

Student: _____
Date: _____

Instructor: Andreas Lazari
Course: Math1111-Summer2018

Assignment: Section 2.3 Homework

1. Find the slope of the line passing through the points given below or state that the slope is undefined. Then indicate whether the line through the points rises, falls, is horizontal, or is vertical.

(7,2) and (8,6)

Select the correct choice below and, if necessary, fill in the answer box within your choice.

- A. The slope is 4.
 B. The slope is undefined.

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{6 - 2}{8 - 7} = \frac{4}{1} = 4.$$

Indicate whether the line through the points rises, falls, is horizontal, or is vertical. Choose the correct answer below.

- A. The line is vertical.
 B. The line falls from left to right.
 C. The line is horizontal.
 D. The line rises from left to right.

2. Find the slope of the line passing through the pair of points or state that the slope is undefined. Then indicate whether the line through the points rises, falls, is horizontal, or is vertical.

(5,8) and (-7,8)

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{8 - 8}{-7 - 5} = \frac{0}{-13} = 0.$$

Select the correct choice below and, if necessary, fill in the answer box within your choice.

- A. The slope is 0. (Simplify your answer.)
 B. The slope is undefined.

Indicate whether the line through the points rises, falls, is horizontal, or is vertical.

- A. The line is horizontal.
 B. The line rises from left to right.
 C. The line falls from left to right.
 D. The line is vertical.

3. Find the slope of the line passing through the pair of points or state that the slope is undefined. Then indicate whether the line through the points rises, falls, is horizontal, or is vertical.

(5, -6) and (2,6)

Select the correct choice below and fill in the answer box within your choice.

$$m = \frac{6 - (-6)}{2 - 5} = \frac{12}{-3} = -4.$$

- A. The slope is -4. (Simplify your answer.)
 B. The slope is undefined.

Indicate whether the line through the points rises, falls, is horizontal, or is vertical.

- The line is vertical.
 The line rises from left to right.
 The line is horizontal.
 The line falls from left to right.

4. Find the slope of the line passing through the pair of points or state that the slope is undefined. Then indicate whether the line through the points rises, falls, is horizontal, or is vertical.

(6,8) and (6,1)

Select the correct choice below and fill in the answer box within your choice.

$$m = \frac{1 - 8}{6 - 6} = \frac{-7}{0} = \text{Undefined.}$$

- A. The slope is _____ . (Simplify your answer.)
 B. The slope is undefined.

Indicate whether the line through the points rises, falls, is horizontal, or is vertical.

- The line is vertical.
 The line rises from left to right.
 The line is horizontal.
 The line falls from left to right.

5. Write the point-slope form of the line's equation satisfying the given conditions. Then use the point-slope form of the equation to write the slope-intercept form of the equation.

Slope = 3, passing through (3,4)

point slope form: $(y - y_1) = m(x - x_1)$

$$(y - 4) = 3(x - 3)$$

What is the point-slope form of the equation of the line?

$$y - 4 = 3(x - 3)$$

(Simplify your answer. Use integers or fractions for any numbers in the equation.)

slope intercept form: $y = mx + b$

$$y - 4 = 3(x - 3)$$

$$y - 4 = 3x - 9$$

$$\Rightarrow y = 3x - 9 + 4$$

$$y = 3x - 5$$

What is the slope-intercept form of the equation of the line?

$$y = 3x - 5$$

(Simplify your answer. Use integers or fractions for any numbers in the equation.)

6. Use the given conditions to write an equation for the line in point-slope form and slope-intercept form.

Slope = -8, passing through (-1, -9)

$$y - (-9) = -8(x - (-1))$$

$$y + 9 = -8(x + 1)$$

Type the point-slope form of the line.

$$y + 9 = -8(x + 1)$$

(Simplify your answer. Use integers or fractions for any numbers in the equation.)

