Calculator-Active Section

Answer questions 1–42 on your answer sheet. You may use a calculator.

An art student is mixing blue paint with yellow paint to create a custom color. The table below shows the amount of blue and yellow paint that is mixed together.

PAINT

Blue Paint (ounces)	Yellow Paint (ounces)
6	4
12	8
18	12
30	?

What number is missing from the table?

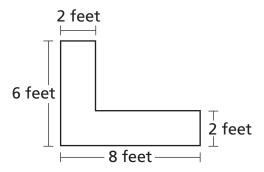
- **A** 15
- **B** 16
- **C** 20
- **D** 45
- Which situation could *not* be correctly described using a negative integer?
 - A change in temperature
 - **B** time spent working on a project
 - **C** distance from sea level
 - **D** race time compared to world record

Jason had a collection of 12 model planes. His father added to the collection and the number of planes Jason has now can be modeled by the equation 12 + p = 32, where p represents the number of new planes. How many new planes did Jason's father give him?

- **A** 44
- **B** 20
- **C** 12
- **D** 10

4

The students in an art class at a middle school make a giant paper L. The figure is shown below.



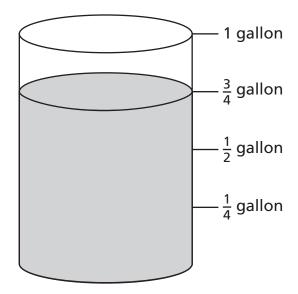
What is the area of the L?

- A 48 square feet
- **B** 32 square feet
- C 28 square feet
- **D** 24 square feet

Andy, Fergus, Evelyn, and Margaret are collecting cans for recycling. Before lunch they have collected a total of 173 cans. At the end of the day, the total number of cans collected can be represented by the expression 173 + n.

What does the variable n in the expression represent?

- A the number of cans collected the next day
- **B** the number of cans all four collected in the afternoon
- **C** the number of cans Andy collected in the morning
- **D** the number of cans Margaret collected in the afternoon
- **6** Use the figure below.



The amount of liquid shown is $\frac{6}{7}$ of the amount originally in the container. How much liquid was in the container originally?

- $\mathbf{A} = \frac{7}{8}$ gallon
- **B** $\frac{3}{4}$ gallon
- $C = \frac{2}{3}$ gallon
- $\mathbf{D} = \frac{9}{14}$ gallon

A rectangular box has a base area of 12 square centimeters. The height of the box is $3\frac{2}{3}$ centimeters. What is the volume of the box?

- **A** $15\frac{2}{3}$ cm³
- **B** $39\frac{3}{11}$ cm³
- **C** 44 cm³
- **D** 72 cm³

8 The table below shows the amount of nuts needed for a certain number of servings of trail mix.

Cups of Nuts	Number of Servings
3	9
9	27

Which ratio is equivalent to the ratio of cups of nuts to the number of servings, as shown in the table?

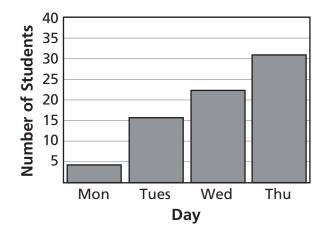
- **A** 6:16
- **B** 21:63
- **C** 8:32
- **D** 21:56

The combination to a safe has 3 numbers. The first number is the greatest common factor of 16 and 40. The second number is the greatest common factor of 25 and 75. The third number is the greatest common factor of 27 and 36. What is the combination to the safe?

