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EDUCATION

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Grade 6 Mathematics

Practice Test

> **Read each question or problem carefully. Then, answer the question or work the problem. Be sure to mark your response in this test book.**

1. What is the value of the expression?

$$\$124.30 - \$46$$

Ⓐ $78.30

Ⓑ $88.30

Ⓒ $123.84

Ⓓ $124.16

2. Which expressions are equivalent to $4x$?

Select **two** answer choices.

Ⓐ $3x + x$

Ⓑ $2x + 2$

Ⓒ $4 + x$

Ⓓ $8x - 4$

Ⓔ $x + x + x + x$

3. The ratio of boys to girls in a math class is $7:8$. Which statement **must** be true about this math class?

Ⓐ The boys make up $\dfrac{7}{8}$ of the class.

Ⓑ The girls make up $\dfrac{8}{15}$ of the class.

Ⓒ There is exactly 1 more girl in the class.
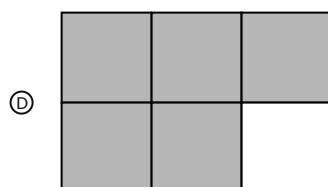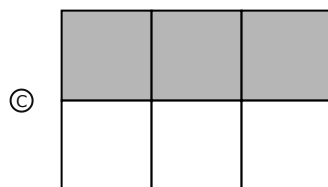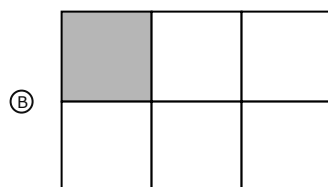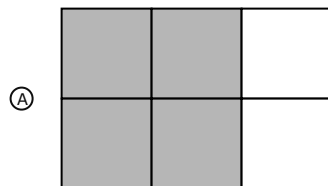
Ⓓ There are exactly 15 students in the class.

4. Which values make the inequality $c + 10 < 17$ true?

Select **two** answer choices.

Ⓐ 3

Ⓑ 5

Ⓒ 7

Ⓓ 11

Ⓔ 14

5. Which visual fraction model shows the shaded region for the expression $\dfrac{2}{3} \div \dfrac{1}{6}$?

Ⓐ

Ⓑ

Ⓒ

Ⓓ

6. Which questions are statistical questions?

Select **two** answer choices.

Ⓐ How old are the students at my school?

Ⓑ In what year did Mississippi become a state?

Ⓒ How many dogs does my math teacher have?

Ⓓ What is the height of the tallest mountain in the world?

Ⓔ What is the favorite color of the sixth graders at my school?

7. What is the value of the expression $2 + 7^3 + 4(9 - 6)^2 \div 6$?

Ⓐ 27

Ⓑ 29

Ⓒ 349

Ⓓ 351

8. Sam is baking chocolate chip cookies. Some of the ingredients are shown in the table.

Dry Ingredients	Other Ingredients
3 cups flour 4 cups sugar	1 cup softened butter 2 eggs 1 tsp vanilla

Which rows in the table correctly describe the ratios between the ingredients?

Select the box in each row that indicates whether the ratio is true or false.

	True	False
$\frac{1}{2}$ tsp. vanilla to 1 egg	○	○
6 cups of flour to every 5 eggs	○	○
$\frac{3}{4}$ cup of flour for each cup of sugar	○	○
$\frac{3}{2}$ cup of flour to 2 cups of softened butter	○	○
$3:4$ is the ratio of cups of flour to cups of dry ingredients.	○	○

9. The vertices of a quadrilateral drawn in a coordinate plane are $(-6, 6)$, $(4, 6)$, $(2, -5)$, and $(-6, -9)$. What is the length of the side joining the vertex in Quadrant I to the vertex in Quadrant II?

Ⓐ 2

Ⓑ 8

© 10

Ⓓ 12

10. Mr. Roy is scheduled to work less than 18 hours this week. He has already worked 7 hours. If x is the remaining number of hours Mr. Roy could work this week, which inequalities represent the number of remaining hours Mr. Roy could be scheduled to work this week?

Select **two** answer choices.

Ⓐ $x + 7 > 18$

Ⓑ $x + 7 < 18$

© $x + 18 > 7$

Ⓓ $x > 11$

Ⓔ $x < 11$

11. As a reward, Coach Little gives his students free tickets to Skate World. The number of tickets each student receives is constant. The table shows how many students were chosen to receive awards and how many tickets were passed out each day.

Number of Awarded Students	Number of Tickets
3	6
2	4
6	x
1	2
5	10

How many tickets were passed out when the teacher awarded 6 students?

