

STANDARD VI: The student will be able to represent problem situations.

OBJECTIVE

1. Translate verbal or symbolic information into algebraic expressions; or identify equations or inequalities that represent graphs or problem situations.

ELIGIBLE CONTENT

- Determining an equation or expression when given a verbal description may be required.
- Graphing inequalities using a number line may be required.
- Determining the equation of a line given two ordered pairs may be required.
- Determining the equation of a line given the line graphed on the coordinate plane may be required.

SAMPLE ITEMS

- 1** Which of these equations represents this statement?

Fourteen more than $\frac{1}{5}$ of a number x is equal to 24.

- A** $(14 + \frac{1}{5})x = 24$
- B** $\frac{1}{5}(x + 14) = 24$
- C** $\frac{1}{5}x + 14 = 24$
- D** $14 + \frac{1}{5} + x = 24$

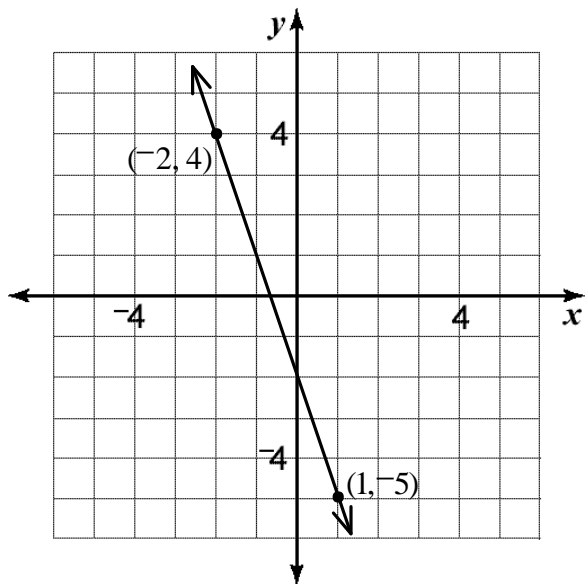
- 2** When pouring concrete, a good rule for estimating the number of workers needed is to have one worker for every 2 cubic yards of concrete plus one other worker. Which of these equations represents this rule?

- A** $y = 2x + 1$
- B** $y = \frac{x}{2} + 1$
- C** $y = \frac{x + 1}{2}$
- D** $y = \frac{2x + 1}{2}$

- 3** What is the equation of the line passing through the points (1, 2) and (3, 4)?

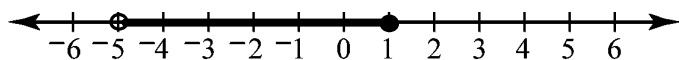
- A** $y = x + 1$
- B** $y = x - 1$
- C** $x + y = 1$
- D** $x + y = 2$

4 What is the equation of the line shown in the graph below?



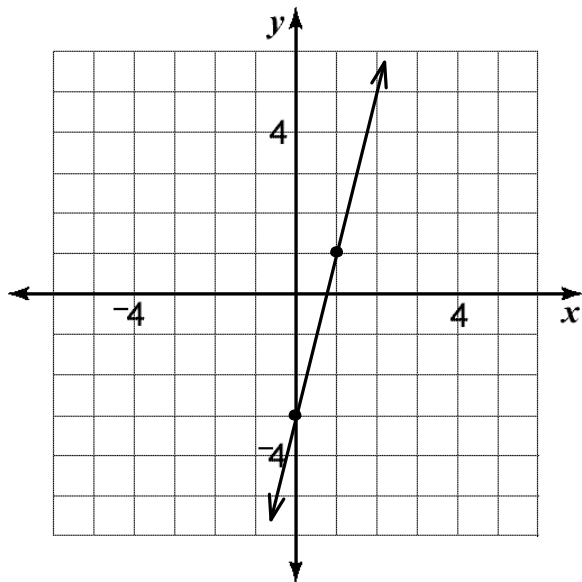
- A $y = -x - 2$
- B $y = -2x + 3$
- C $y = -3x - 2$
- D $y = -3x + 2$

5 Which of these inequalities describes this graph?



- A $-5 < x < 1$
- B $-5 < x \leq 1$
- C $-5 \leq x \leq 1$
- D $-5 \leq x < 1$

- 6** What is the equation of the line shown in the graph below?



- A** $y = 4x - 3$
- B** $y = 4x + 3$
- C** $y = -4x - 3$
- D** $y = -4x + 3$
- 7** Which of these statements is the same as $x^2 + 2x = 8$?
- A** A number x squared plus 2 times the number x is 8.
- B** The sum of 2 times a number x and the number x is 8.
- C** Two times a number x squared plus the number x is 8.
- D** Two times the sum of a number x squared and the number x is 8.

- 8** What is the equation of a line with slope $\frac{1}{3}$ that passes through the point $(-1, -2)$?

- A** $y = \frac{1}{3}x - \frac{1}{3}$
- B** $y = \frac{1}{3}x - \frac{5}{3}$
- C** $y = 3x + 1$
- D** $y = 3x + 5$