making bags of party favors. She has 16 stickers and 24 bracelets. She wants each bag to be alike, and she needs to use all of the stickers and bracelets. What is the greatest number of party bags she can make?

A 2 bags **C** 8 bags
B 4 bags **D** 16 bags

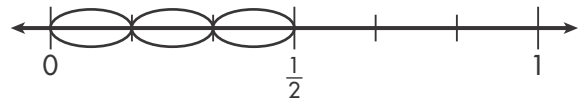
- 37.** Which has the same value as $\frac{7}{10} \div \frac{3}{5}$?

A $\frac{7}{10} \times \frac{5}{3}$ **C** $\frac{10}{7} \times \frac{2}{5}$
B $\frac{7}{10} \div \frac{5}{3}$ **D** $\frac{10}{7} \times \frac{5}{3}$

- 38.** Kendra has 16 pints of blueberries. If she wants to divide them into half pints, how many will she have?

A 4 half pints **C** 32 half pints
B 8 half pints **D** 42 half pints

- 39.** Three friends share $\frac{1}{2}$ -pound of a trail mix equally. How much will each person get?



A $\frac{1}{3}$ pound **C** $\frac{1}{5}$ pound
B $\frac{1}{4}$ pound **D** $\frac{1}{6}$ pound

- 40.** How much more will it cost to buy 3 pounds of salami than 3 pounds of ham?

Derek's Deli	
Ham	\$2.99 per lb
Turkey	\$3.19 per lb
Salami	\$3.89 per lb

A \$0.90 **C** \$2.70
B \$1.80 **D** \$5.40

- 41.** What is $23.8 + 34.51$?

A 57.31 **C** 58.31
B 58.21 **D** 58.41

- 42.** Kellie's paper airplane flew 68.75 feet. Trudy's paper airplane flew 42.25 feet. How much farther did Kellie's plane fly than Trudy's?

A 26.50 feet **C** 36.50 feet
B 36.25 feet **D** 111.00 feet

Numbers and Operations

(continued)

Read each question. Then mark your answer on the sheet.

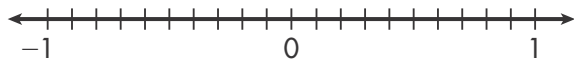
- 43.** Kayla is 51.94 inches tall and Will is 52.16 inches tall. How much taller is Will than Kayla?
- A** 0.12 inches
 - B** 0.22 inches
 - C** 1.2 inches
 - D** 104.10 inches
-
- 44.** What is 0.014×2.3 ?
- A** 3.22
 - B** 0.322
 - C** 0.0322
 - D** 0.00322
-
- 45.** Fred has 98.4 pounds of beans that he wants to share equally among 16 friends. How many pounds of beans will each friend get?
- A** 82.4 pounds
 - B** 61.5 pounds
 - C** 6.15 pounds
 - D** 0.615 pounds
-
- 46.** Sam was 50.75 centimeters tall when he was born. Over the next two years he grew 25.5 centimeters. How tall was he then?
- A** 25.25 centimeters
 - B** 53.3 centimeters
 - C** 75.25 centimeters
 - D** 76.25 centimeters
-
- 47.** There are 1.7 grams of fat in a serving. How many grams of fat are in 0.8 servings?
- A** 13.6 grams
 - B** 2.13 grams
 - C** 1.36 grams
 - D** 1.26 grams
-
- 48.** Tony buys some muffins. He spends \$4.80 and each muffin costs \$0.60. How many muffins does Tony buy?
- A** 8
 - B** 7
 - C** 6
 - D** 5

Name _____

Fractions, Decimals, Ratios, and Proportionality

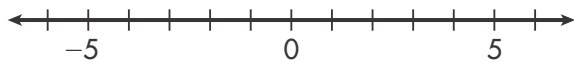
Read each question. Then mark your answer on the sheet.

49. Which number is closest to zero on the number line?



- A $-\frac{1}{3}$
- B $\frac{1}{4}$
- C 0.3
- D 0.50

50. Which number is closest to zero on the number line?



- A 3
- B -2
- C -2.5
- D 3.2

51. The formula $d = rt$ gives the relationship among distance, d , rate of speed, r , and time, t . Use the formula to find how fast you need to drive to travel 252 miles in 4.5 hours.