Ⓐ 3 tickets

Ⓑ 8 tickets

Ⓒ 9 tickets

Ⓓ 12 tickets

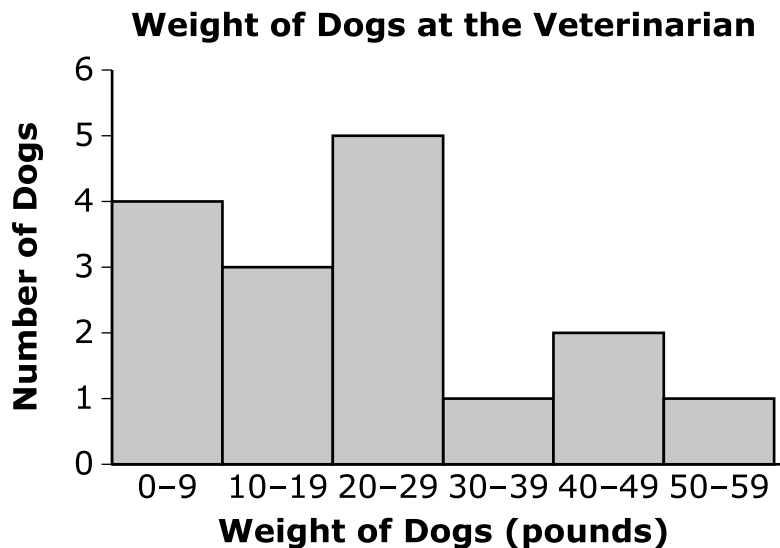**12.** Which expression is equivalent to $2(2x + 1) + 3x + 3$?

Ⓐ $4x + 3$

Ⓑ $4x + 5$

Ⓒ $7x + 4$

Ⓓ $7x + 5$

13. As part of a visit, a veterinarian weighs each dog brought to her clinic. At the end of each day, she creates a histogram of all the dogs' weights. The histogram she created on one particular day is shown.

Weight of Dogs at the Veterinarian

How many observations are recorded in this histogram?
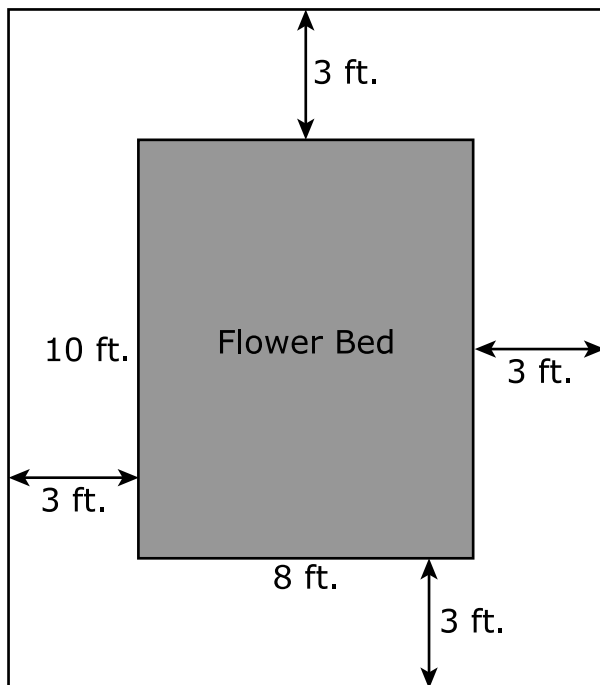
Write the answer in the box.

14. Nicole is planning for a party. She is planning for each person to consume $2\dfrac{1}{4}$ cups of lemonade.

How many ounces of lemonade does she need to buy for 8 people?

Write the answer in the box.

⬚ ounces

**15.** A 3-foot wide sidewalk surrounds a rectangular flower bed. The flower bed is 8 feet wide and 10 feet long.

What is the area of the sidewalk?

Ⓐ 60 ft.^{2}

Ⓑ 63 ft.^{2}

Ⓒ 144 ft.^{2}

Ⓓ 224 ft.^{2}

16. Sammi is trying to wrap a gift for her brother. The gift fits into a cube-shaped box with a side length of 9 inches. How many square inches of wrapping paper does she need to cover the box without the paper overlapping?

Use the formula $A = 6s^2$ so that s equals the side length and A equals the surface area.

Ⓐ 108 square inches

Ⓑ 486 square inches

Ⓒ $2{,}916$ square inches

Ⓓ $4{,}761$ square inches

17. A number line is shown.
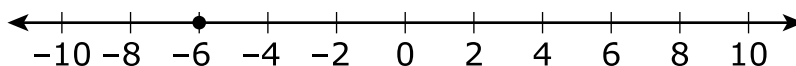
If Jason plotted -6 to the left of zero, which numbers are located on the opposite side of zero?

Select **two** answer choices.

Ⓐ -1

Ⓑ 0

Ⓒ 3

Ⓓ $-(-2)$

Ⓔ the opposite of 7

18. Consider the following rule posted on a sign at a playground:

"*Children must be no taller than 48 inches to play in this area.*"

If h represents height, which inequality represents the height rule?

Ⓐ $h > 48$

Ⓑ $h < 48$

Ⓒ $h \geq 48$

Ⓓ $h \leq 48$

19. Sam's fish tank has a base area of 187 in.^2 and a height of 16 inches. His fish tank is shown.

16 in.

