

Geometry

Ch. 3

Handout 3.6

Lines in the Coordinate plane

The slope-intercept form of a linear equation is

$$m = \text{slope}$$
$$b = y\text{-intercept (pt on y-axis)}$$

The standard form of a linear equation is

- Pull
- *No fractions or decimals
 - *x-term/y-term on left side
 - *x-term positive ^{on right side}






The point-slope form for a non-vertical is



Three ways to graph a line:

→ solve for y
 $y = mx + b$

Using x|y chart

- 1 Solve equation for y 
- 2 make x|y chart 
- 3 Put values in for x and solve for y 
- 4 Plot your ordered pairs 
- 5 Draw your line and label points 

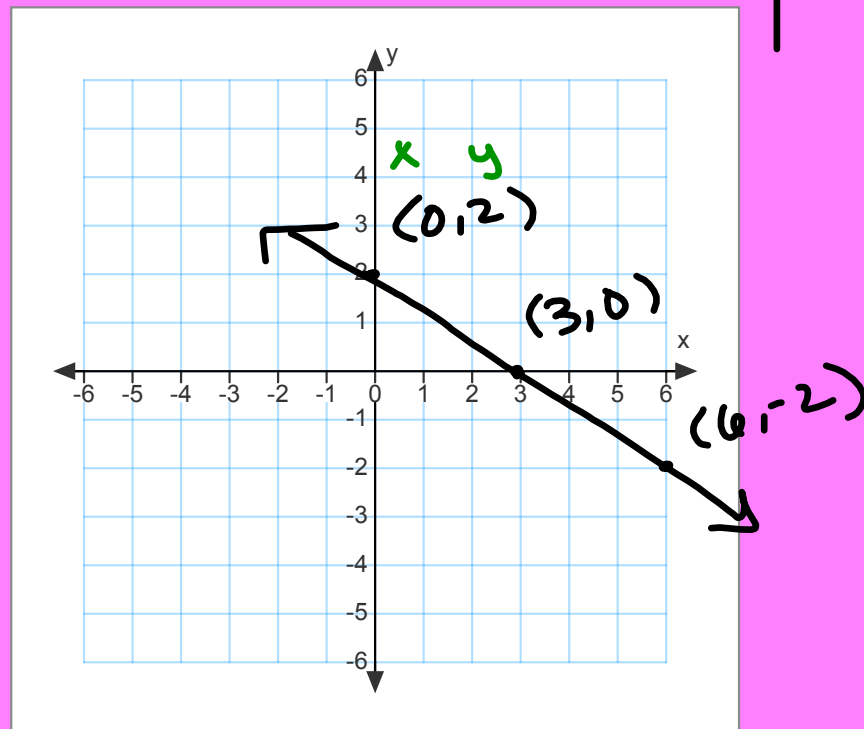
1. Graph the equation $2x + 3y = 6$ by using the $\begin{array}{c|c} x & y \end{array}$ chart.

$$\begin{array}{r} 2x + 3y = 6 \\ -2x \quad \quad -2x \end{array}$$

$$\frac{3y}{3} = \frac{-2x + 6}{3}$$

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

x	$y = -\frac{2}{3}x + 2$	y
0	$= -\frac{2}{3}(0) + 2$	2
3	$= -\frac{2}{3}(3) + 2$	0
6	$= -\frac{2}{3}(6) + 2$	-2

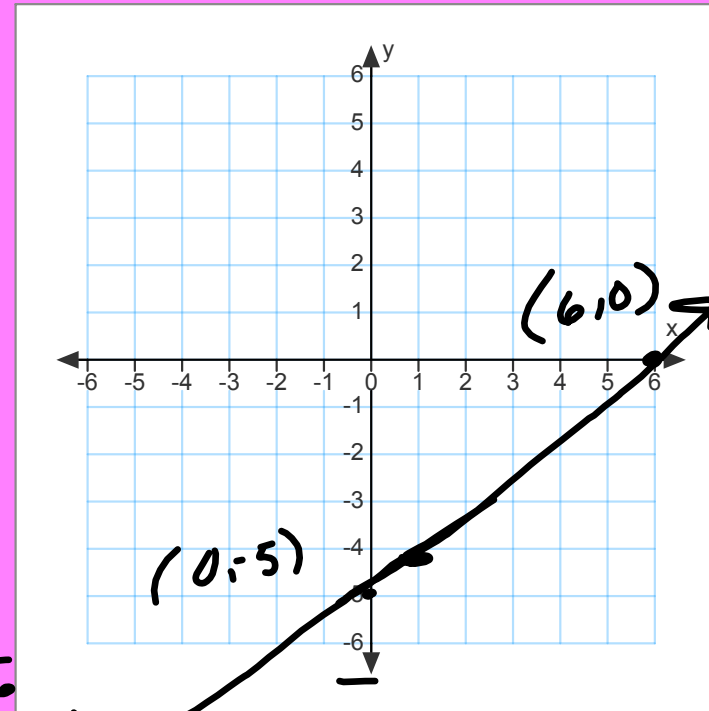


1b) Graph the equation $5x - 6y = 30$ by using the $x + y$ chart.