Type the slope-intercept form of the line.

$$y = -8x - 17$$

(Simplify your answer. Use integers or fractions for any numbers in the equation.)

$$y + 9 = -8x - 8$$

$$y = -8x - 8 - 9$$

$$y = -8x - 17$$

7. Write the point-slope form of the line satisfying the given conditions. Then use the point-slope form of the equation to write the slope-intercept form of the equation.

First $m = \frac{12-4}{6-2} = \frac{8}{4} = 2.$

Passing through (2,4) and (6,12)

Type the point-slope form of the equation of the line.

Point slope form: $y - 4 = 2(x - 2)$

$$y - 4 = 2(x - 2)$$

(Simplify your answer. Use integers or fractions for any number in the equation.)

Type the slope-intercept form of the equation of the line.

$$y = 2x$$

(Simplify your answer. Use integers or fractions for any number in the equation.)

slope intercept form:

$$y - 4 = 2(x - 2)$$

$$y - 4 = 2x - 4$$

$$y = 2x - 4 + 4$$

$$\Rightarrow y = 2x$$

8. Use the given conditions to write an equation for the line in point-slope form and slope-intercept form.

Passing through (-4, -1) and (4,13)

$$m = \frac{13 - (-1)}{4 - (-4)} = \frac{13 + 1}{4 + 4} = \frac{14}{8} = \frac{7}{4}$$

Type the point-slope form of the equation of the line.

$$y + 1 = \frac{7}{4}(x + 4)$$

(Use integers or simplified fractions for any numbers in the equation.)

$$y - (-1) = \frac{7}{4}(x - (-4)) \Rightarrow y + 1 = \frac{7}{4}(x + 4)$$

Type the slope-intercept form of the equation of the line.

$$y = \frac{7}{4}x + 6$$

(Use integers or simplified fractions for any numbers in the equation.)

$$y = \frac{7}{4}x + \frac{7}{4} \cdot 4 - 1$$

$$y = \frac{7}{4}x + 6$$

9. Give the slope and the y-intercept of the line with the given equation. Then, graph the linear equation.

$$y = 2x + 7$$

y-intercept.
 $x=0 \Rightarrow y=7 \Rightarrow (0,7)$
 $y=0 \Rightarrow 0=2x+7 \Rightarrow 2x=-7 \Rightarrow x=-\frac{7}{2}$
 $(-\frac{7}{2}, 0)$
x-intercept.

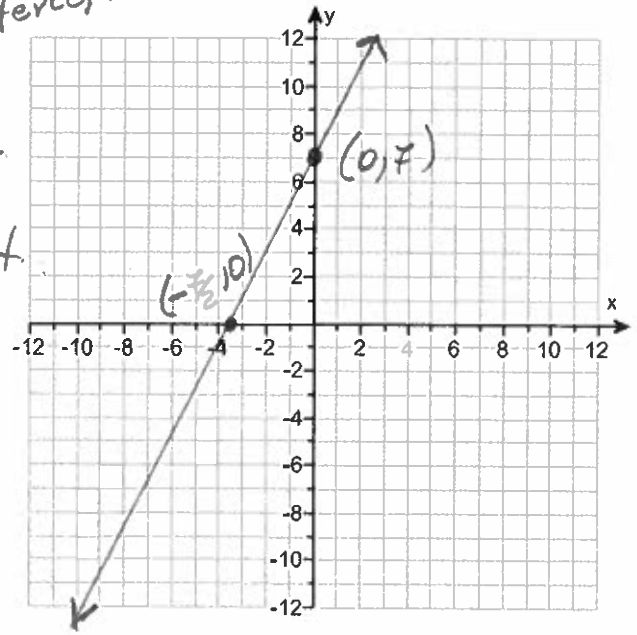
What is the slope? Select the correct choice below and fill in any answer boxes within your choice.

- A. The slope is 2.
 (Simplify your answer.)
- B. The slope is undefined.

What is the y-intercept? Select the correct choice below and fill in any answer boxes within your choice.