A = 187 in.²
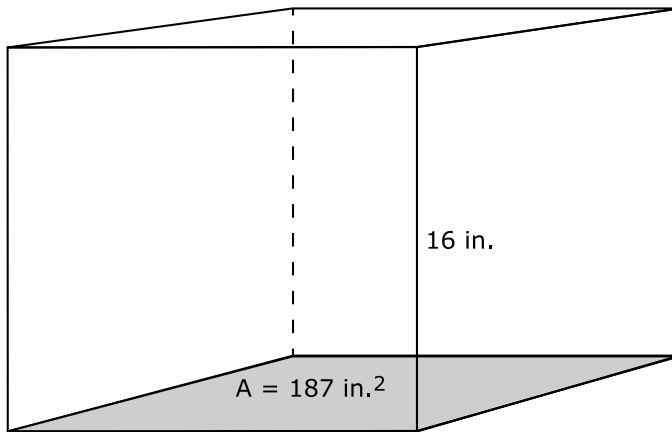
The tank is currently $\dfrac{2}{3}$ full of water. How many cubic inches of water should be added to completely fill the tank?

Ⓐ $997\dfrac{1}{3} \text{ in.}^3$

Ⓑ $1{,}994\dfrac{2}{3} \text{ in.}^3$

Ⓒ $2{,}992 \text{ in.}^3$

Ⓓ $4{,}488 \text{ in.}^3$

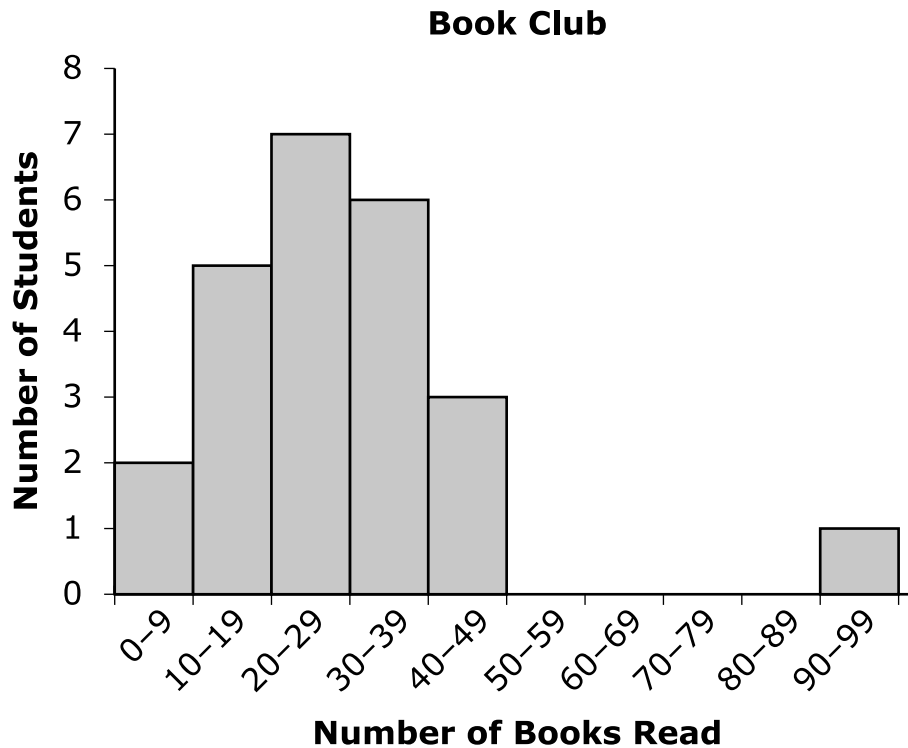**20.** What is the quotient of $58,110$ and 65?

Ⓐ 799

Ⓑ 892

Ⓒ 894

Ⓓ 901

21. There are 24 students in a book club. The histogram shows the number of books each of the students read over the past six months.

Book Club

Which statistical measure would **best** represent the center of the data in the histogram?

Ⓐ mean

Ⓑ range

Ⓒ median

Ⓓ interquartile range

22. What is the value of the expression shown?

$$\left(\frac{1}{3}\right)^3$$

Ⓐ $\dfrac{1}{27}$

Ⓑ $\dfrac{1}{9}$

Ⓒ $\dfrac{1}{6}$

Ⓓ 1

23. Tokens to play games at a festival are sold at different rates depending on the number purchased.

Which option provides the most tokens for the **least** amount of money?