$$\begin{array}{r} 5x - 6y = 30 \\ -5x \qquad -5x \\ \hline -6y = -5x + 30 \\ \hline \end{array}$$

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

x	$= \frac{5}{6}x - 5$	y
0	$= \frac{5}{6}(0) - 5$	-5
6	$= \frac{5}{6}(6) - 5 = 5 - 5$	0
1	$= \frac{5}{6}(1) - 5 = \frac{5}{6} - \frac{30}{6}$	$\frac{-25}{6} = -4\frac{1}{6}$
-6	$\frac{5}{6}(-6) - 5$ $-5 - 5$	-10



$(-6, -10)$

-10

Slope-intercept form

1. Solve for y.

2. $y = mx + b$

$m = \text{slope}$

$b = \text{y-intercept}$

pt on y-axis
where start graphing

$$m = \frac{\text{rise}}{\text{run}}$$

positive slope

negative slope

3. Graph the equation $-6x + 3y = 12$ by using slope-intercept form (must solve for y first).

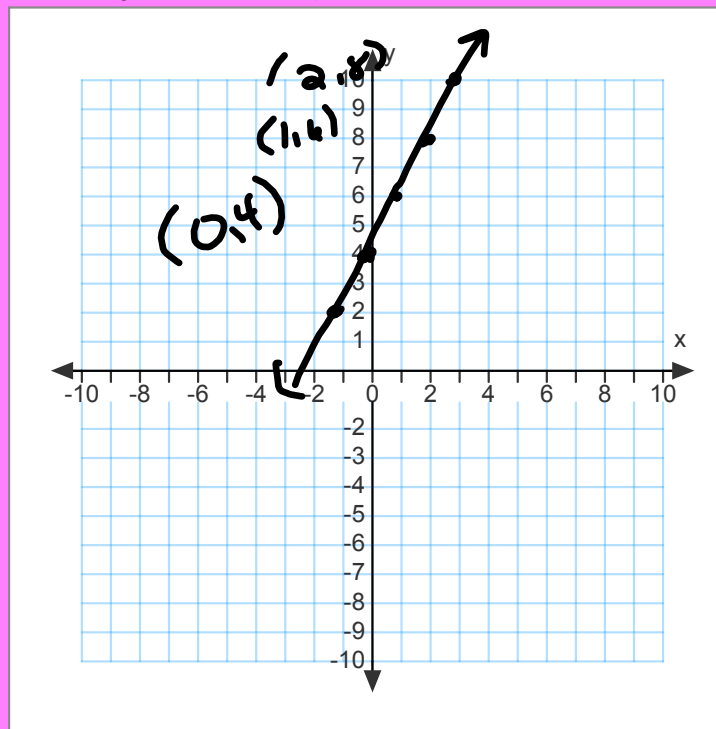
$$\begin{array}{rcl} -6x + 3y & = & 12 \\ +6x & & +6x \end{array}$$

