

1. A surveyor determined that the distance across a pond is  $\sqrt{2,255}$  feet. **Approximately**, what is this distance?
- A 22.6 ft  
B 25.0 ft  
C 47.5 ft  
D 1,127.5 ft
2. The area of a square is 800 square meters. The length of its side is between which two numbers?
- A 27 m and 28 m  
B 28 m and 29 m  
C 200 m and 201 m  
D 400 m and 401 m
3. Which of the following is the perimeter of a square whose side measures  $(3 + \sqrt{2})$  units?
- A 5.8 units  
B 8.7 units  
C  $(12 + \sqrt{8})$  units  
D  $(12 + 4\sqrt{2})$  units
4. The area of a triangle is 51 square meters. The height is one-half the length of the base. What is the **approximate** height of the triangle?
- A 7.0 meters  
B 7.1 meters  
C 14.0 meters  
D 14.3 meters
5. The drama club is selling tickets to a play for \$10 each. The cost to rent the theater and costumes is \$500. In addition, the printers are charging \$1 per ticket to print the tickets. How many tickets must the drama club sell to make a profit?
- A 54  
B 55  
C 56  
D 57

### End of Goal 1 Sample Items

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## Answers to EOG Grade 8 Math Sample Items

### Goal 1

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**1. Objective 1.01**

Develop number sense for the real numbers. A) Define and use irrational numbers. B) Compare and order. C) Use estimates of irrational numbers in appropriate situations.

**Thinking Skill:** Applying

**Correct Answer:** C

**2. Objective 1.01**

Develop number sense for the real numbers. A) Define and use irrational numbers. B) Compare and order. C) Use estimates of irrational numbers in appropriate situations.

**Thinking Skill:** Applying

**Correct Answer:** B

**3. Objective 1.01**

Develop number sense for the real numbers. A) Define and use irrational numbers. B) Compare and order. C) Use estimates of irrational numbers in appropriate situations.

**Thinking Skill:** Applying

**Correct Answer:** D

**4. Objective 1.02**

Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.

**Thinking Skill:** Evaluating

**Correct Answer:** B

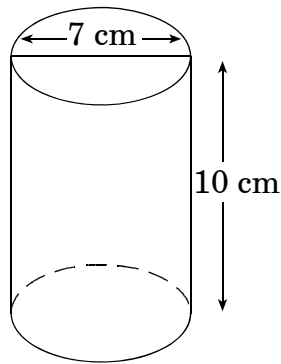
**5. Objective 1.02**

Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.

**Thinking Skill:** Integrating

**Correct Answer:** C

1. If the length of a rectangle is doubled, what will happen to its area?
- A The area will be the same.
- B The area will be twice as large.
- C The area will be three times as large.
- D The area will be four times as large.
2. The diagram below shows a company's current packaging of its plant food.

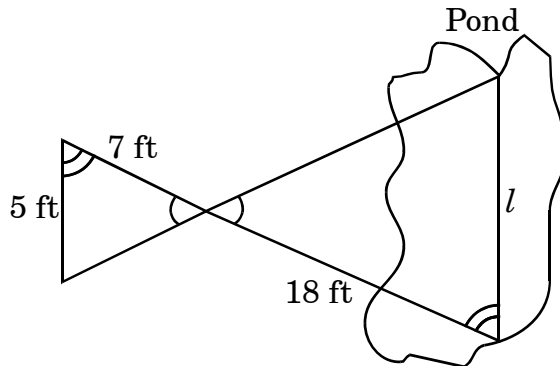


The company doubles the radius but keeps the height the same. What effect will this change have on the volume of the container?

- A The new volume will be one and a half times the original volume.
- B The new volume will be twice the original volume.
- C The new volume will be three times the original volume.
- D The new volume will be four times the original volume.

3. The side measurements of a cube are tripled. What is the ratio of the surface area of the original cube to the surface area of the larger one?
- A 1 : 3
- B 1 : 6
- C 1 : 9
- D 1 : 12
4. At noon, the shadow of a flagpole is 19 feet long. At the same time, the shadow of a 12-foot-high wall is 4 feet long. What is the height of the flagpole?
- A 48 feet
- B 57 feet
- C 62 feet
- D 75 feet

5. Jake wanted to measure the length,  $l$ , of the pond, so he drew this diagram of two similar triangles.



What is the **approximate** length,  $l$ , of the pond?

- A 25 feet
- B 19 feet
- C 18 feet
- D 13 feet

## End of Goal 2 Sample Items

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## Answers to EOG Grade 8 Math Sample Items

### Goal 2

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**1. Objective 2.01**

Determine the effect on perimeter, area or volume when one or more dimensions of two-and three-dimensional figures are changed.

**Thinking Skill:** Applying                      **Correct Answer:** B

**2. Objective 2.01**

Determine the effect on perimeter, area or volume when one or more dimensions of two-and three-dimensional figures are changed.

**Thinking Skill:** Analyzing                      **Correct Answer:** D

**3. Objective 2.01**

Determine the effect on perimeter, area or volume when one or more dimensions of two-and three-dimensional figures are changed.

**Thinking Skill:** Applying                      **Correct Answer:** C

**4. Objective 2.02**

Apply and use concepts of indirect measurement.

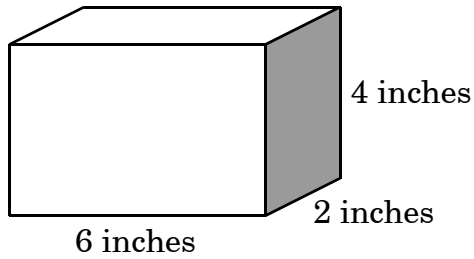
**Thinking Skill:** Applying                      **Correct Answer:** B

**5. Objective 2.02**

Apply and use concepts of indirect measurement.