Ⓐ $5.00 for 50 tokens because the ratio is $1 to 10 tokens

Ⓑ $7.50 for 150 tokens because the ratio is $1 to 20 tokens

Ⓒ $10.50 for 175 tokens because the ratio is $3 to 50 tokens

Ⓓ $14.00 for 200 tokens because the ratio is $7 for 100 tokens

24. Which equation represents a true statement?

Ⓐ $|6| = -6$

Ⓑ $-|6| = 6$

Ⓒ $|-6| = -6$

Ⓓ $-|-6| = -6$

25. Given the expression $5 + 3(7 - 4)$, what mathematical terms describe $(7 - 4)$?
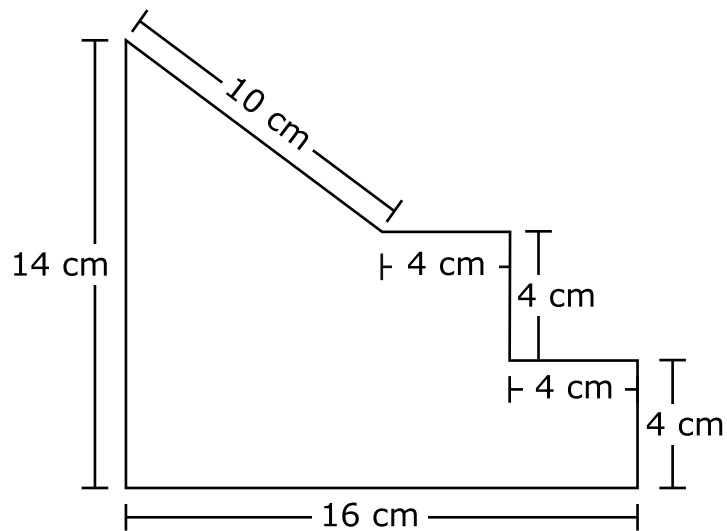
Select **two** answer choices.

Ⓐ term

Ⓑ factor

Ⓒ product

Ⓓ quotient

Ⓔ difference

26. Consider the irregular figure.

What is the area of the figure?

Write the answer in the box.

[   ] cm^2

27. The following question has two parts. First, answer Part A. Then, answer Part B.

Logan has $63 and would like to purchase as many packs of baseball cards as possible to add to her collection.

Part A

An advertisement in the newspaper shows that each pack of cards costs $1.75. At this price, how many packs of cards can Logan buy?

Write the answer in the box.

	packs

Part B

When Logan arrives at the store to purchase the cards, she sees that the cards are on sale for $1.50. At this price, how many packs of cards can Logan buy?

Write the answer in the box.

	packs

28. Ryan was instructed to plot point A at $(4, -5)$. Ryan's teacher asked him to reflect point A across the y-axis and name the new point B.
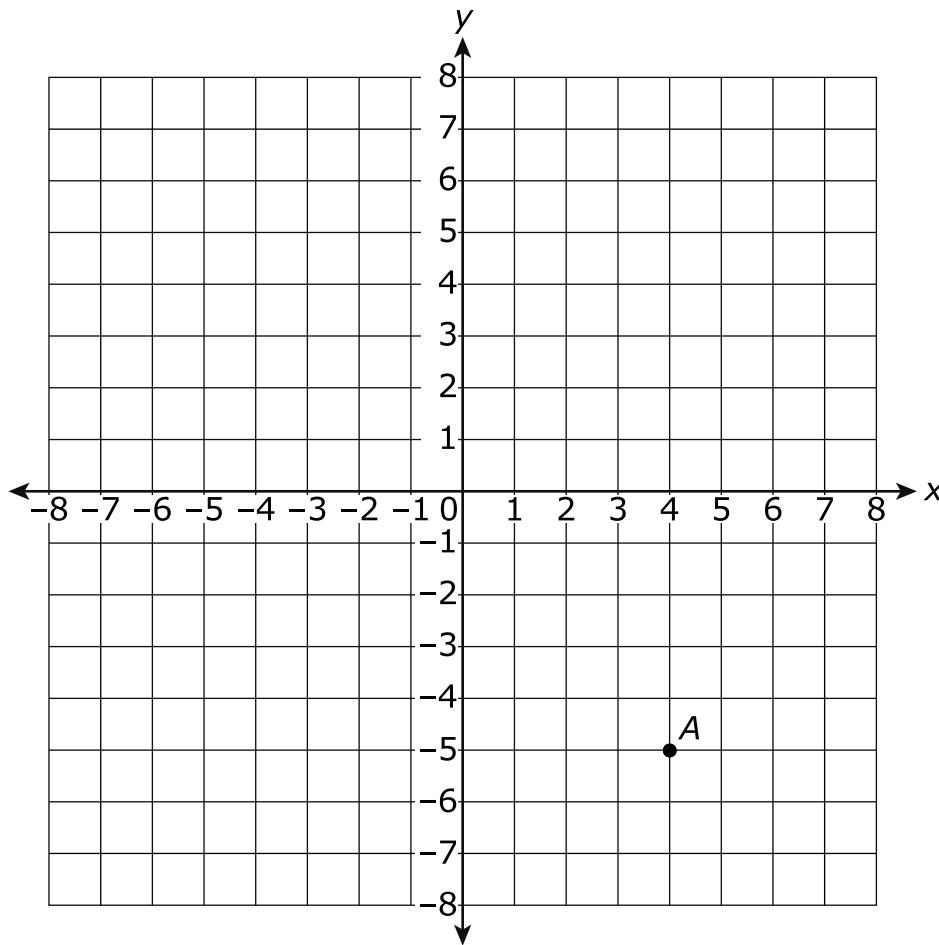
How can this reflection be described?