- A. The y-intercept is 7.
 (Type an integer or a simplified fraction.)
- B. There is no y-intercept.

Graph the equation.



10. Give the slope and y-intercept of the line whose equation is given below. Then graph the linear function.

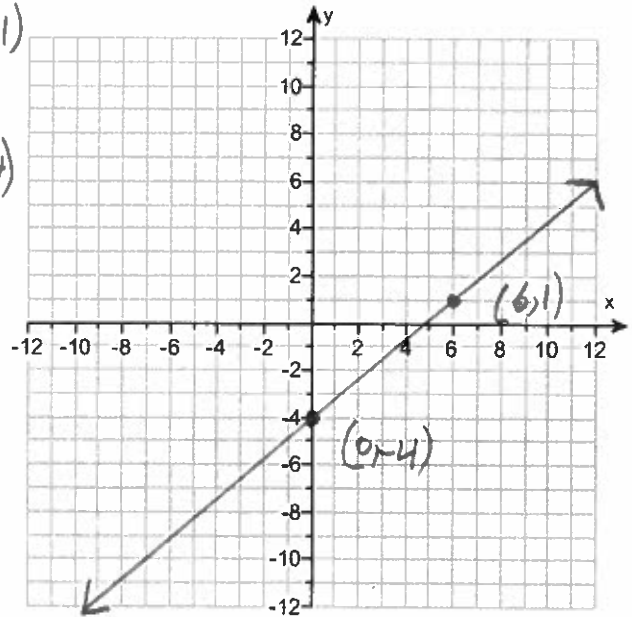
$$y = \frac{5}{6}x - 4$$

(6,1)
 $x=6 \Rightarrow y = \frac{5}{6} \cdot 6 - 4 = 1$
 $x=0 \Rightarrow y = \frac{5}{6} \cdot 0 - 4 = -4$
 $(0, -4)$

The slope of the line is $\frac{5}{6}$.
 (Type an integer or a simplified fraction.)

The y-intercept is -4.
 (Type an integer or a simplified fraction.)

Use the graphing tool to graph the linear equation. Use the slope and y-intercept when drawing the line.



11. Give the slope and y-intercept of the line whose equation is given below. Then graph the linear function.

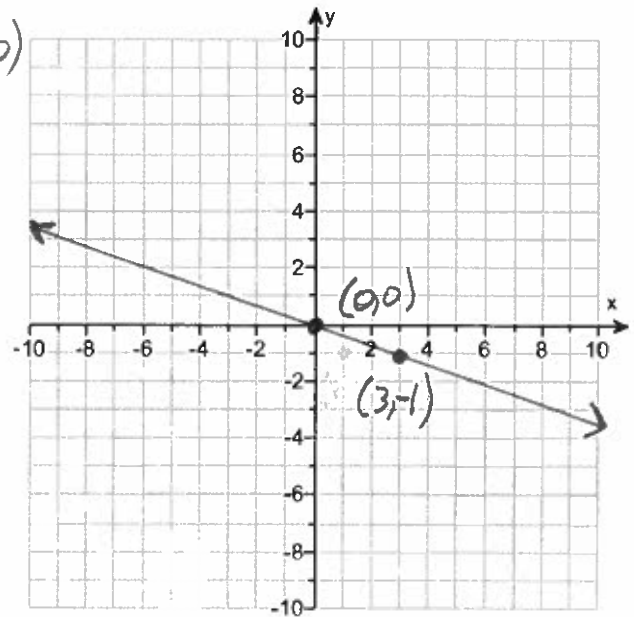
$$g(x) = -\frac{1}{3}x$$

$$x=0 \Rightarrow y = -\frac{1}{3}(0) = 0 \quad (0,0)$$
$$x=3 \Rightarrow y = -\frac{1}{3}(3) = -1 \quad (3,-1)$$

The slope of the line is $-\frac{1}{3}$.
(Type an integer or a simplified fraction.)