- **A** 2, 25, 6
- **B** 4, 5, 6
- **C** 8, 5, 9
- **D** 8, 25, 9

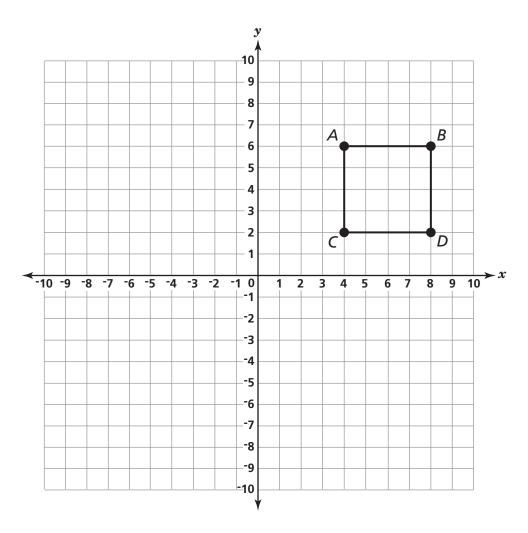
10

lan made this graph to display the results of his survey.



Which could have been lan's survey question?

- **A** What is your favorite class in school?
- **B** What days do you buy lunch?
- **C** What is the name of the principal?
- **D** What grade are you in?

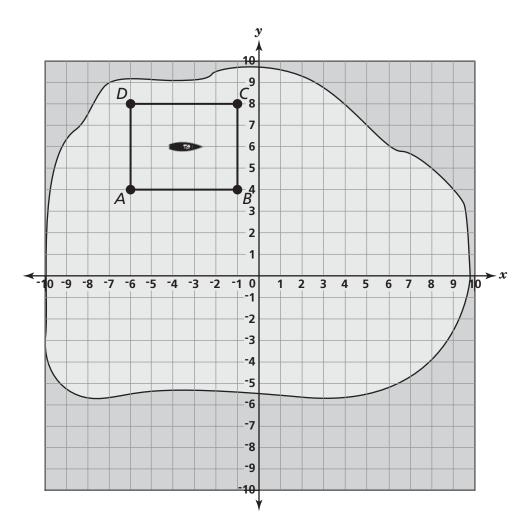


What is the side length of the square?

- Α 2 units
- 4 units
- 6 units
- D 8 units

- Evaluate the expression $(0.3)^2 (0.2)^3 \cdot (0.5)$. Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.
- 13 Which expression is equivalent to 12x + 15?
 - **A** 3(4x + 15)
 - **B** 4(3x + 15)
 - **C** 3(4x + 5)
 - **D** 4(3x + 5)

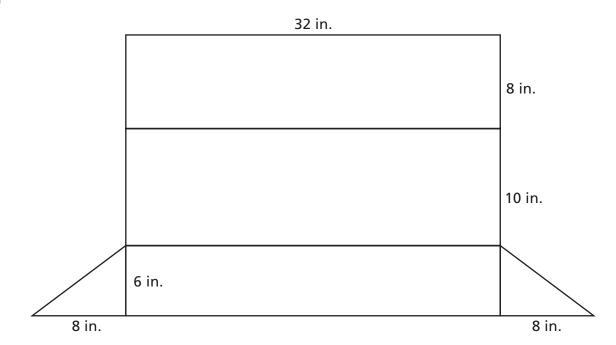
The Lost and Found is a ship that searches the ocean floor for shipwrecks. The captain of the ship will use a coordinate grid to map out an area to be searched. The ship is searching an area outlined by the rectangle ABCD.



What is the perimeter of the search area?

- 9 units
- В 18 units
- C 40 units
- 41 units

- George spent 70% of his savings to buy a camera. The camera cost \$574. How much did he originally have in savings?
 - **A** \$644
 - **B** \$738
 - **C** \$800
 - **D** \$820
- **16** What is the surface area of the right triangular prism formed by this net?