Select **two** answer choices.

ⓐ Point B is located in Quadrant III.

ⓑ The y-values differ only by signs.

ⓒ The x-values differ only by signs.

ⓓ Point B is located in Quadrant I.

ⓔ The x-values remain the same.

29. In August, 85% of the middle school students voted in a school election. The number of students who voted was 544. How many students are in the middle school?

Ⓐ 462 students

Ⓑ 544 students

Ⓒ 629 students

Ⓓ 640 students

30. Which expressions are equivalent to $12a + 6b$?

Select **two** answer choices.

Ⓐ $18ab$

Ⓑ $3(4a + 2)$

Ⓒ $6(2a + b)$

Ⓓ $2(6a + 3b)$

Ⓔ $12 + a + 6 + b$

31. For each month of the year, Taylor collected the average high temperatures in Jackson, Mississippi. He used the data to create the histogram shown.

Average High Temperatures in Jackson, Mississippi
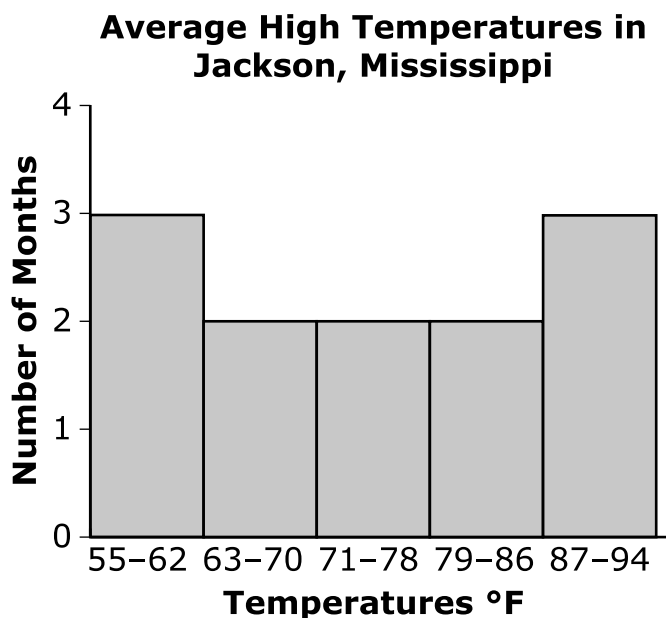
Which set of data did he use to create the histogram?

Ⓐ $55, 60, 64, 72, 73, 75, 77, 81, 83, 91, 91, 92$

Ⓑ $55, 57, 60, 65, 70, 71, 78, 79, 85, 86, 88, 91$

Ⓒ $55, 60, 63, 64, 65, 71, 83, 87, 88, 88, 89, 93$

Ⓓ $55, 58, 60, 66, 68, 75, 77, 82, 86, 89, 91, 91$

32. Which situations result in quantities that combine to make 0?

Select **two** answer choices.

Ⓐ Lane was given $5 as a gift and made a $15 purchase.

Ⓑ The temperature rose $40°$ by noon. By 10 p.m., the temperature had dropped $40°$.

Ⓒ Janie credited her customer's account with $67 and debited the account for $67 three days later.

Ⓓ The veterinarian discovered a dog had lost 2 pounds since his last visit. A month later, the same dog had lost 2 more pounds.

Ⓔ Loren withdrew $25 from her bank account on Monday, and she withdrew an additional $25 from her bank account on Tuesday.

33. Jess is having a private party at the bowling alley. The party costs $99 plus $3 per person who attends. Which expression can Jess use to figure out the total amount of dollars she owes at the end of the party?

Ⓐ $33x$

Ⓑ $33 + x$

Ⓒ $99 + 3x$

Ⓓ $99x + 3$

34. A local grocery store sells two different sizes of orange juice. A 48-ounce carton costs $\$2.88$, and a 20-ounce bottle costs $\$1.60$. Which statement is true about the unit cost of the orange juice?

 Ⓐ The 20-ounce bottle is cheaper by $\$0.02$ per ounce.

 Ⓑ The 20-ounce bottle is cheaper by $\$0.04$ per ounce.

 © The 48-ounce carton is cheaper by $\$0.02$ per ounce.

 Ⓓ The 48-ounce carton is cheaper by $\$0.04$ per ounce.

35. A college basketball team has eleven players. The heights of these players are shown on the dot plot.
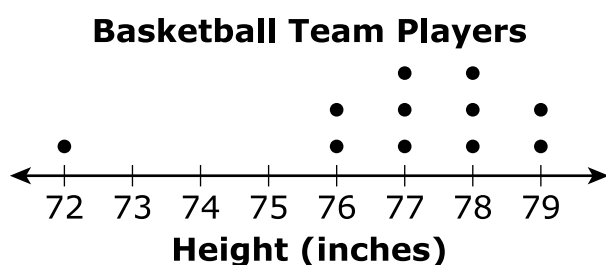
Basketball Team Players

Height (inches)

Select the box in each row with the term that completes the statement. Not all terms will be used.