$$\frac{3y}{3} = \frac{6x}{3} + \frac{12}{3}$$

$$y = 2x + 4$$

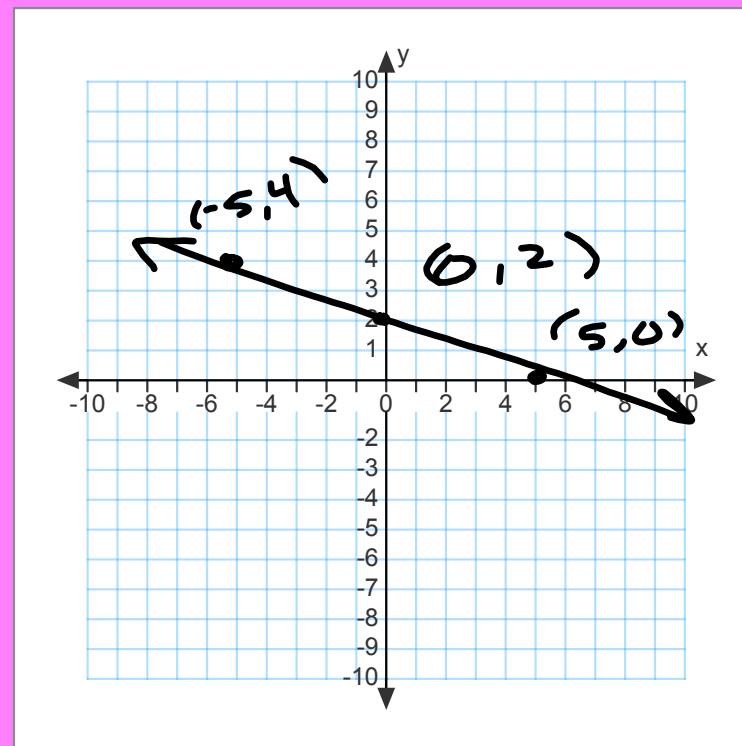
$$m = 2$$

$$b = 4$$



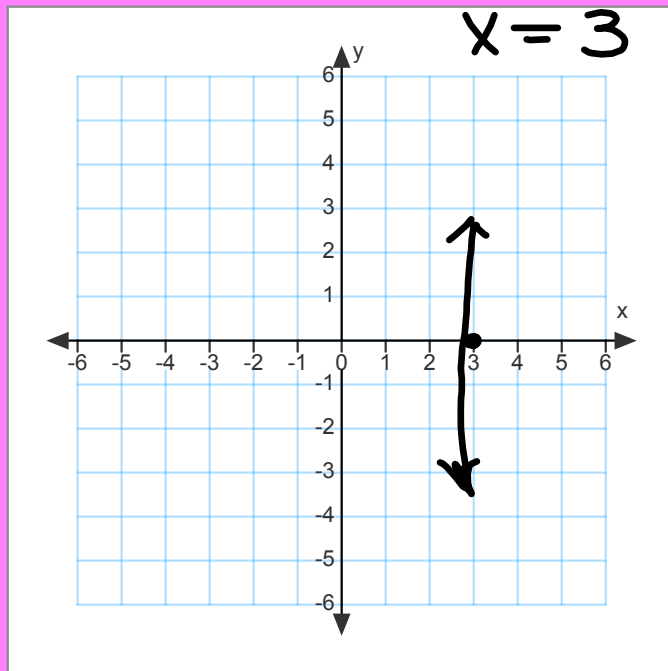
Graph the equation $4x + 10y = 20$ by using slope-intercept.

$$\begin{array}{r} 4x + 10y = 20 \\ -4x \qquad -4x \\ \hline 10y = -4x + 20 \\ \frac{10y}{10} = \frac{-4x}{10} + \frac{20}{10} \\ y = -\frac{2}{5}x + 2 \\ m = -\frac{2}{5} \\ b = 2 \end{array}$$

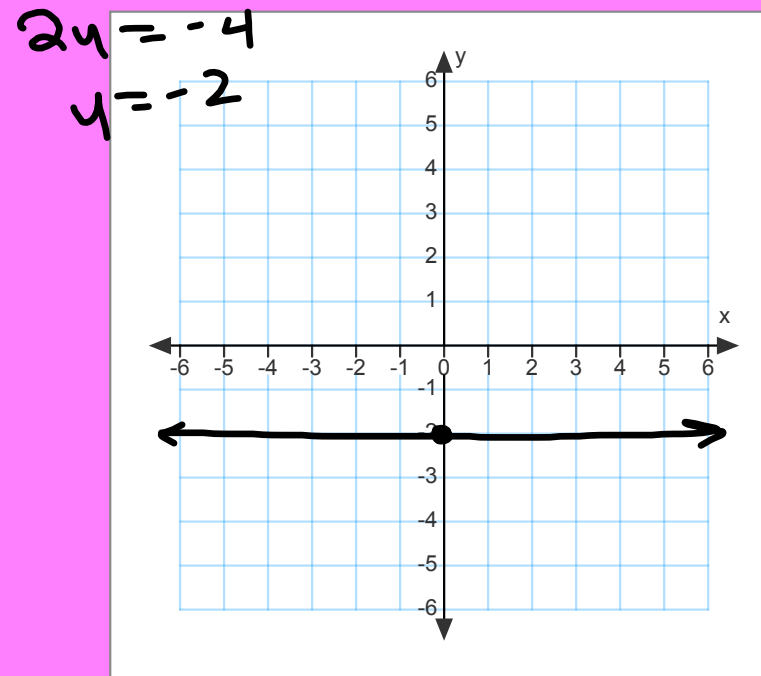


4. Graph each equation:

a) $x - 3 = 0$



b) $2y + 4 = 0$



Assignment:

Pgs 169-170 2-16 evens, 33-37, 38, 40

(#2-8 -- x|y chart, #10-16 slope-intercept)

Formula to use to write a Linear Equation



Pull



Pull

Standard form of a Linear Equation-- $Ax + By = C$



4. Write an equation point-slope form of the line with slope -8 that contain P(3, -6). Write the final equation in slope-intercept form.