The y-intercept is 0 .
(Type an integer or a simplified fraction.)

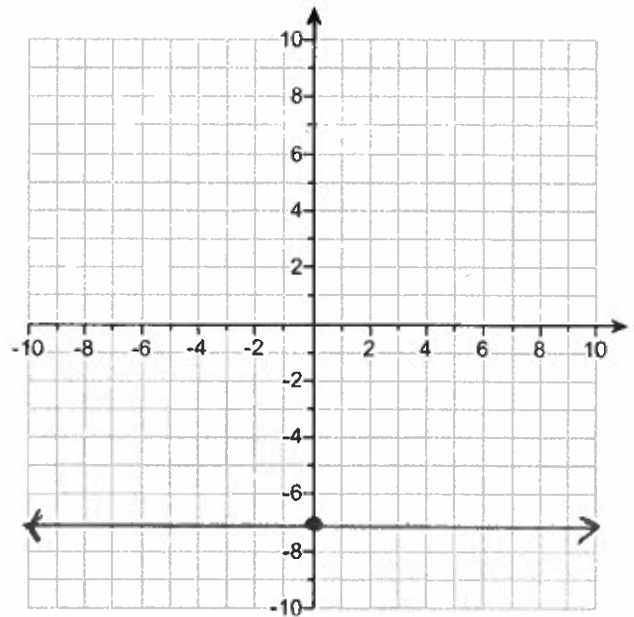
Use the graphing tool to graph the line. Use the slope and y-intercept when drawing the line.



12. Graph the following equation in a rectangular coordinate system.

$$y = -7$$

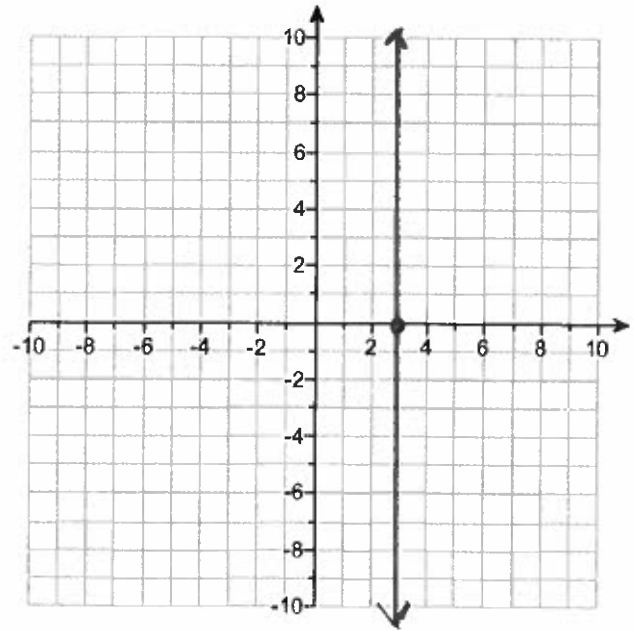
Use the graphing tool to graph the line.



13. Graph the following equation in a rectangular coordinate system.

$$x = 3$$

Use the graphing tool to graph the line.



14. Rewrite the given equation in slope-intercept form and then graph the line.

$$8x + y - 9 = 0 \Rightarrow y = -8x + 9$$

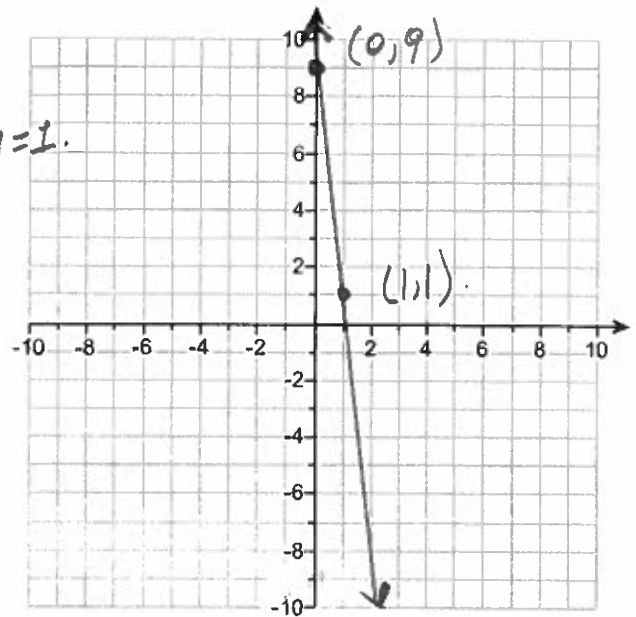
What is the equation in slope-intercept form?

