

$$y = mx + b$$

9.2 Notes Writing Equations

Name: _____

Write the slope-intercept form of the equation of each line given the slope & y-intercept.

1. Slope = 5, y intercept = -3

$$y = 5x - 3$$

2. Slope = 1/3, y intercept = 5

$$y = \frac{1}{3}x + 5$$

3. Slope = 0, y intercept = 2

$$y = 2$$

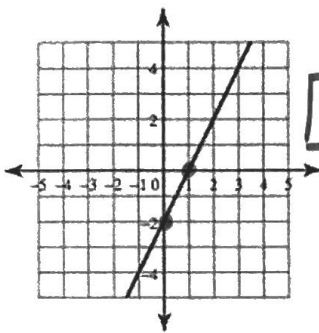
4. Slope = -1, y intercept = 3

$$y = -x + 3$$

Write the slope-intercept form of the equation of each line.

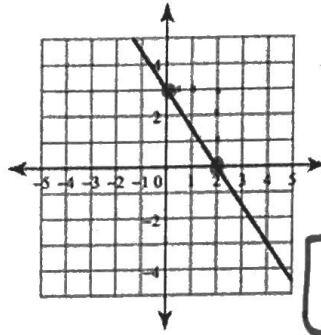
5.

1st find
y-int:
 $b = -2$



$$y = 2x - 2$$

6.



$$b = 3$$

$$m = -\frac{3}{2}$$

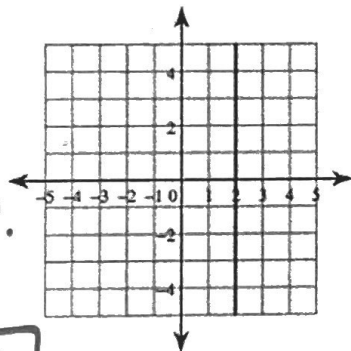
$$y = -\frac{3}{2}x + 3$$

2nd Find

slope by counting: $m = 2$

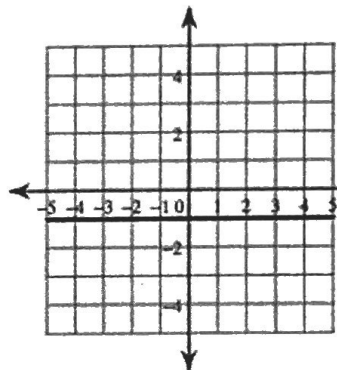
7.

$b = N/A$
 $m = \text{undef.}$



$$x = 2$$

8.



$$b = -1$$

$$m = 0$$

$$y = -1$$

Write the slope-intercept form of the equation of the line through the given point with the given slope.

9. Through: (5, 3), slope = 4/5

$$m = \frac{4}{5} \quad \begin{pmatrix} 5, 3 \\ x, y \end{pmatrix}$$

$$y = mx + b$$

$$3 = \frac{4}{5}(5) + b$$

$$\begin{array}{r} 3 \\ -4 \\ -4 \end{array} = 4 + b$$

$$b = -1$$

$$y = \frac{4}{5}x - 1$$

10. Through: (-3, 2), slope = -2/3

$$m = -\frac{2}{3} \quad \begin{pmatrix} -3, 2 \\ x, y \end{pmatrix}$$

$$2 = -\frac{2}{3}(-3) + b$$

$$\begin{array}{r} 2 \\ -2 \\ -2 \end{array} = 2 + b \quad 0 = b$$

$$y = -\frac{2}{3}x$$

$$y = mx + b$$

Write the slope intercept form of the equation of the line with the given information.