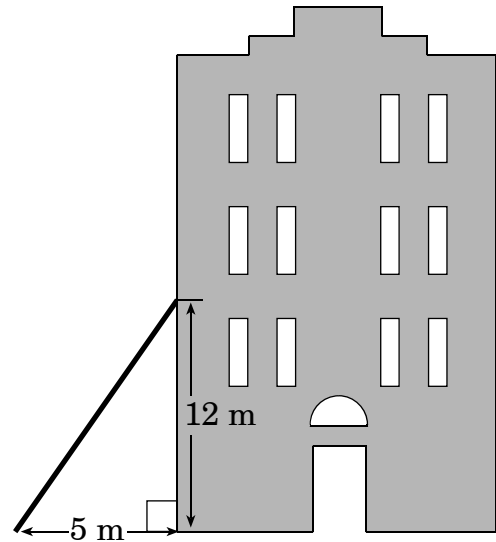
**Thinking Skill:** Integrating                      **Correct Answer:** D

1. What is the maximum number of cubes with a side length of 2 inches that can fit in this box?



- A 48
- B 24
- C 12
- D 6

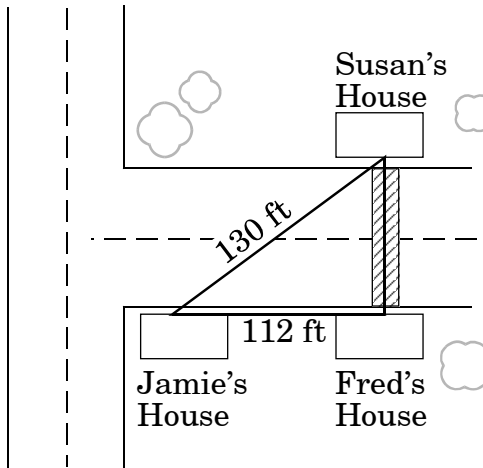
2. A ladder leans against the side of a building. The base of the ladder is 5 meters from the building, and the top is 12 meters above the ground.



What is the length of the ladder?

- A 11 meters
- B 13 meters
- C 17 meters
- D 169 meters

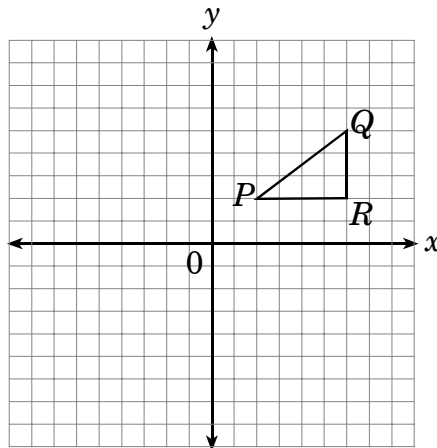
3. Jamie and Fred are meeting Susan at her house. Jamie must use the crosswalk in front of Fred's house to cross the street.



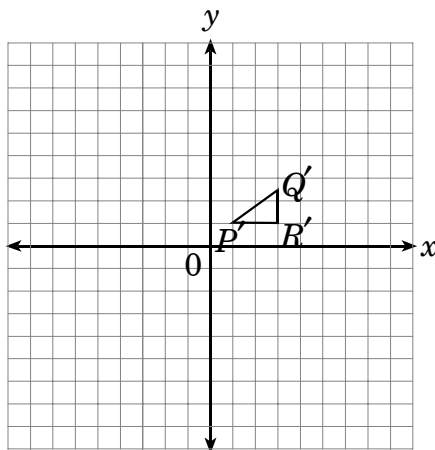
What is the total distance Jamie must walk?

- A 66 ft
- B 130 ft
- C 178 ft
- D 199 ft

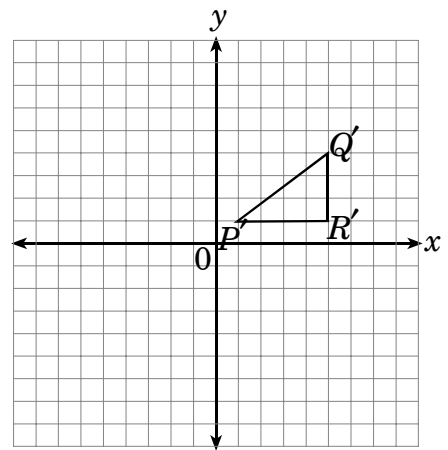
4. Which choice illustrates a dilation of  $\triangle PQR$  with a scale factor of  $\frac{1}{2}$ ?