$$y = -8x + 9$$

Use the slope and the y-intercept to graph the line.

$= 9$
or $(0, 9)$

For $x=1 \Rightarrow y = -8(1) + 9 = 1$
 $(1, 1)$



15. Use intercepts to graph the equation.

$$7x - 6y - 42 = 0$$

Use the graphing tool to graph the line. Use the intercepts when drawing the line. If only one intercept exists, use it and another point to draw the line.

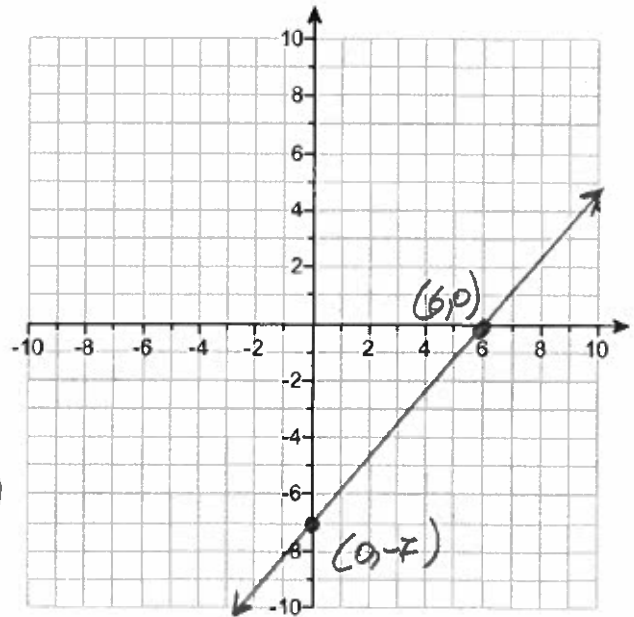
$$6y = 7x - 42$$

$$y = \frac{7}{6}x - \frac{42}{6}$$

$$y = \frac{7}{6}x - 7 \Rightarrow y\text{-interc: } (0, -7)$$

$$x=6 \Rightarrow y = \frac{7}{6} \cdot 6 - 7 = 0$$

$(6, 0)$



1. A. The slope is 4.

D. The line rises from left to right.

2. A. The slope is 0. (Simplify your answer.)

A. The line is horizontal.

3. A. The slope is -4. (Simplify your answer.)

The line falls from left to right.

4. B. The slope is undefined.

The line is vertical.

