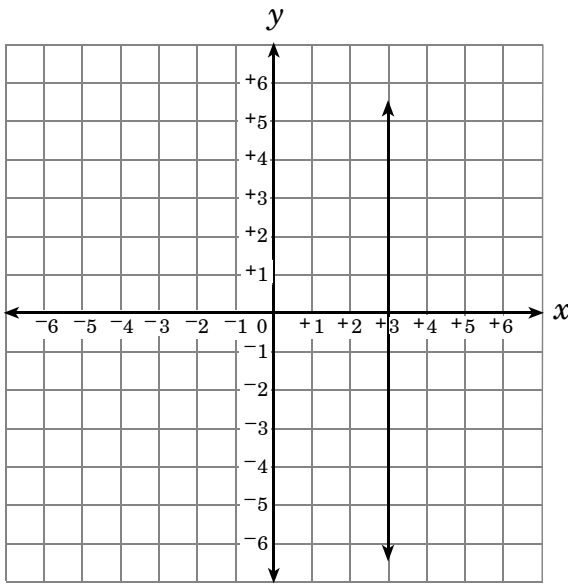


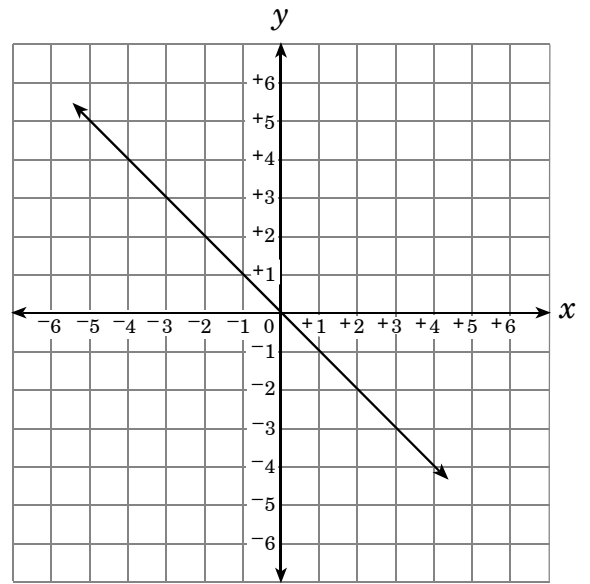
1. Which set of ordered pairs represents a linear relationship?
- A  $\{(0, 1), (0, -1), (-1, 1), (-1, 2)\}$
- B  $\{(2, 2), (3, 3), (4, 3), (5, 3)\}$
- C  $\{(-1, -4), (-1, 0), (0, 1), (1, -4)\}$
- D  $\{(2, 3), (3, 4), (4, 5), (5, 6)\}$