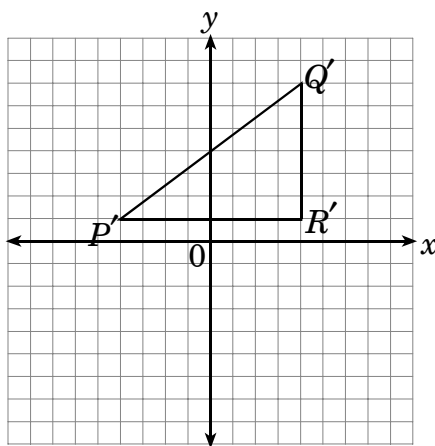
A



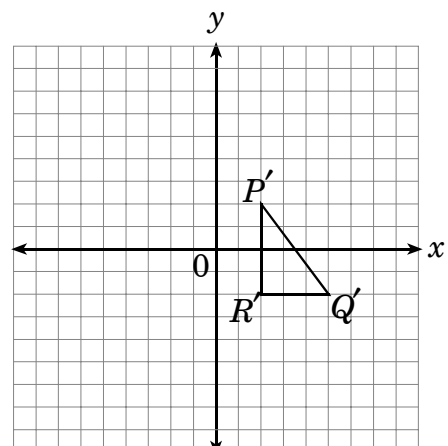
B



C



D



5. A triangle has the following vertices:  $(-1, 1)$ ,  $(6, -2)$ , and  $(3, 5)$ . If the triangle undergoes a dilation with a scale factor of 3, what will be the vertices of the image?
- A  $(-3, 3)$ ,  $(18, -6)$ ,  $(9, 15)$
- B  $(3, 3)$ ,  $(18, 6)$ ,  $(9, 15)$
- C  $(-3, 3)$ ,  $(18, 6)$ ,  $(9, 15)$
- D  $(3, 3)$ ,  $(18, -6)$ ,  $(9, 15)$

### End of Goal 3 Sample Items

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## Answers to EOG Grade 8 Math Sample Items

### Goal 3

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**1. Objective 3.01**

Represent problem situations with geometric models.

**Thinking Skill:** Organizing                      **Correct Answer:** D

**2. Objective 3.02**

Apply geometric properties and relationships, including the Pythagorean theorem, to solve problems.

**Thinking Skill:** Applying                      **Correct Answer:** B

**3. Objective 3.02**

Apply geometric properties and relationships, including the Pythagorean theorem, to solve problems.

**Thinking Skill:** Applying                      **Correct Answer:** C

**4. Objective 3.03**

Identify, predict, and describe dilations in the coordinate plane.

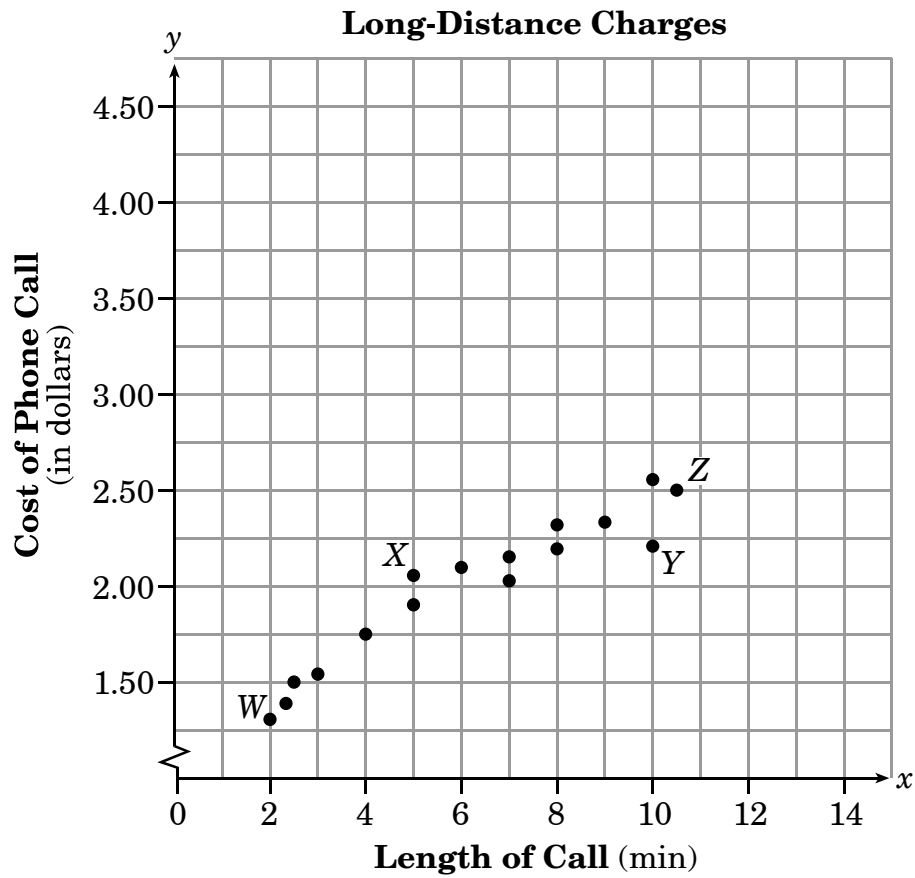
**Thinking Skill:** Analyzing                      **Correct Answer:** A

**5. Objective 3.03**

Identify, predict, and describe dilations in the coordinate plane.

**Thinking Skill:** Generating                      **Correct Answer:** A

1. Charlie collected data on the cost of his long-distance phone calls. He displayed his data in a scatterplot.



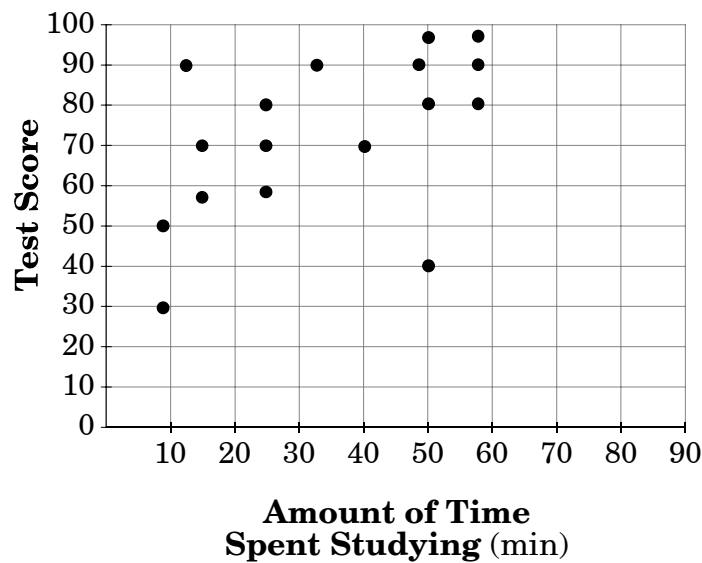
Which point shows the least expensive cost per minute for a long-distance call?