5. $y - 4 = 3(x - 3)$

$$y = 3x - 5$$

6. $y + 9 = -8(x + 1)$

$$y = -8x - 17$$

7. $y - 4 = 2(x - 2)$

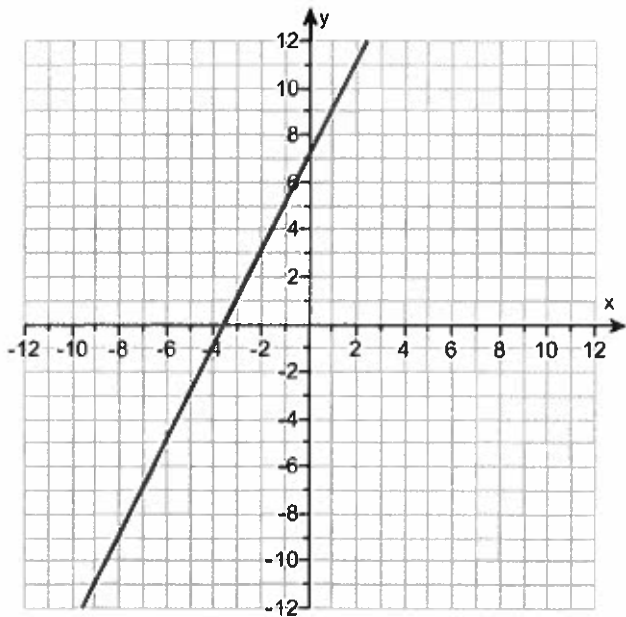
$$y = 2x$$

8. $y + 1 = \frac{7}{4}(x + 4)$

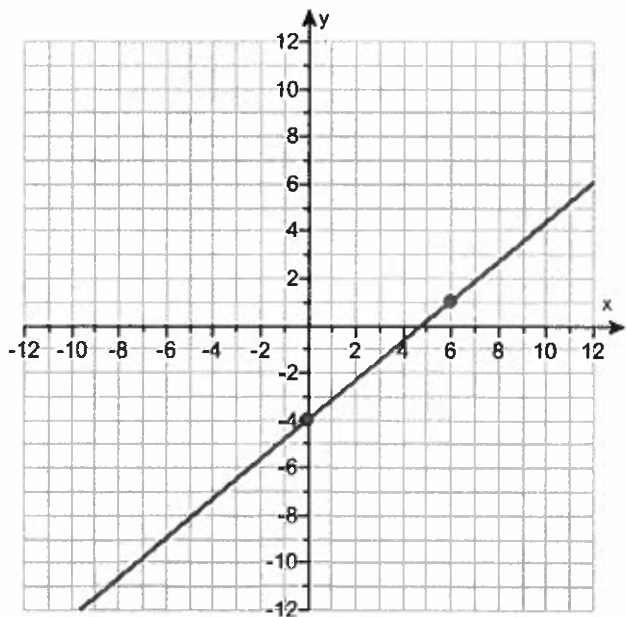
$$y = \frac{7}{4}x + 6$$

9. A. The slope is 2. (Simplify your answer.)