- **A** 768 in.²
- **B** 792 in.²
- **C** 816 in.²
- **D** 864 in.²

- 17 What is the value of the expression $x + 3y^2$ when x = 5 and y = 2?
 - **A** 77
 - **B** 17
 - **C** 14
 - **D** 11
- A printer in the school computer lab prints 56 pages in 4 minutes. At this rate how many pages does it print in 7 minutes?
 - A 84 pages
 - **B** 88 pages
 - C 98 pages
 - D 108 pages
- 19 Which expression shows how many $\frac{1}{8}$ -cup servings there are in $\frac{3}{4}$ cup salad dressing?
 - **A** $\frac{1}{8} + \frac{3}{4}$
 - $\mathbf{B} \qquad \frac{1}{8} \div \frac{3}{4}$
 - $\mathbf{C} \qquad \frac{3}{4} \times \frac{1}{8}$
 - $\textbf{D} \qquad \frac{3}{4} \div \frac{1}{8}$

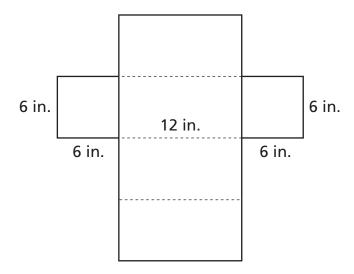
- A rectangular prism has a height of $4\frac{1}{2}$ inches. If the length of the prism is $8\frac{1}{2}$ inches and the width is 3 inches, what is the volume of the prism?
 - **A** 64 in.³
 - **B** 103 in.³
 - C $114\frac{3}{4}$ in.³
 - **D** $154\frac{1}{2}$ in.³
- The sum of 28 and 42 can be expressed in two different ways using the distributive property.

$$28 + 42 = (2 + 3) = 7(4 +)$$

- Which numbers complete the equation?
- **A** 7 and 1
- **B** 7 and 3
- **C** 12 and 6
- **D** 14 and 6
- 22 Simplify.

$$m+m+m+m+m+n+n$$

- **A** 5m + 2n
- **B** 2m + 5n
- **C** 5m + n
- **D** m + 5n



What is the surface area of the box in square inches? Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

Mr. Stevens asked four students in his math class to find the least common multiple of

4 and 6. Grace answered 2, Lyra answered 3, Samuel answered 12, and Brenden answered 24.

Which student answered correctly?

24

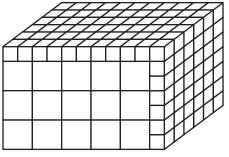
- A Grace
- **B** Lyra
- **C** Samuel
- **D** Brenden

An elevator can carry at most 13 people at a time. Which inequality represents the number of additional people, *n*, who can get on the elevator if 5 people are already on?

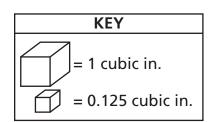
- **A** $n \ge 13$
- **B** $n \ge 8$
- **C** $n \le 13$
- **D** $n \leq 8$

26

A rectangular prism is $5\frac{1}{2}$ inches long, 3 inches wide, and $3\frac{1}{2}$ inches high.



[not drawn to scale]



What is the volume?

- **A** $57\frac{3}{4}$ cubic inches
- **B** 57 cubic inches
- **C** $49\frac{1}{2}$ cubic inches
- **D** 45 cubic inches

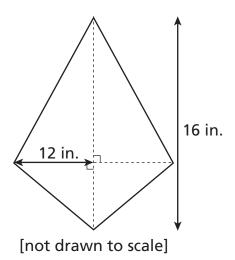
Use the formula below to find the number of hours, *t*, it took the Doyle family to travel *d* miles at a speed of *r* miles per hour, including a rest break.

$$t = 0.5 + \frac{d}{r}$$

If their average speed was 50 mph, how many hours did it take the Doyles to travel 240 miles? Record your answer and fill in the bubbles on your answer document.

- The county recreation department cleared a $\frac{3}{4}$ -mile-long walking trail in Washington Park.

 There will be a small sign every $\frac{1}{12}$ mile along the trail, including at the beginning and end of the trail. How many signs are needed?
 - **A** 4
 - **B** 9
 - **C** 10
 - **D** 12
- Which expression is equal to 3(2x + 8) 4x?
 - **A** 10x + 24
 - **B** 10x + 20
 - **C** 2x + 24
 - **D** 2x + 20



How much poster board does he need to make the sign?

- **A** 192 in.²
- **B** 96 in.²
- **C** 48 in.²
- **D** 22 in.²
- 31 Mrs. Trainer wrote the inequality below on the board.