- A W
- B X
- C Y
- D Z

2. Felipe is collecting data comparing air conditioning costs to the daily outdoor temperature during the summer of 2004. When Felipe draws his scatterplot, which variable should be used as the dependent variable?

- A date
- B indoor temperature
- C outdoor temperature
- D air conditioning costs

3. Which relationship is suggested by the scatterplot below?



- A The amount of time spent studying does not affect a test score.
- B the longer amount of time spent studying, the higher the test score
- C the longer amount of time spent studying, the lower the test score
- D the shorter amount of time spent studying, the higher the test score

4. Jeremy collected data on the elevation and highest temperature of eight cities. He organized his data in a table.

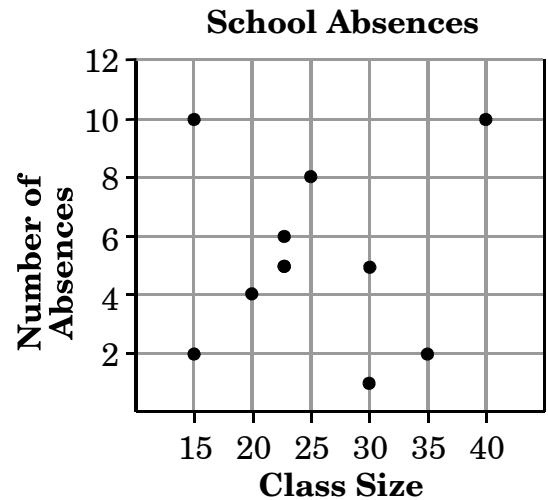
<b>Place</b>	<b>Elevation (ft)</b>	<b>Highest Temp (°F)</b>
City A	367	136
City B	-178	134
City C	-722	129
City D	622	128
City E	676	120
City F	26	122
City G	72	108
City H	49	59

What relationship between elevation and highest temperature does Jeremy's data suggest?

- A the higher the elevation, the higher the record temperature
- B the lower the elevation, the higher the record temperature
- C the lower the elevation, the lower the record temperature
- D There is no relationship between elevation and record temperature.

5. Patrice and Jason needed to report the results of a survey regarding the favorite snack food of the students at Milton Middle School. How could the report be done to produce a representative sample of 100 students?
- A Ask the students as they get off the school buses.
- B Ask the opinion of all the teachers at the school.
- C Ask all the students who are in the school cafeteria during one day.
- D Ask students randomly chosen from the school's enrollment list.

6. The scatterplot shows the number of absences in a week for classes of different sizes. Trevor concluded that there is a positive correlation between class size and the number of absences.



Which statement **best** describes why Trevor's conclusion was incorrect?

- A The largest class does not have the most absences.
- B The smallest class does not have the least number of absences.
- C The data show no relationship between class size and number of absences.
- D The data show a negative relationship between class size and number of absences.

### End of Goal 4 Sample Items

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## Answers to EOG Grade 8 Math Sample Items

### Goal 4

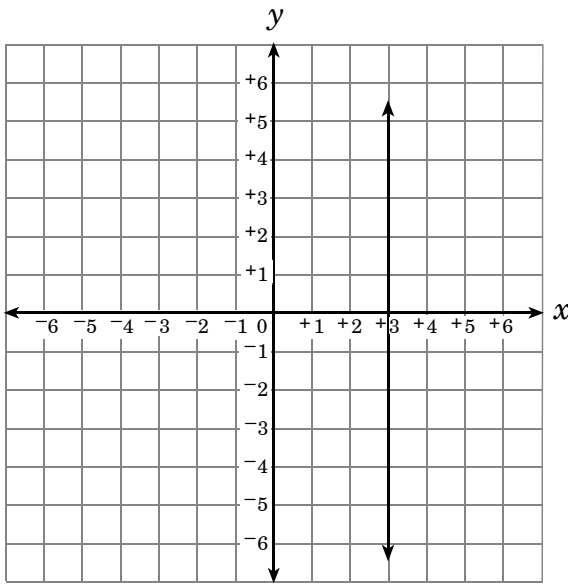
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- 1. Objective 4.01**  
Collect, organize, analyze, and display data (including scatterplots) to solve problems.  
**Thinking Skill:** Analyzing                      **Correct Answer:** C
- 2. Objective 4.01**  
Collect, organize, analyze, and display data (including scatterplots) to solve problems.  
**Thinking Skill:** Organizing                      **Correct Answer:** D
- 3. Objective 4.02**  
Approximate a line of best fit for a given scatterplot; explain the meaning of the line as it relates to the problem and make predictions.  
**Thinking Skill:** Analyzing                      **Correct Answer:** B
- 4. Objective 4.02**  
Approximate a line of best fit for a given scatterplot; explain the meaning of the line as it relates to the problem and make predictions.  
**Thinking Skill:** Analyzing                      **Correct Answer:** D
- 5. Objective 4.03**  
Identify misuses of statistical and numerical data.  
**Thinking Skill:** Analyzing                      **Correct Answer:** D
- 6. Objective 4.03**  
Identify misuses of statistical and numerical data.  
**Thinking Skill:** Evaluating                      **Correct Answer:** C