	Skewed Left	Skewed Right	Symmetric
The shape of the data distribution is ____.	○	○	○
If a new player who is 83 inches tall joins the team, the data distribution's shape will be ____.	○	○	○

36. As of 2016, the coldest recorded temperature in Mississippi was $-19°\text{F}$ in 1966. The coldest recorded temperature in the United States was $-80°\text{F}$ in 1971. What is the difference between the two recorded temperatures?

Ⓐ $61°\text{F}$

Ⓑ $99°\text{F}$

Ⓒ $-61°\text{F}$

Ⓓ $-99°\text{F}$

37. A class of sixth grade students is given 5 homework problems each day. The class has completed 35 homework problems. If x is the number of days, which equation should be used to determine how many days the class had homework?

Ⓐ $\dfrac{1}{5}x = 35$

Ⓑ $5x = 35$

Ⓒ $x + 5 = 35$

Ⓓ $5 \div x = 35$

38. Which statement about the relative position of -6 and -12 on a horizontal number line is true?

Ⓐ -6 is farther left than -12; therefore, $-6 < -12$.

Ⓑ -6 is farther left than -12; therefore, $-6 > -12$.

Ⓒ -6 is farther right than -12; therefore, $-6 < -12$.

Ⓓ -6 is farther right than -12; therefore, $-6 > -12$.

39. The students in Shaun's class planted a small flower garden. The table shows the relationship between the number of rows and the number of flowers.

Number of Rows	Number of Flowers
2	8
3	12
5	20
8	32

If r is the number of rows and f is the number of flowers, which equation represents the same relationship as shown in the table?

Ⓐ $f = \dfrac{r}{4}$

Ⓑ $r = \dfrac{4}{f}$

Ⓒ $r = 4f$

Ⓓ $f = 4r$

40. The points $(-3, 2)$ and $(-3, -5)$ are plotted on a coordinate plane.

Which expression can be used to find the distance between the two points?

Ⓐ $|-5| + |2|$

Ⓑ $|-5| - |2|$

Ⓒ $|-3| + |-3|$

Ⓓ $|-3| - |-3|$

41. Shelly buys some pies that cost $5.35 each and a cake that costs $17.50. Which expression can be used to find the total cost of x pies and the cake?

Ⓐ $5.35x$

Ⓑ $17.50x$

Ⓒ $5.35x + 17.50$

Ⓓ $17.50x + 5.35$

42. Tanya has 48 mints and 60 lollipops to give away to 12 friends. She wants each friend to receive the same number of mints and the same number of lollipops. How many of each will her friends receive?

   Ⓐ 2 mints and 3 lollipops

   Ⓑ 4 mints and 5 lollipops

   Ⓒ 5 mints and 4 lollipops

   Ⓓ 9 mints and 9 lollipops

43. Select the box in each row that matches the description with the expression that it represents.

	$(3+5)n$	$5n-3$	$3n+5$	$5(n \div 3)$
the difference of 5 times a number and 3	○	○	○	○
the product of a number and the sum of 3 and 5	○	○	○	○
5 times the quotient of a number and 3	○	○	○	○
5 more than 3 times a number	○	○	○	○

44. Jase has $5\frac{1}{3}$ feet of ribbon. It takes $\frac{2}{3}$ of a foot of ribbon to make one bracelet. In total, how many bracelets can Jase make?

Write the answer in the box.

| | bracelets

45. Sam completed a race that is 7 kilometers long. Which distance is closest to the number of miles Sam ran?

Ⓐ 4.34 miles

Ⓑ 6.38 miles

Ⓒ 7.62 miles

Ⓓ 11.3 miles

46. What is the value of the expression $(-3) + (-6)$?

Write the answer in the box.

**47.** Logan and Aaron are asked if three expressions are equivalent to each other.

Expression A	$10n - 3n + 4$
Expression B	$7n + 4$
Expression C	$2(3n + n) + 4$

Logan says all 3 expressions are equivalent to each other. Aaron says only Expressions A and B are equivalent.

Who is correct and why?

Ⓐ Both Logan and Aaron are correct because the expressions are equal when they are simplified.

Ⓑ Neither Logan nor Aaron is correct because all the expressions have different variables, coefficients, and constants.

Ⓒ Logan is correct because when he substituted 0 into all of the expressions, he had the same answer.

Ⓓ Aaron is correct because when he simplified the expressions, he had the same answers on A and B only.