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

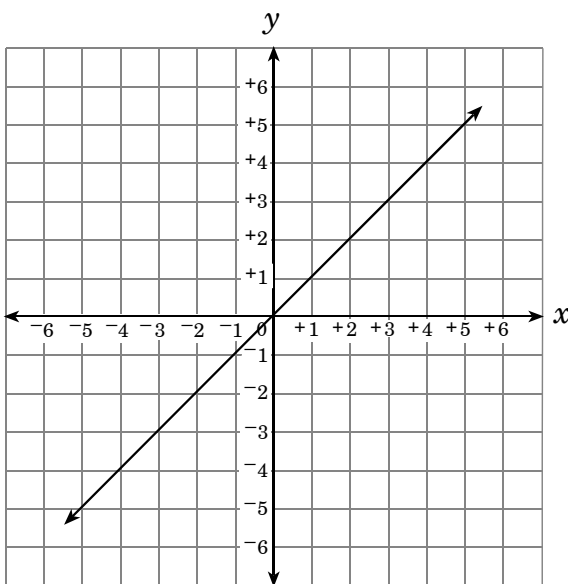
A



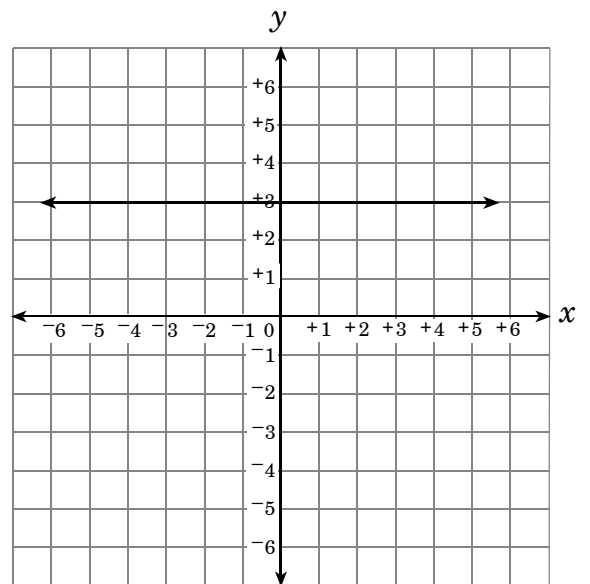
B



C

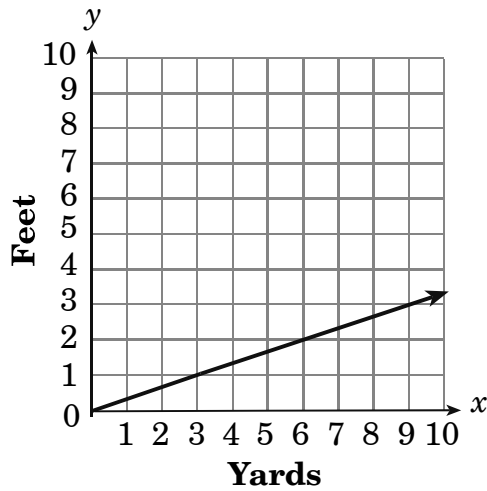


D

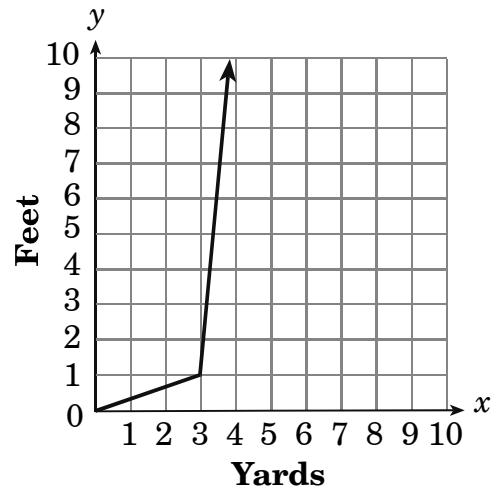


3. In the equation  $y = 3x$ ,  $x$  represents yards and  $y$  represents feet. Which is the graph of this equation?

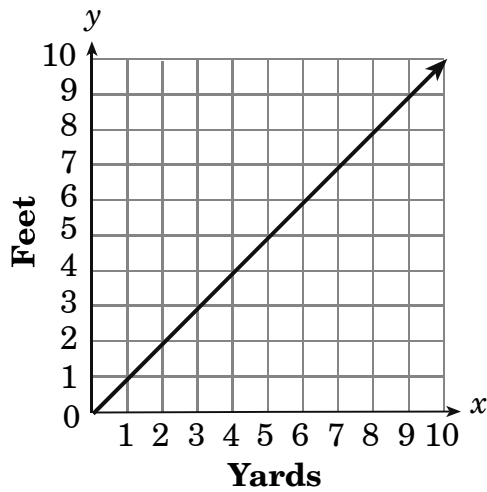
A



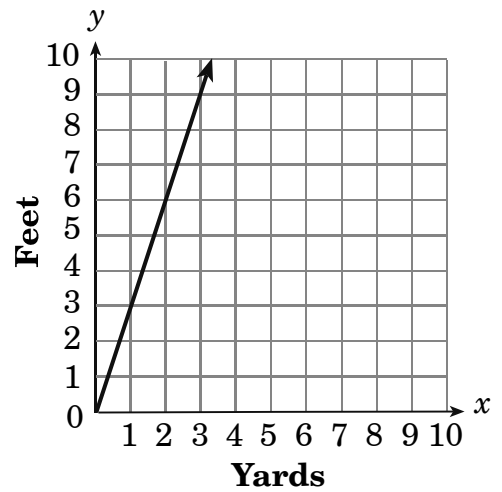
B



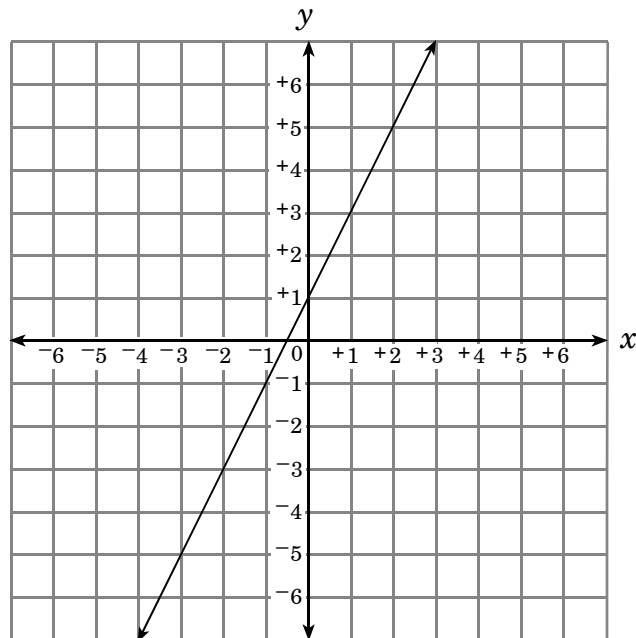
C



D