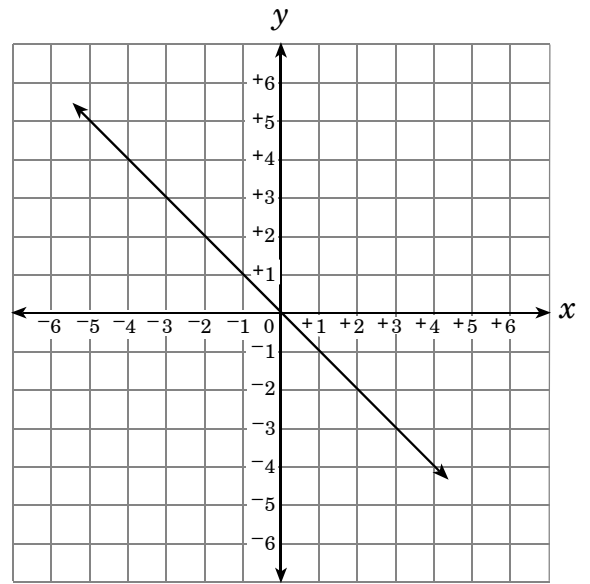
1. Which set of ordered pairs represents a linear relationship?
- A  $\{(0, 1), (0, -1), (-1, 1), (-1, 2)\}$
- B  $\{(2, 2), (3, 3), (4, 3), (5, 3)\}$
- C  $\{(-1, -4), (-1, 0), (0, 1), (1, -4)\}$
- D  $\{(2, 3), (3, 4), (4, 5), (5, 6)\}$