11. Through: $(-5, -5)$ and $(1, -3)$

1st Find slope:

$$\frac{y_2 - y_1}{x_2 - x_1}$$

$$\frac{-3 + 5}{1 + 5} = \frac{2}{6} = \frac{1}{3}$$

$$y = \frac{1}{3}x - \frac{10}{3}$$

2nd Find "b" $m: \frac{1}{3} (1, -3)$

$$-3 = \frac{1}{3}(1) + b$$

$$-3 = \frac{1}{3} + b$$

$$-\frac{10}{3} = b$$

14. Through: $(4, 3)$ and $(1, 2)$

$$\frac{2-3}{1-4} = \frac{-1}{-3} = \frac{1}{3}$$

$$y = \frac{1}{3}x + \frac{5}{3}$$

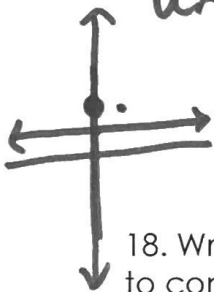
$m: \frac{1}{3} (1, 2)$ $2 = \frac{1}{3}(1) + b$

$$2 = \frac{1}{3} + b$$

$$b = \frac{5}{3}$$

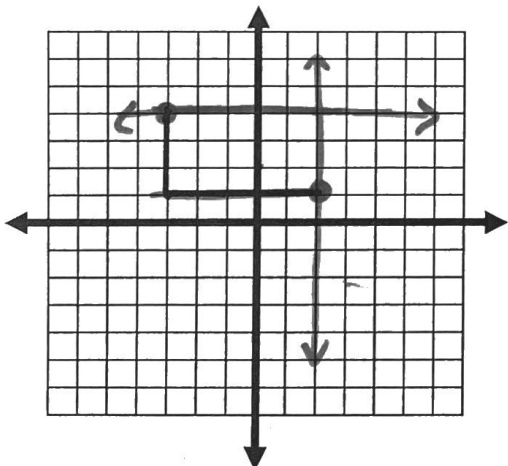
* 16. Through: $(0, 2)$ perpendicular to $y = 1$

$m = 0$ is slope of $y = 1$, so new line will have undefined slope.



$$x = 0$$

18. Write the equations of the lines needed to complete the parallelogram.



$$y = 4 \quad x = 2$$

12. Through: $(-5, 1)$, parallel to $y = x + 5$

$$m: 1 \quad (-5, 1)$$

$$1 = 1(-5) + b$$

$$1 = -5 + b$$

$$+5 \quad +5$$

$$6 = b$$

$$y = x + 6$$

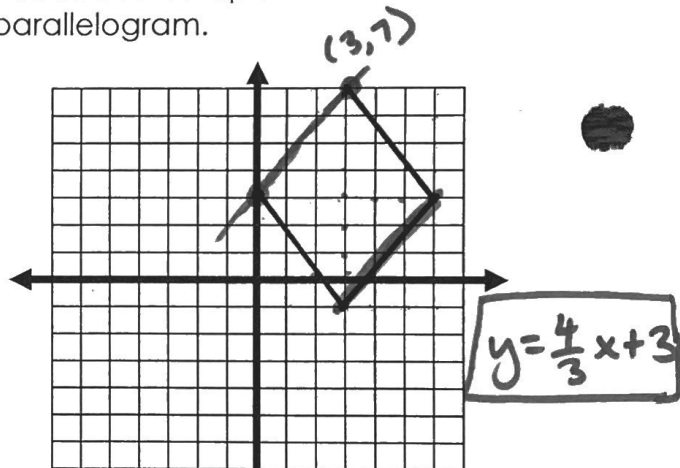
15. $y - 5 = -10(x - 4)$

$$y - 5 = -10x + 40$$

$$+5 \quad +5$$

$$y = -10x + 45$$

17. Write the equation of the line needed to complete the parallelogram.



$$y = \frac{4}{3}x + 3$$

- 1st Find slope of opposite side.

$$m: \frac{4}{3}$$

- bc missing side is parallel to opp. side, it has same slope.

- pick one of the 2 points to use as x, y .

$$- m: \frac{4}{3} (3, 7) \quad 7 = \frac{4}{3}(3) + b$$

$$b = 3$$

$$7 = 4 + b$$

$$-4 \quad -4$$