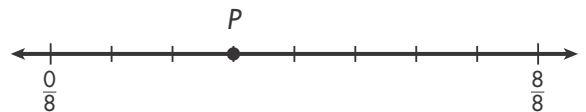
- A 54 mph
- B 58 mph
- C 56 mph
- D 60 mph

52. The chart shows Julie's rate of travel on each of four trips. Which equation could be used to represent the relationship between distance and time?

Distance (d) (in miles)	50	100	200	400
Time (t) (in hours)	1	2	4	8

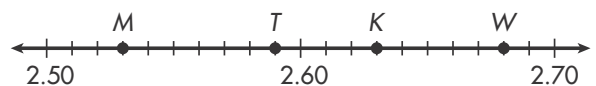
- A $50 = d \times t$
- B $d = \frac{50}{t}$
- C $t = 50d$
- D $d = 50t$

53. Point P can be represented by which fraction and decimal?



- A $\frac{3}{8}$ and 0.375
- B $\frac{4}{8}$ and 0.5
- C $\frac{5}{8}$ and 0.75
- D $\frac{6}{8}$ and 0.75

54. Identify the point located at $2\frac{68}{100}$.



- A Point M
- B Point T
- C Point K
- D Point W

Name _____

Fractions, Decimals, Ratios, and Proportionality

(continued)

Read each question. Then mark your answer on the sheet.

55. Which store has the best buy on brushes? What is its unit price?

Painter's Palette	
acrylic paint	2 for \$7.50
brushes	2 for \$5.25

The Hobby Shop	
acrylic paint	3 for \$9.79
brushes	4 for \$10.99

- A** Painter's Palette; \$2.63
B The Hobby Shop; \$2.75
C Painter's Palette; \$2.25
D The Hobby Shop; \$3.27

56. A photograph that measures 5 in. wide by 7 in. high is reduced to fit into a space that is 1 in. high. Which proportion can be used to find w , the width of the reduced photo?

- A** $\frac{5}{7} = \frac{w}{1}$ **C** $\frac{w}{5} = \frac{1}{7}$
B $\frac{5}{7} = \frac{1}{w}$ **D** $\frac{5}{w} = \frac{7}{1}$

57. Grace is making snack bars with almonds and figs. She uses 2 cups of almonds and 3 cups of figs to make 12 bars. What is the ratio of almonds to figs?

- A** 2:3 **C** 2:5
B 3:2 **D** 2:12

58. Salina can run 2 miles in 24 minutes. At this rate, how long will it take her to run 10 miles?

	2	4	6	8	10
	mi	mi	mi	mi	mi
distance					
time					
	24	48	72	96	?
	min	min	min	min	min

- A** 108 min **C** 120 min
B 110 min **D** 132 min

59. Each pound of snack mix uses 2 ounces of peanuts, 5 ounces of raisins, and some other nuts. A batch of mix has 12 ounces of peanuts. How many ounces of raisins does it have?

Peanuts	2	4	6			
Raisins	5	10				

- A** 30 ounces **C** 22 ounces
B 24 ounces **D** 19 ounces

60. Josie left an \$8.00 tip at the restaurant. How much was her total bill, if the tip was 20% of the total?

- A** \$32
B \$40
C \$48
D \$64

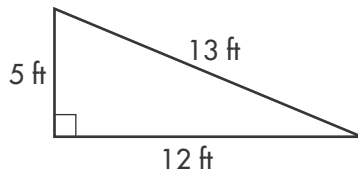
Measurement, Geometry, Data Analysis, and Probability

Read each question. Then mark your answer on the sheet.

61. A window is $8\frac{1}{2}$ feet tall. How many inches are in $8\frac{1}{2}$ feet?

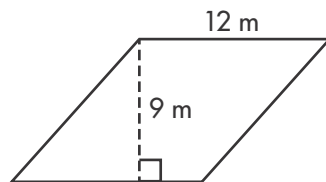
A 204 in. C 102 in.
B 150 in. D 58 in.