A. The y-intercept is 7. (Type an integer or a simplified fraction.)

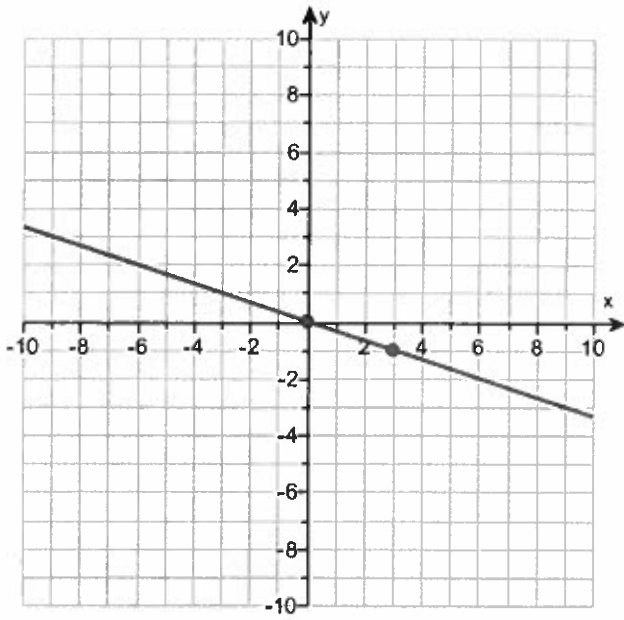


10. $\frac{5}{6}$
-4

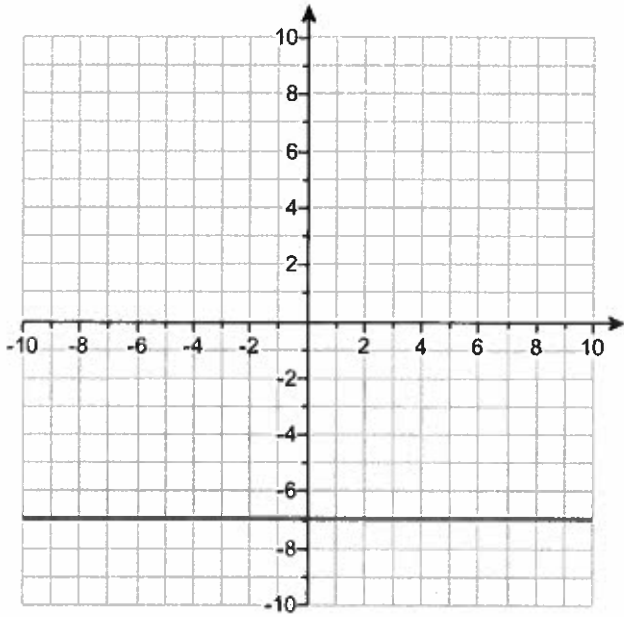


11. $-\frac{1}{3}$

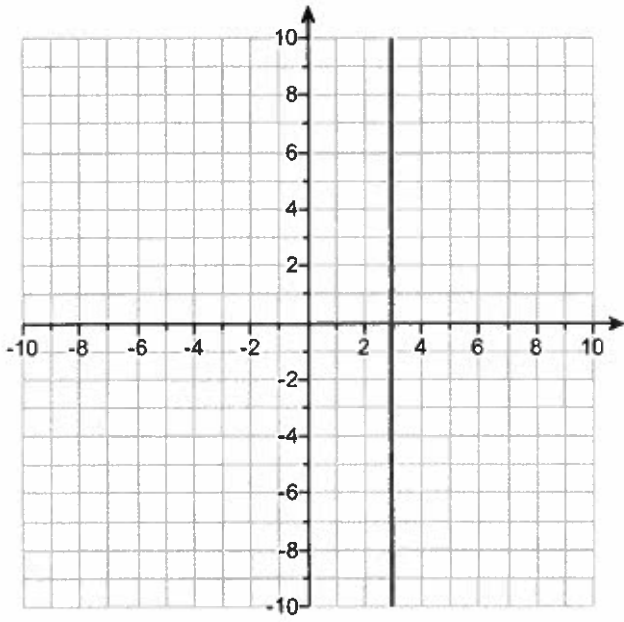
0



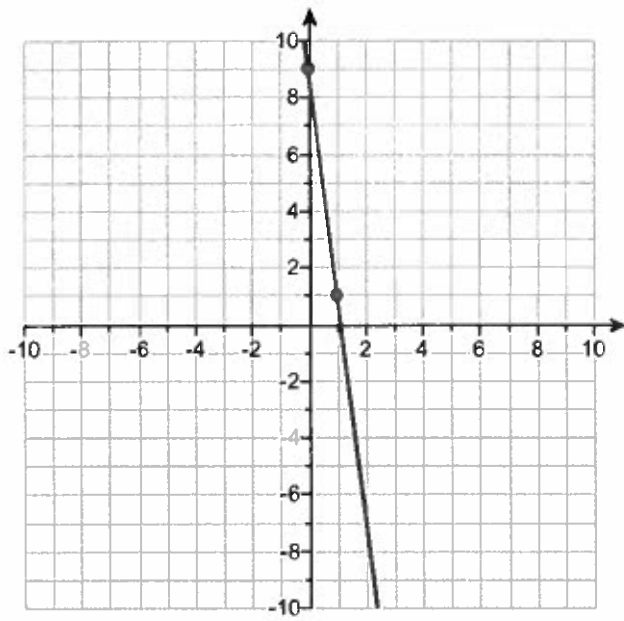
12.



13.



14. $y = -8x + 9$



15.