2. Which is the graph of  $x = y$ ?

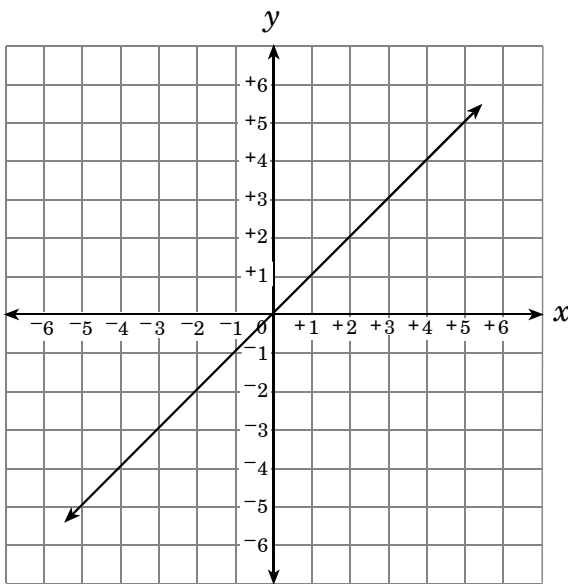
A



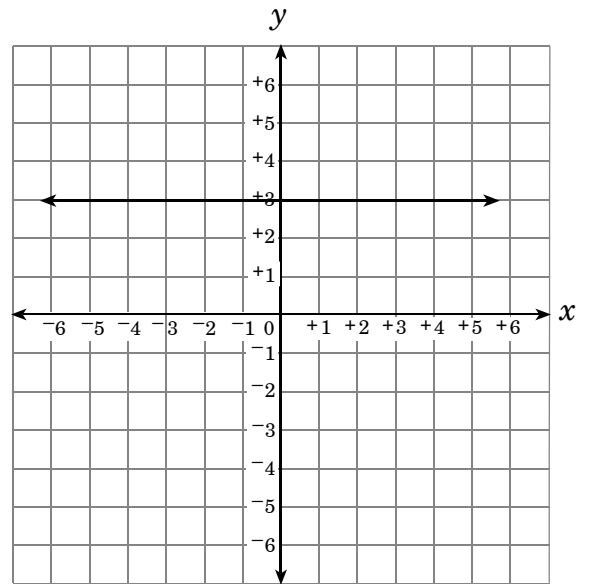
B



C

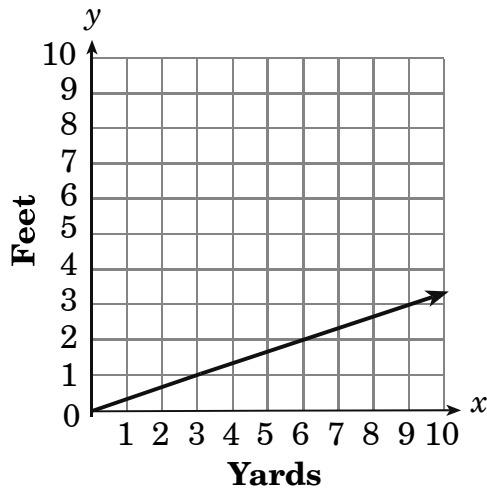


D

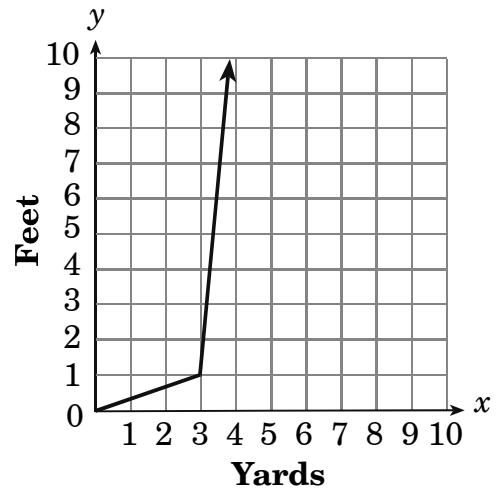


3. In the equation  $y = 3x$ ,  $x$  represents yards and  $y$  represents feet. Which is the graph of this equation?

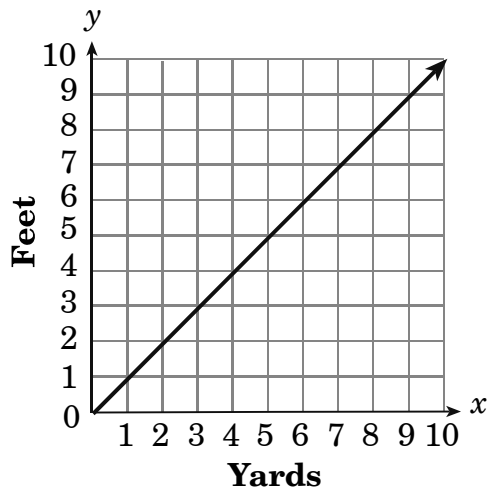
A



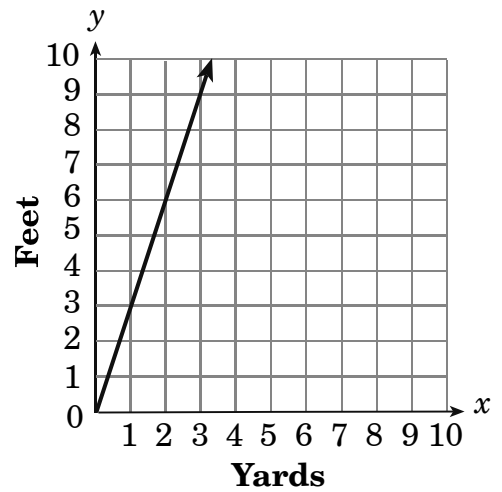
B



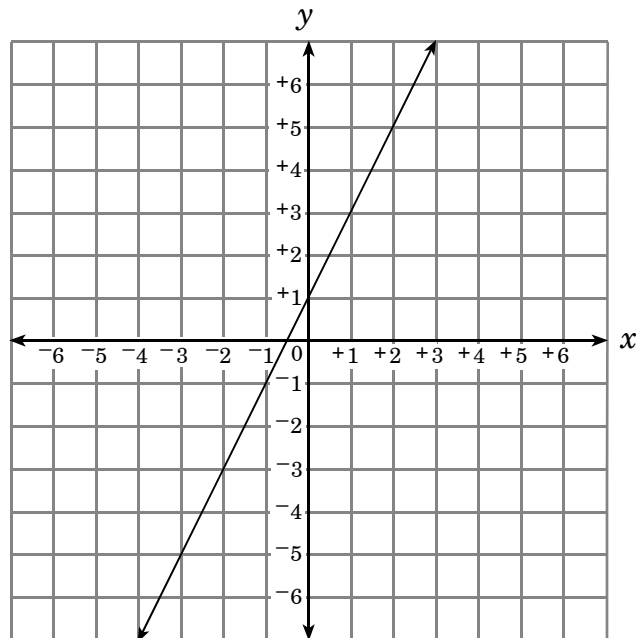
C



D



4. Which equation describes the line graphed below?

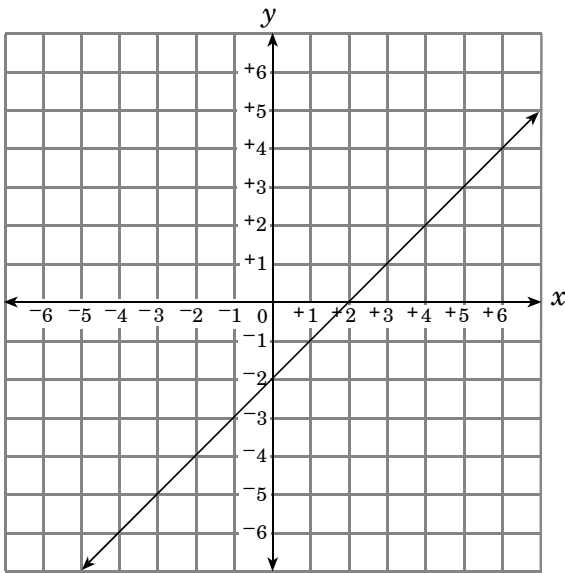


- A  $x - y = 0$
- B  $x - y = -1$
- C  $2x - y = -1$
- D  $x + 2y = -3$

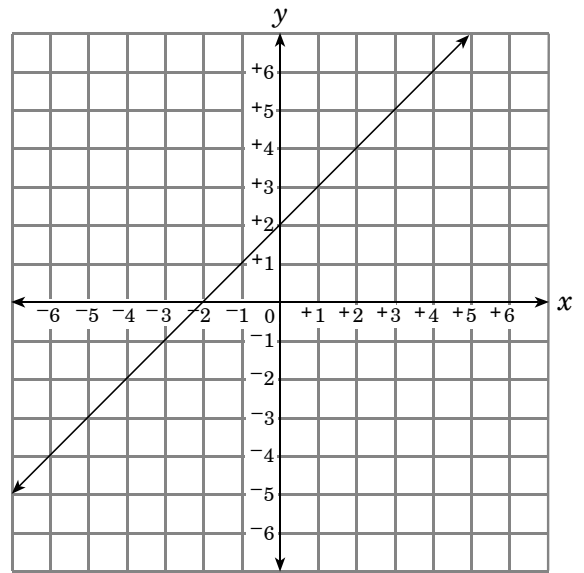
5. The price of a large pizza is given by the formula  $P(t) = 1.5t + 7.50$ , where  $P(t)$  is the price of the pizza and  $t$  is the number of toppings. What does the slope represent?
- A number of toppings
  - B cost per slice
  - C cost of each topping
  - D cost of the pizza with no toppings