62. Jake drew this sketch of his triangular rock garden. What is the area of his rock garden?



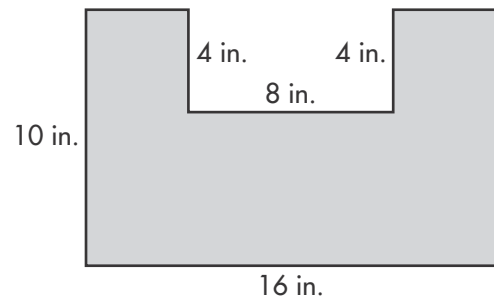
A 17 ft^2
B 30 ft^2
C 60 ft^2
D 78 ft^2

63. What is the area of the parallelogram?



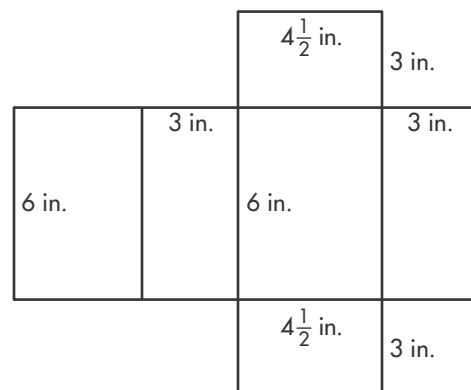
A 21 m^2
B 42 m^2
C 108 m^2
D 216 m^2

64. What is the area of the figure shown?



A 60 square inches
B 112 square inches
C 128 square inches
D 160 square inches

65. Courtney needs to wrap this gift box, which is $4\frac{1}{2}$ inches wide, 6 inches long, and 3 inches tall. What is the surface area of the box?



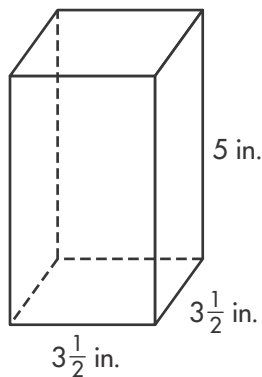
A 81 in.^2
B 99 in.^2
C 108 in.^2
D 117 in.^2

**Measurement, Geometry, Data Analysis,
and Probability**

(continued)

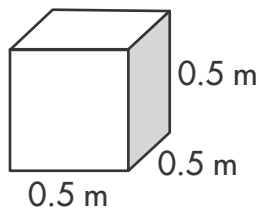
Read each question. Then mark your answer on the sheet.

- 66.** Emma wants to know how much milk this carton can hold. What is the volume of the rectangular prism?



- A** $61\frac{1}{4}$ in.³ **C** 105 in.³
B 95 in.³ **D** $122\frac{1}{2}$ in.³

- 67.** What is the volume of the cube?

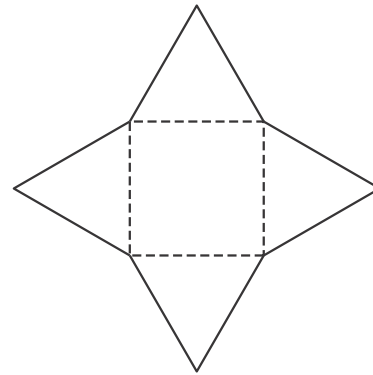


- A** 12.5 m³ **C** 0.25 m³
B 1.25 m³ **D** 0.125 m³

- 68.** A map has a scale of 2 cm = 5 km. The distance between two cities on the map is 31.2 cm. What is the actual distance between the cities?

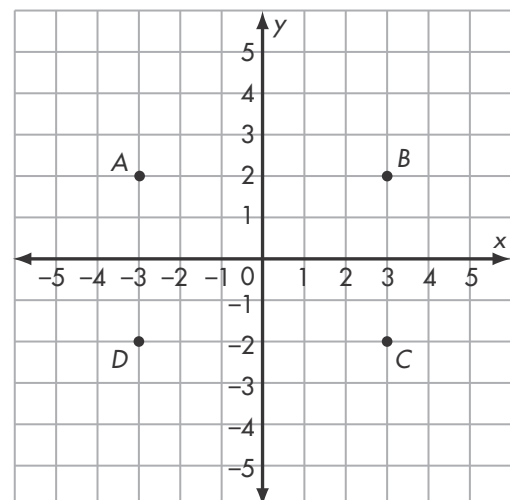
- A** 12.48 km **C** 78 km
B 62.4 km **D** 156 km

- 69.** Which solid figure will this net form?