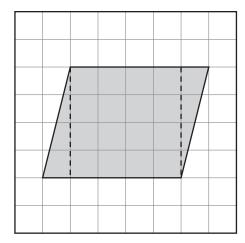
Which statement *best* describes the solution to the inequality?

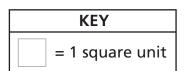
- **A** There is only one number that is a solution.
- **B** The solution is infinite and includes all numbers.
- **C** The solution includes any number 10 or greater.
- **D** The solution is a single number 10 or greater.

Julian spent an equal amount of money every day on his 6-day vacation. He spent less than \$300 on vacation. Which dollar amount could represent the amount he spent each day?

- Α \$45
- В \$55
- C \$60
- D \$65
- 33

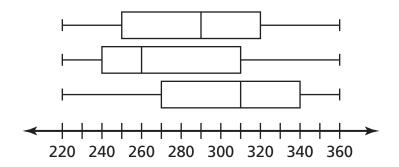
A parallelogram is decomposed into a rectangle and two triangles as shown below.





What is the area of the parallelogram?

- Α 16 square units
- В 18 square units
- C 20 square units
- D 24 square units



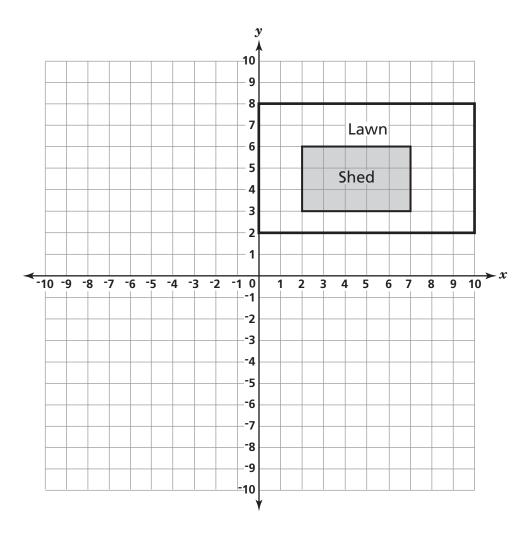
What is the interquartile range for each of the box plots? Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

35

An architect builds a model of a building. The model is 50.8 centimeters long. One inch equals 2.54 centimeters. What is the length of the model in inches?

- A 129 inches
- **B** 53.34 inches
- **C** 48.28 inches
- **D** 20 inches

The grid below shows the location of a shed and the lawn surrounding it on a coordinate plane. Each unit on the grid represents one yard. The cost of mowing the lawn is \$0.30 per square yard.



How much does it cost to mow the lawn?

- Α \$4.50
- В \$13.50
- C \$18.00
- D \$19.50

Rammy has saved some money for a new bicycle helmet that costs \$47, but needs to save more. He writes an addition equation with a variable to represent the amount of money that he still needs to save.

Which must be true about Rammy's equation?

- **A** The amount he has saved and the cost of the helmet are on the same side of the equation.
- **B** The amount he has saved and the variable are on the same side of the equation.
- **C** The cost of the helmet and the variable are on the same side of the equation.
- **D** He can not write an addition equation to represent the problem.
- The length of a rectangle is represented by the line segment with endpoints at A(0, 0) and B(8, 0). The width of the rectangle is one half its length. What is the area of the rectangle?
 - A 24 square units
 - **B** 30 square units
 - C 32 square units
 - **D** 36 square units
- Monica has a rectangular piece of fabric with an area of $\frac{1}{4}$ square yard. The piece is $\frac{2}{3}$ yard long. Which correctly shows how to find the width of the piece, w?