6. Which is the graph of the equation  $y = x - 2$ ?

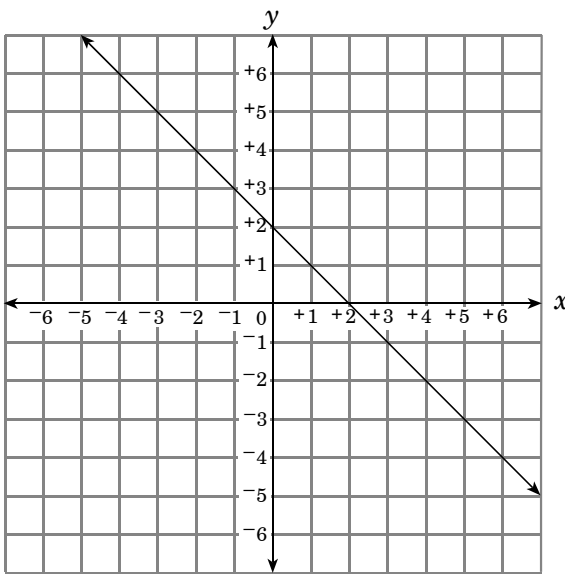
A



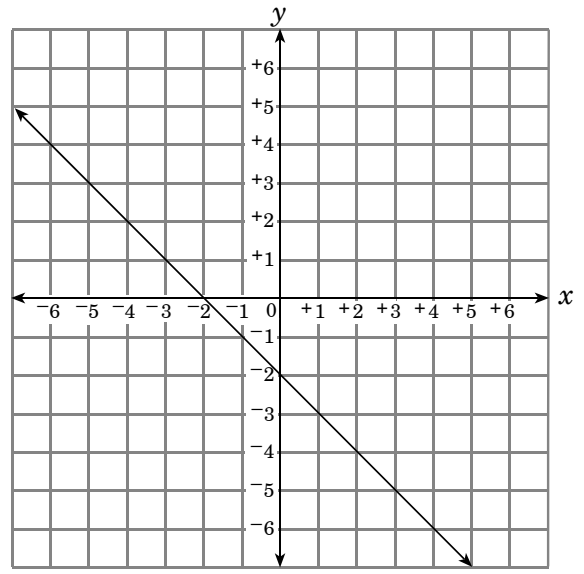
B



C



D



7. Which is an equation of the line that passes through the points  $(-2, 4)$  and  $(5, 3)$ ?

A  $y = -7x + 4$

B  $y = 7x + 3$

C  $y = \frac{1}{7}x - \frac{26}{7}$

D  $y = -\frac{1}{7}x + \frac{26}{7}$

8. 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  $3x - 2y = 12$

9. Which equation describes the data in the table below?

$x$ (% reduction [or increase] in dietary fat)	-6	-4	-2	1	5
$y$ (weight loss [or gain] in pounds)	-15	-11	-7	-1	7

- A  $2x + y = -27$
- B  $x - y = 3$
- C  $x + y = -21$
- D  $2x - y = 3$
- 
10. The perimeter of a rectangular swimming pool is 42 m. The length is 5 meters more than the width. What is the length of the swimming pool?
- A 8 m
- B 10.5 m
- C 13 m
- D 16 m

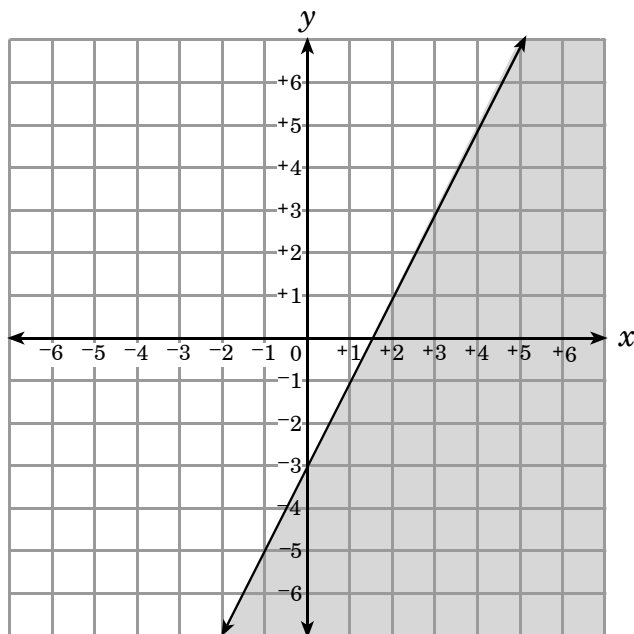
11. A spring stretches linearly as weight is added. The table shows data collected for a certain spring.

<b>Weight in lb (<math>x</math>)</b>	<b>Stretch in cm (<math>y</math>)</b>
100	0.5
500	2.5
800	4.0
900	4.5
1,200	6.0

What is the slope of the line that fits these data?

- A  $\frac{1}{200}$
- B  $\frac{1}{100}$
- C  $\frac{1}{50}$
- D  $\frac{1}{2}$

12. The graph of  $y \leq 2x - 3$  is shown.



Which set contains only points that satisfy the inequality?