4. Which equation describes the line graphed below?

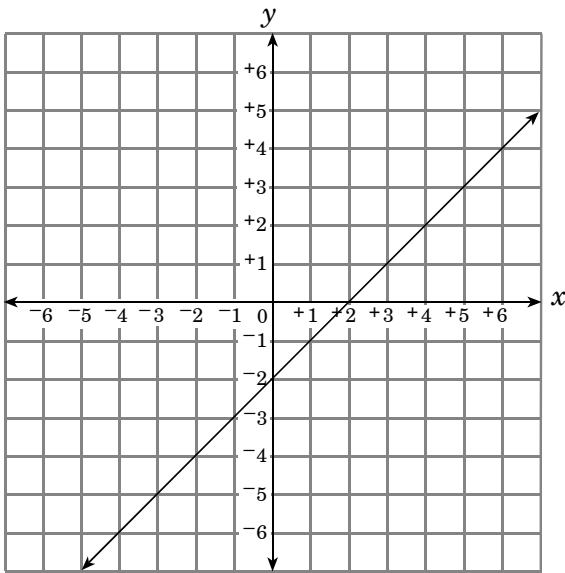


- A  $x - y = 0$
- B  $x - y = -1$
- C  $2x - y = -1$
- D  $x + 2y = -3$

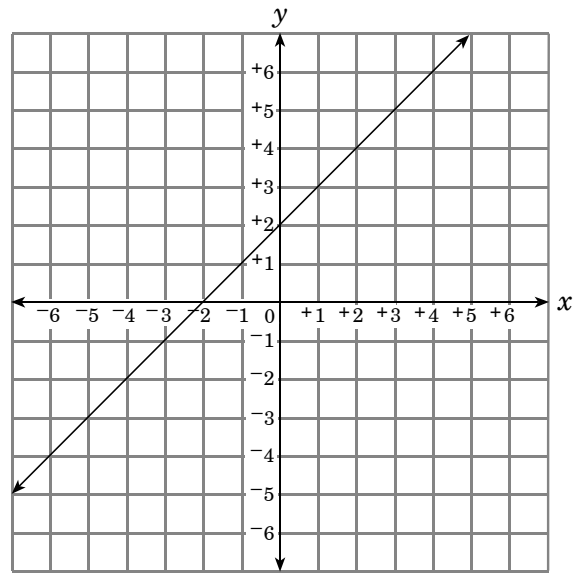
5. The price of a large pizza is given by the formula  $P(t) = 1.5t + 7.50$ , where  $P(t)$  is the price of the pizza and  $t$  is the number of toppings. What does the slope represent?
- A number of toppings
  - B cost per slice
  - C cost of each topping
  - D cost of the pizza with no toppings