A
$$w = \frac{1}{4} \div \frac{2}{3}$$
; $w = \frac{1}{6}$; $\frac{1}{6}$ yard

B
$$w = \frac{1}{4} \times \frac{2}{3}$$
; $w = \frac{1}{6}$; $\frac{1}{6}$ yard

C
$$w = \frac{1}{4} \div \frac{2}{3}$$
; $w = \frac{3}{8}$; $\frac{3}{8}$ yard

D
$$w = \frac{1}{4} \times \frac{2}{3}$$
; $w = \frac{3}{8}$; $\frac{3}{8}$ yard

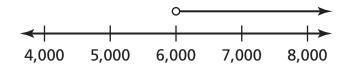
The table below shows equivalent expressions for $5m^3 - 3$ written by four students in a math class.

Name	Expression
Ruby	5(m+m+m)-3
Ricardo	$5(m^3-3)$
Ella	$5(m \times m \times m) - 3$
Darshan	5(3 <i>m</i>) – 3

Who wrote the expression correctly?

- Α Ruby
- В Ricardo
- C Ella
- D Darshan

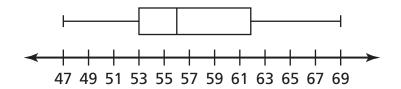
41 Consider the number line below.



Which inequality is represented on the number line?

- $x \le 6,000$ Α
- В *x* < 6,000
- C $x \ge 6,000$
- D x > 6,000

The box plot below shows the heights, in inches, of the 24 students in Brandon's homeroom.



According to the box plot, 50% of the students are at least how tall?

- A 47 inches
- **B** 53 inches
- C 56 inches
- **D** 62 inches

Calculator-Inactive Section

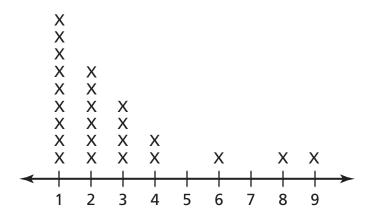
Answer questions 43-65 on your answer sheet. You may NOT use a calculator.

- What is 164.4 divided by 2.4? Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.
- In science class, students are learning about organic compounds. An acetic acid molecule is made of 2 carbon atoms, 2 oxygen atoms, and 4 hydrogen atoms.

What is the ratio of carbon atoms to all atoms in 2 molecules of acetic acid?

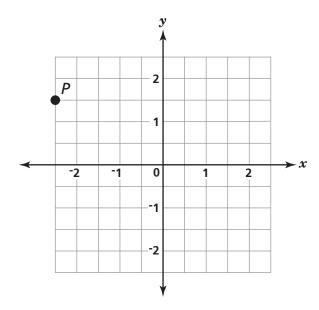
- **A** 4:12
- **B** 4:16
- **C** 12:4
- **D** 16:4
- Hannah found that an antivirus program on her personal computer scans 182 megabytes of data in 7 seconds. At what rate does the antivirus program scan the data?
 - A 25 megabytes per second
 - **B** 26 megabytes per second
 - C 28 megabytes per second
 - **D** 30 megabytes per second

- Which expression represents the situation "Add seven to the product of a number and ten?"
 - **A** 10(z + 7)
 - **B** 7 + z + 10
 - **C** 10z + 7
 - **D** 7z + 10z
- Zalen surveyed his classmates about the number of pets they had in their home. He displayed the results in this line plot.



- How many people did Zalen survey?
- **A** 7
- **B** 9
- **C** 15
- **D** 24

- **48** What is the quotient of $4,453 \div 7$?
 - **A** 636 R 1
 - **B** 637 R 1
 - **C** 646 R 1
 - **D** 737 R 1
- **49** Consider the coordinate grid below.