- A  $\{(3, 3), (-4, -11), (-1, -8), (5, 0)\}$
- B  $\{(5, 7), (-3, -10), (5, -7), (-1, -4)\}$
- C  $\{(-1, -10), (5, 8), (-4, -13), (3, -2)\}$
- D  $\{(-4, -12), (-1, -5), (3, 4), (5, 6)\}$

13. Neglecting wind resistance, the height,  $h$ , in feet, of a sky diver  $t$  seconds after she jumps from an airplane 1,648 above the ground is given by the formula  $h = -16t^2 + 1,648$ . If a parachute opens 4.5 seconds after a sky diver leaves the airplane, **about** how far will she be from the ground when the parachute opens?
- A 172 ft  
B 1,144 ft  
C 1,324 ft  
D 1,972 ft
14. What are the solutions for  $x^2 - 4 = 0$ ?
- A  $\{0, -4\}$   
B  $\{-4, 2\}$   
C  $\{-2, 2\}$   
D  $\{0, 2\}$
15. If  $s = \frac{w - 56}{-7}$  and  $s = 6$ , what is the value of  $w$ ?
- A  $-57$   
B  $-9$   
C  $7$   
D  $14$
16. Solve:  $\frac{5x + 2}{15} = \frac{x}{5}$
- A  $x = -1$   
B  $x = -\frac{1}{5}$   
C  $x = \frac{1}{5}$   
D  $x = 1$

### End of Goal 5 Sample Items

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## Answers to EOG Grade 8 Math Sample Items

### Goal 5

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**1. Objective 5.01**

Develop an understanding of function. A) Translate among verbal, tabular, graphic, and algebraic representations of functions. B) Identify relations and functions as linear or nonlinear. C) Find, identify, and interpret the slope (rate of change) and intercepts of a linear function. D) Interpret and compare properties of linear functions from tables, graphs, or equations.

**Thinking Skill:** Analyzing

**Correct Answer:** D

**2. Objective 5.01**

Develop an understanding of function. A) Translate among verbal, tabular, graphic, and algebraic representations of functions. B) Identify relations and functions as linear or nonlinear. C) Find, identify, and interpret the slope (rate of change) and intercepts of a linear function. D) Interpret and compare properties of linear functions from tables, graphs, or equations.

**Thinking Skill:** Analyzing

**Correct Answer:** C

**3. Objective 5.01**

Develop an understanding of function. A) Translate among verbal, tabular, graphic, and algebraic representations of functions. B) Identify relations and functions as linear or nonlinear. C) Find, identify, and interpret the slope (rate of change) and intercepts of a linear function. D) Interpret and compare properties of linear functions from tables, graphs, or equations.

**Thinking Skill:** Analyzing

**Correct Answer:** D

**4. Objective 5.01**

Develop an understanding of function. A) Translate among verbal, tabular, graphic, and algebraic representations of functions. B) Identify relations and functions as linear or nonlinear. C) Find, identify, and interpret the slope (rate of change) and intercepts of a linear function. D) Interpret and compare properties of linear functions from tables, graphs, or equations.

**Thinking Skill:** Analyzing

**Correct Answer:** C

**5. Objective 5.01**

Develop an understanding of function. A) Translate among verbal, tabular, graphic, and algebraic representations of functions. B) Identify relations and functions as linear or nonlinear. C) Find, identify, and interpret the slope (rate of change) and intercepts of a linear function. D) Interpret and compare properties of linear functions from tables, graphs, or equations.

**Thinking Skill:** Analyzing

**Correct Answer:** C

**6. Objective 5.01**

Develop an understanding of function. A) Translate among verbal, tabular, graphic, and algebraic representations of functions. B) Identify relations and functions as linear or nonlinear. C) Find, identify, and interpret the slope (rate of change) and intercepts of a linear function. D) Interpret and compare properties of linear functions from tables, graphs, or equations.

**Thinking Skill:** Analyzing                      **Correct Answer:** A

**7. Objective 5.02**

Write an equation of a linear relationship given: two points, the slope and one point on the line, or the slope and y-intercept.

**Thinking Skill:** Applying                      **Correct Answer:** D

**8. Objective 5.02**

Write an equation of a linear relationship given: two points, the slope and one point on the line, or the slope and y-intercept.

**Thinking Skill:** Integrating                      **Correct Answer:** A

**9. Objective 5.02**

Write an equation of a linear relationship given: two points, the slope and one point on the line, or the slope and y-intercept.

**Thinking Skill:** Applying                      **Correct Answer:** D

**10. Objective 5.03**

Solve problems using linear equations and inequalities; justify symbolically and graphically.

**Thinking Skill:** Applying                      **Correct Answer:** C

**11. Objective 5.03**

Solve problems using linear equations and inequalities; justify symbolically and graphically.

**Thinking Skill:** Integrating                      **Correct Answer:** A

**12. Objective 5.03**

Solve problems using linear equations and inequalities; justify symbolically and graphically.

**Thinking Skill:** Analyzing                      **Correct Answer:** A

**13. Objective 5.04**

Solve equations using the inverse relationships of addition and subtraction, multiplication and division, squares and square roots, and cubes and cube roots.

**Thinking Skill:** Applying                      **Correct Answer:** C

**14. Objective 5.04**

Solve equations using the inverse relationships of addition and subtraction, multiplication and division, squares and square roots, and cubes and cube roots.

**Thinking Skill:** Applying                      **Correct Answer:** C

**15. Objective 5.04**

Solve equations using the inverse relationships of addition and subtraction, multiplication and division, squares and square roots, and cubes and cube roots.

**Thinking Skill:** Applying                      **Correct Answer:** D

**16. Objective 5.04**

Solve equations using the inverse relationships of addition and subtraction, multiplication and division, squares and square roots, and cubes and cube roots.

**Thinking Skill:** Integrating                      **Correct Answer:** A