48. Courtney is constructing a model pyramid. The net of the pyramid shown is made up of equilateral triangles.

4.2 cm

6 cm
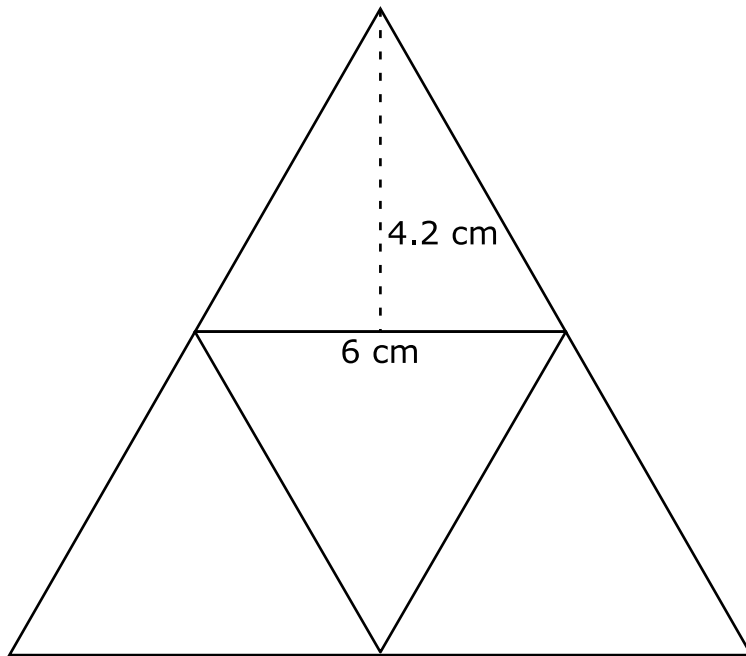
What is the surface area, in square centimeters, of Courtney's model? Round the answer to the nearest tenth.

Ⓐ 12.6 square centimeters

Ⓑ 25.2 square centimeters

Ⓒ 50.4 square centimeters

Ⓓ 100.8 square centimeters

49. A roller coaster starts from rest at ground level and descends 5 feet into an underground tunnel. Before going up a 20-foot hill, the roller coaster returns to ground level and then back to its original location.

Which inequality correctly compares the elevations of the roller coaster in the underground tunnel and at the top of the hill?

Ⓐ $-5 < 20$

Ⓑ $-5 > 0$

Ⓒ $5 > 0$

Ⓓ $5 < 20$

50. Lee purchased T-shirts for $\$15.50$ each. The total bill was $\$124$.

When x is the number of T-shirts, which equation can be used to find the total number of T-shirts Lee purchased?
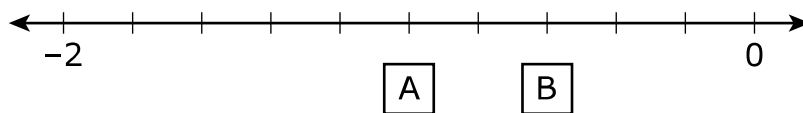
Ⓐ $15.50 = 124x$

Ⓑ $15.50x = 124$

Ⓒ $124 = 15.50 \div x$

Ⓓ $x \div 124 = 15.50$

51. The following question has two parts. First, answer Part A. Then, answer Part B.

A number line is shown.

Part A

What value on the number line does Box A represent? Write the answer as a decimal if necessary.

Write the answer in the box.

Part B

What value on the number line does Box B represent? Write the answer as a decimal if necessary.

Write the answer in the box.

52. Which question could be answered using a measure of variability?

    Ⓐ What is the most common vehicle in the school parking lot?

    Ⓑ If a college basketball team lined up from shortest to tallest, how tall would the person in the middle be?

    Ⓒ What is the difference between the alligator with the longest length and the alligator with the shortest length?

    Ⓓ If Riley and her friends piled all of their candy in the middle of a table and divided it evenly, how much candy would each person receive?
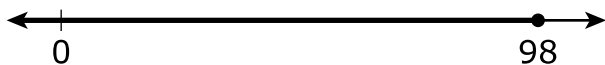
53. Consider the rational numbers below.

$$|-4|, -1, 5, |2|, 0, -7$$

Determine whether each number is to the left or right of 1 on a standard number line, then select the correct box in each row.

	Left	Right
$|-4|$	○	○
-1	○	○
5	○	○
$|2|$	○	○
0	○	○
-7	○	○

54. Jacie drew a visual representation of the balance in a checking account. The representation is shown.

0   98

Which amounts can represent the balance?

Select **two** answer choices.

Ⓐ 57

Ⓑ 98

Ⓒ 99

Ⓓ 100

Ⓔ 108

55. Students in a sixth grade social studies class are studying different elevations of cities in the United States. Some cities are below sea level, some are above sea level, and some are at sea level.

Which integer would represent a city that is at sea level?

Ⓐ −2

Ⓑ −1

Ⓒ 0

Ⓓ 1

56. A track coach recorded all runners' times for the 200-meter dash and wants to summarize the results.

Select the box in each row with the term that completes the statement. Not all terms will be used.