- What are the coordinates of point P?
- **A** $\left(-\frac{5}{2}, -\frac{3}{2}\right)$
- $\mathbf{B} \qquad \left(-\frac{5}{2}, \frac{3}{2}\right)$
- $\mathbf{C} \qquad \left(\frac{5}{2}, -\frac{3}{2}\right)$
- **D** $\left(-\frac{3}{2}, -\frac{5}{2}\right)$

- Which addend in the expression 6(2x + 5) + (x + 2y + 3) + (x + 2y + z + b) is the sum of three terms?
 - **A** 6
 - **B** 2x + 5
 - **C** x + 2y + z + b
 - **D** x + 2y + 3
- William knows the mean height of the 24 students in his math class is 160 centimeters and the range of their heights is 38 centimeters. Which statement is *true* about the heights of the students in his class?
 - **A** The heights of the students are all between 160 and 198 centimeters.
 - **B** The heights of the students are all between 122 and 160 centimeters.
 - **C** The heights of the tallest and shortest students differ by 38 centimeters.
 - **D** The heights of the tallest and shortest students differ by 19 centimeters.
- One January, the low temperature in Denver was -12°F and the low temperature in Chicago was -17°F. Which statement is *true*?
 - **A** Since -12 < -17, it was colder in Denver than in Chicago.
 - **B** Since -12 > -17, it was colder in Denver than in Chicago.
 - **C** Since -12 < -17, it was colder in Chicago than in Denver.
 - **D** Since -12 > -17, it was colder in Chicago than in Denver.

53 The map of a city is laid out on a coordinate plane with streets that run north-south or east-west. Each unit on the coordinate plane represents one city block. The city center is located at (0, 0) on the map. Zach lives on the same street as the city center and a restaurant that is located at (0, 6) on the map.

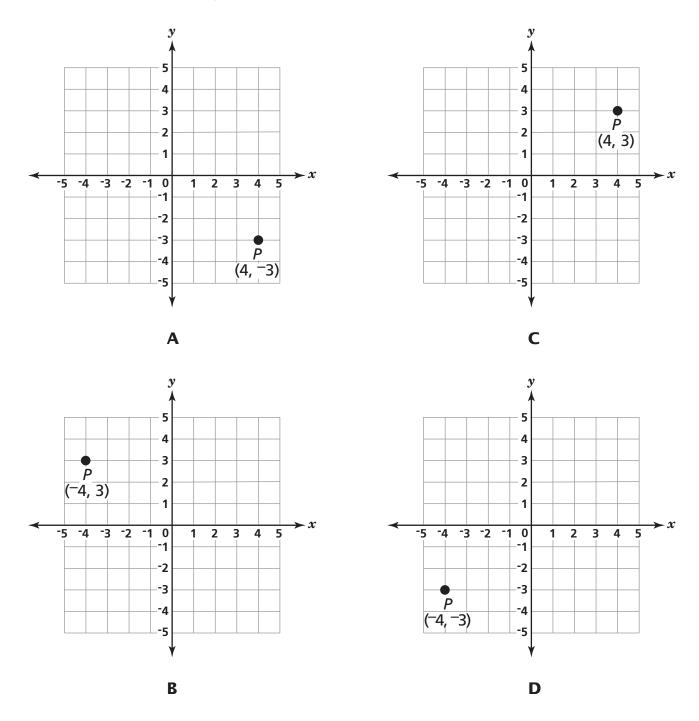
If Zach lives within 5 blocks of the restaurant, which of the following *must* be true?

- Zach lives north of the restaurant.
- В Zach lives north of the city center.
- C Zach lives south of the restaurant.
- D Zach lives south of the city center.
- **54** How many terms are there in the expression $2x^2 + 5x + 7y - 6$?
 - Α 2
 - 3
 - C 4
 - D 7
- **55** Which numerical expression and value represent the phrase below?

Twice the sum of the square of five and the cube of four

- Α $2 + (5^2 + 4^3)$; 91
- В $2(5^2) + 4^3$; 114
- **C** $2(5^2 + 4^3)$; 178
- D $2(2 \times 5 + 4 \times 3)^2$; 484

The point (4, 3) is reflected across the *x*-axis and then across the *y*-axis. Which coordinate grid shows the location of the point after these two reflections?



The elevation of the floor of Little Neck Trench has changed from -32 feet to -27 feet. Which statement *best* explains this change?