- A** Triangular pyramid
B Triangular prism
C Square pyramid
D Square prism

- 70.** Which is the area of ABCD?



- A** 12 square units
B 20 square units
C 24 square units
D 28 square units

**Measurement, Geometry, Data Analysis,
and Probability**

(continued)

Read each question. Then mark your answer on the sheet.

The following represents the sizes of several bicycle tires.

17 inches, 20 inches, 21 inches,
21 inches, 23 inches, 30 inches

Use the data for Exercises 71–77.

- 71.** What is the range of the bicycle tires sizes?
- A** 13 in. **C** 21 in.
B 17 in. **D** 30 in.
-
- 72.** What is the mean of bicycle tires sizes?
- A** 18 in.
B 20 in.
C 21 in.
D 22 in.
-
- 73.** What is the mode of bicycle tires sizes?
- A** 18 in.
B 20 in.
C 21 in.
D 24 in.
-
- 74.** What is the median of the data set?
- A** 20 in.
B 21 in.
C 22 in.
D 24 in.
-
- 75.** What is the sum of the absolute deviation from the mean?
- A** 12 in.
B 14 in.
C 16 in.
D 18 in.
-
- 76.** What is the mean absolute deviation of the data set?
- A** 2 in.
B 3 in.
C 4 in.
D 6 in.
-
- 77.** What is the interquartile range of the data set?
- A** 2 in.
B 3 in.
C 4 in.
D 6 in.
-
- 78.** Which of the following is a measure of variation for a numerical data set?
- A** Interquartile range
B Mean
C Median
D Mode

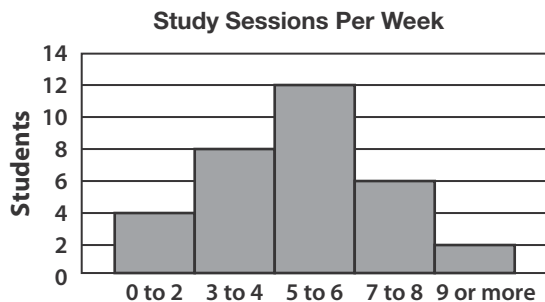
**Measurement, Geometry, Data Analysis,
and Probability**

(continued)

Read each question. Then mark your answer on the sheet.

Use the graph for Exercises 79–82.

The histogram shows the results of a survey in which students were asked how many times per week they study.



79. How many times per week do the greatest number of students study?

- A** 0 to 2 times
- B** 3 to 4 times
- C** 5 to 6 times
- D** 7 or more times

80. Where do most of the data cluster?

- A** 0 to 4
- B** 3 to 6
- C** 5 to 8
- D** 7 or more

81. What percent of the students study seven or more times per week?

- A** 8%
- B** 25%
- C** 30%
- D** 75%

82. Which of these are statistical questions that can be answered using the graph? Check all that apply.

- A** How many study sessions do the students participate in each week?
- B** How many hours do the students spend studying each week?
- C** Do more students study 3 to 4 times per week or 7 to 8 times per week?
- D** How often do you study?

Name _____

Measurement, Geometry, Data Analysis, and Probability

(continued)

Read each question. Then mark your answer on the sheet.

- 83.** Which of the following is NOT affected by the exclusion of the outlier in the data set?

4, 2, 5, 2, 3, 19, 2, 4

- A** Mean
- B** Median
- C** Mode
- D** Range

- 84.** Each set of data below gives the amount of snow, in inches, for four days. For which set of data does the median give a better indication of the typical amount of snow over those days than the mean?

- A** 2, 1, 21, 6
- B** 12, 15, 8, 5
- C** 6, 8, 3, 7
- D** 3, 5, 2, 4