	Mean	Median	Interquartile Range	Range
The coach can use the ____ to summarize the runners' times.	○	○	○	○
The coach can use the ____ to indicate how close all runners' times were to each other.	○	○	○	○

57. Given the expression $\dfrac{3}{4} \div \dfrac{1}{8}$, which story problem can be solved by evaluating this expression?

Ⓐ Michelle ate $\dfrac{3}{4}$ as much pizza as Briana. Briana ate $\dfrac{1}{8}$ of a pizza. How much pizza did Michelle eat?

Ⓑ A recipe needs $\dfrac{3}{4}$ of a cup of flour. Jamie only wants to make $\dfrac{1}{8}$ of the recipe. How much flour should he use?

Ⓒ Jayla must read $\dfrac{3}{4}$ of a book for a school assignment. She reads $\dfrac{1}{8}$ of the book each night. How many nights will it take her to complete the assignment?

Ⓓ Sean has walked $\dfrac{3}{4}$ of the distance between his house and Reed's house. He has walked $\dfrac{1}{8}$ of a mile. What is the distance between Sean's house and Reed's house?

58. Select the values that make each equation or inequality true.

	0	3	11
$x + 5 = 8$	○	○	○
$2x \geq 6$	○	○	○
$\dfrac{2}{3}x = 2$	○	○	○
$-4 < x$	○	○	○

59. A rectangular prism is shown.

3 ft.

$\frac{3}{4}$ ft. $\frac{1}{2}$ ft.
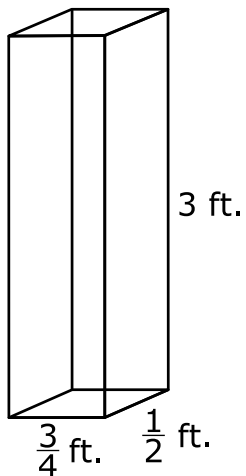
How many $\dfrac{1}{4}$-foot cubes would fill the inside of the prism?

Write the answer in the box.

| | cubes

60. Shelby's family has a cell phone data plan that provides each family member with 5 gigabytes of data. Which ratios correctly relate the number of family members to the number of gigabytes of data?

Select **two** answer choices.

ⓐ 1 to 10

ⓑ 2 to 5

ⓒ 2 to 10

ⓓ 2 to 15

ⓔ 3 to 15

61. Which represents a statistical question?

Select **two** answer choices.

ⓐ What is your favorite color?

ⓑ Which type of cookie is your favorite?

ⓒ How many books did you read in September?

ⓓ What types of pets do your classmates have at home?

ⓔ How many books did each sixth grader read last month?

STOP

Grade 6 Math Practice Test
Paper–Pencil Answer Key Document

Sequence	Key	Standard	Possible Points
1	A	6.NS.3	1
2	A, E	6.EE.4	1
3	B	6.RP.1	1
4	A, B	6.EE.5	1
5	A	6.NS.1	1
6	A, E	6.SP.1	1
7	D	6.EE.1	1
8	1, 4, 5, 8, 10	6.RP.2	1
9	C	6.G.3	1
10	B, E	6.EE.8	1
11	D	6.RP.3a	1
12	D	6.EE.3	1
13	16	6.SP.5a	1
14	144	6.RP.3d	1
15	C	6.G.1	1
16	B	6.EE.2c	1
17	C, D	6.NS.6a	1
18	D	6.EE.8	1
19	A	6.G.2	1
20	C	6.NS.2	1
21	C	6.SP.5d	1
22	A	6.EE.1	1
23	B	6.RP.2	1
24	D	6.NS.7c	1
25	B, E	6.EE.2b	1
26	136	6.G.1	1
27	36, 42	6.EE.7	2
28	A, C	6.NS.6b	1
29	D	6.RP.3c	1
30	C, D	6.EE.3	1
31	D	6.SP.4	1
32	B, C	6.NS.9a	1
33	C	6.EE.6	1
34	C	6.RP.3b	1
35	1, 6	6.SP.2	1
36	A	6.NS.9d	1
37	B	6.EE.7	1
38	D	6.NS.7a	1

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39	D	6.EE.9	1
40	A	6.NS.8	1
41	C	6.EE.6	1
42	B	6.NS.4	1
43	2, 5, 12, 15	6.EE.2a	1
44	8	6.NS.1	1
45	A	6.RP.3d	1
46	-9	6.NS.9b	1
47	D	6.EE.4	1
48	C	6.G.4	1
49	A	6.NS.7b	1
50	B	6.EE.7	1
51	-1, -0.6	6.NS.6c	2
52	C	6.SP.3	1
53	2, 3, 6, 8, 9, 11	6.NS.7	2
54	A, B	6.EE.5	1
55	C	6.NS.5	1
56	1, 8	6.SP.3	1
57	C	6.NS.1	1
58	2, 5, 6, 8, 10, 11, 12	6.EE.5	2
59	72	6.G.2	1
60	C, E	6.RP.1	1
61	D, E	6.SP.1	1