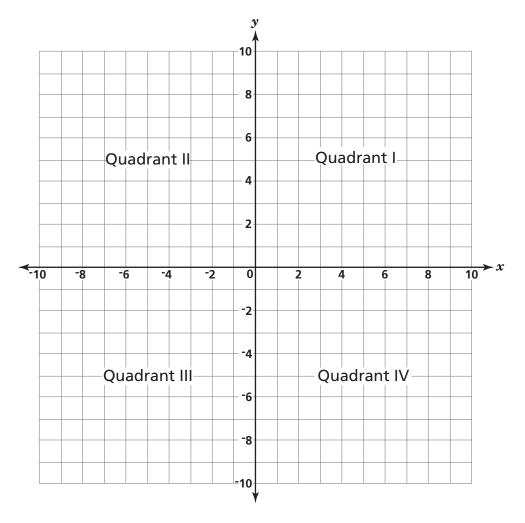
- **A** The trench has become deeper because -32 is closer to 0 on a number line than -27.
- **B** The trench has become shallower because -32 is closer to 0 on a number line than -27.
- **C** The trench has become deeper because -32 is farther from 0 on a number line than -27.
- **D** The trench has become shallower because -32 is farther from 0 on a number line than -27.

58 Refer to the number line below.



Which statement is true?

- **A** Since -1 is to the right of -2, -2 > -1.
- **B** Since -1 is to the right of -3, -1 > -3.
- **C** Since -2 is to the left of $-\frac{1}{2}$, $-2 > -\frac{1}{2}$.
- **D** Since -2 is to the left of 1, -2 > 1.



- **A** (-5, 4)
- **B** (-4, -1)
- **C** (3, 2)
- **D** (6, -8)

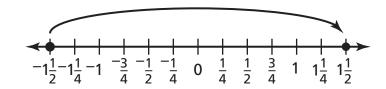
The table below shows the numbers of tickets, x, sold at a carnival and the amounts of money, y, in dollars collected.

COST OF CARNIVAL TICKETS

Number of Tickets	Amount Collected (\$)
5	\$15
10	\$30
15	\$45
20	\$60
25	\$75

Which equation represents the relationship?

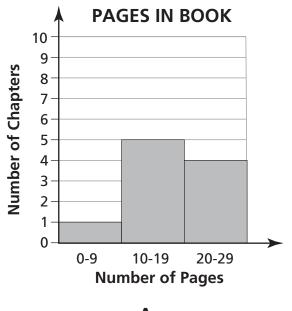
- y = x + 10
- y = 5x
- y = x + 15
- D y = 3x

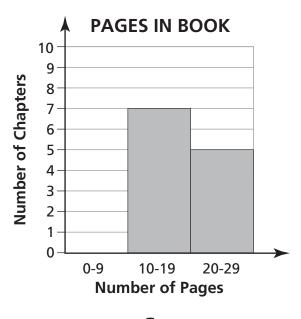


- **A** The opposite of $-1\frac{1}{2}$ is $1\frac{1}{2}$.
- **B** The opposite of $-\left(-1\frac{1}{2}\right)$ is $1\frac{1}{2}$.
- **C** The opposite of 0 is $1\frac{1}{2}$.
- **D** The opposite of $1\frac{1}{2}$ is $1\frac{1}{2}$.
- A survey about a book that was read in Language Arts class included the question, "How long did it take you to read the book?" Which reason *best* explains why the question was included?
 - **A** The question was included because the answers must all be different.
 - **B** The question was included because it has only one answer.
 - **C** The question was included because the answers can vary.
 - **D** The question was included because there is no answer to it.
- What is the result when 8.06 is subtracted from 22.92? Record your answer and fill in the bubbles on your answer document.

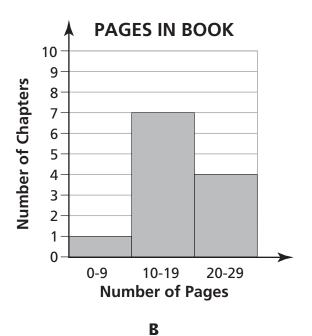
9, 19, 25, 13, 17, 17, 15, 22, 24, 20, 15, 18

Which histogram best displays these data?