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

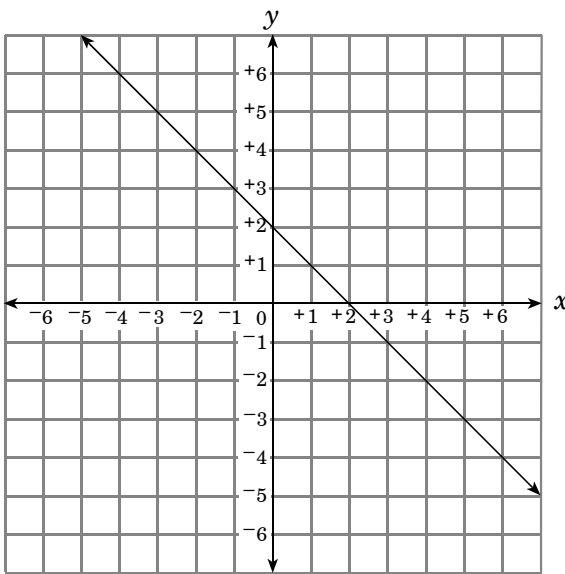
A



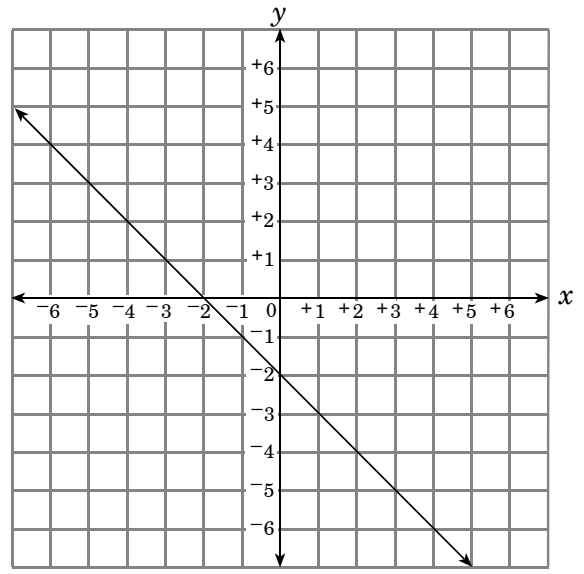
B



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

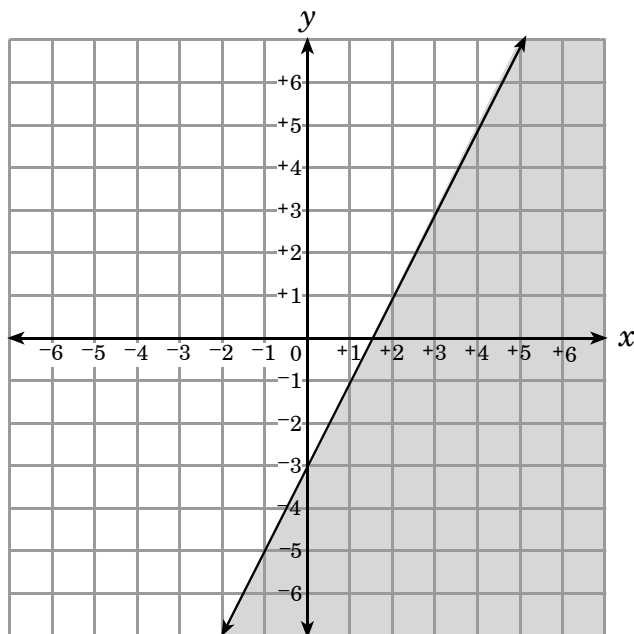
11. A spring stretches linearly as weight is added. The table shows data collected for a certain spring.

<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