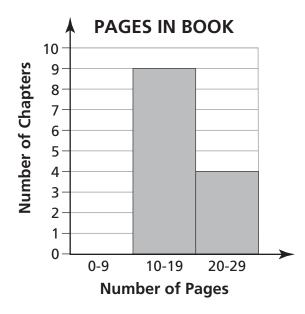




Α



C



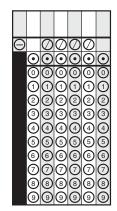
D

- **A** The opposite of -9
- **B** The opposite of $-\frac{1}{9}$
- **C** The opposite of 9
- **D** The opposite of $\frac{1}{9}$

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Name		
Teacher	Grade	
School	City	

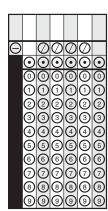
Assessment 1 (continued)

60.



- 61. **(A) B** (C) **(D)**
- 62. **(A) B** (C) **(D)**

63.

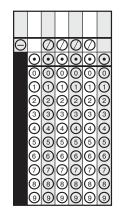


- 64.
- A B C D
- 65. lacksquare(C) (D) **(A)**

Assessment 2

- 1. (A) **B** (C) (D)
- 2. **(A) (B)** (C) **(D)**
- 3. **(A) B** (C) **(D)**
- 4. (A) $^{\circ}$ (C) **(D)**
- 5. (A) **B** (C) (D)
- 6. **(A)** $^{\circ}$ (C) **(D)**
- 7. **(A) B** (C) **(D)**
- 8. (A) **B** (C) (D)
- 9. (A) **B** (C) (D)
- 10. (A) **B** (C) **(D)**
- 11. **(A) B** (C) **(D)**

12.

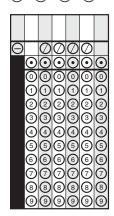


- 13. (A) $^{\circ}$ © **(D)**
- 14. (A) **(B)** (C) **(D)**
- 15. **(A)** $^{\circ}$ (C) **(D)**
- 16. **(A)** $^{\circ}$ (C) **(D)**
- **17. (A) B** (C) **(D)**
- 18. **(A) B** (C) **(D)**
- 19. A $^{\circ}$ (C) **(D)**

- 20. (A) **B**)
- 21. (A) $^{\odot}$ (C) **(D)**

© (D)

- 22. $^{\circ}$ © D **(A)**
- 23.

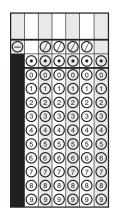


- 24. **(A)** $^{\odot}$ **© (D)**
- 25. **(A)** $^{\odot}$ **© (D)**
- 26. **(A) B © (**

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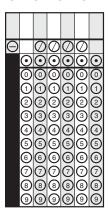
Assessment 2 (continued)

27.

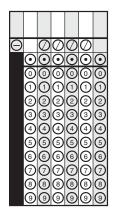


- 28. A B C D
- **29.** A B C D
- 30. A B C D
- 31. A B C D
 32. A B C D
- 33. A B C D

34.

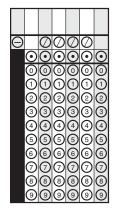


- 35. A B C D
- **36.** A B C D
- **37.** (A) (B) (C) (D)
- 38. A B C D
 39. A B C D
- 40. A B C D
- 41. A B C D
- 42. A B C D
- 43.



- 44. A B C D
- **45.** (A) (B) (C) (D)
- 46. A B C D
- 47. A B C D
 48. A B C D
- 48. A B C D
 49. A B C D
- **50.** (A) (B) (C) (D)
- 51. A B C D

- 52. A B C D
- 53. A B C D
- **54.** A B C D
- 55. A B C D
- **56.** A B C D
- **57.** (A) (B) (C) (D)
- **58.** (A) (B) (C) (D)
- 59. A B C D
- 60. A B C D
- 61. A B C D
- 62. A B C D
- 63.



- 64. A B C D
- 65. A B C D