5. Write an equation using point-slope form of the line that contains the points $G(4, -9)$ and $H(-1, 1)$. Write the final equation in slope-intercept form

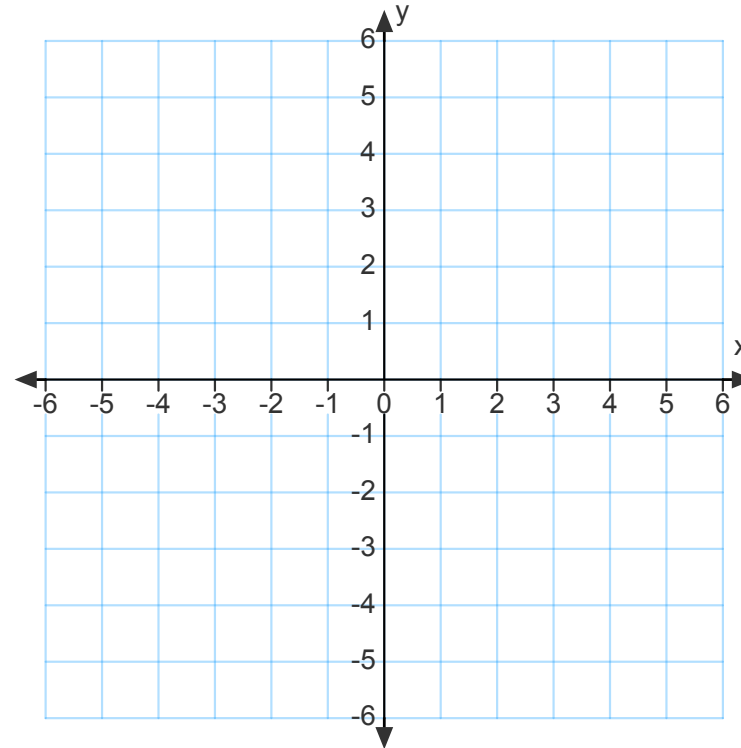
6. Write equations for the horizontal line and the vertical line that contain $A(7, -5)$.

7. Write an equation of the line with slope -1 that contains the point $P(2, -4)$. Write the final equation in slope-intercept form.

8. Write an equation of the line that contains the points $P(5, 0)$ and $Q(7, -3)$. Write the final equation in slope-intercept.

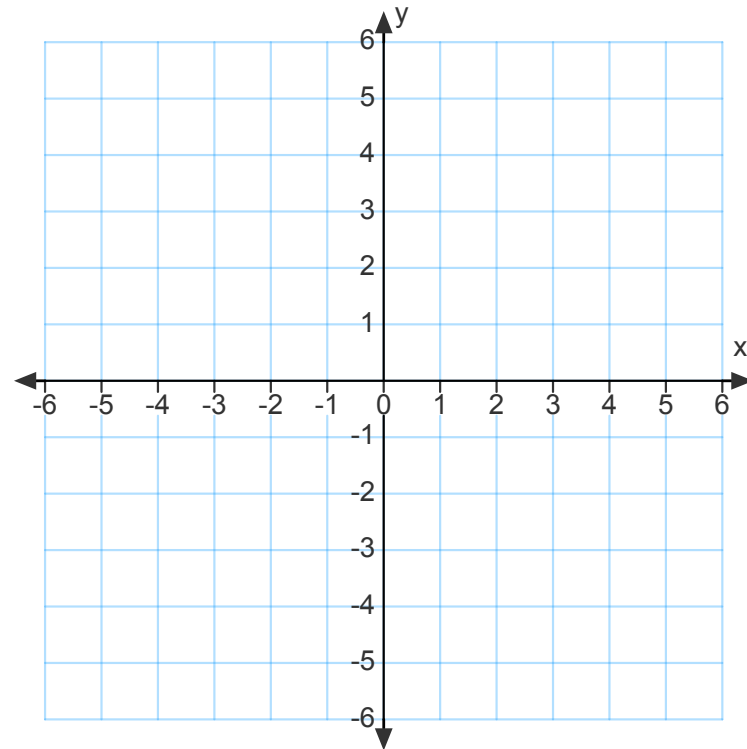
9a) Graph each equation. Use a different method for each one.

$$-2x + 4y = -8$$



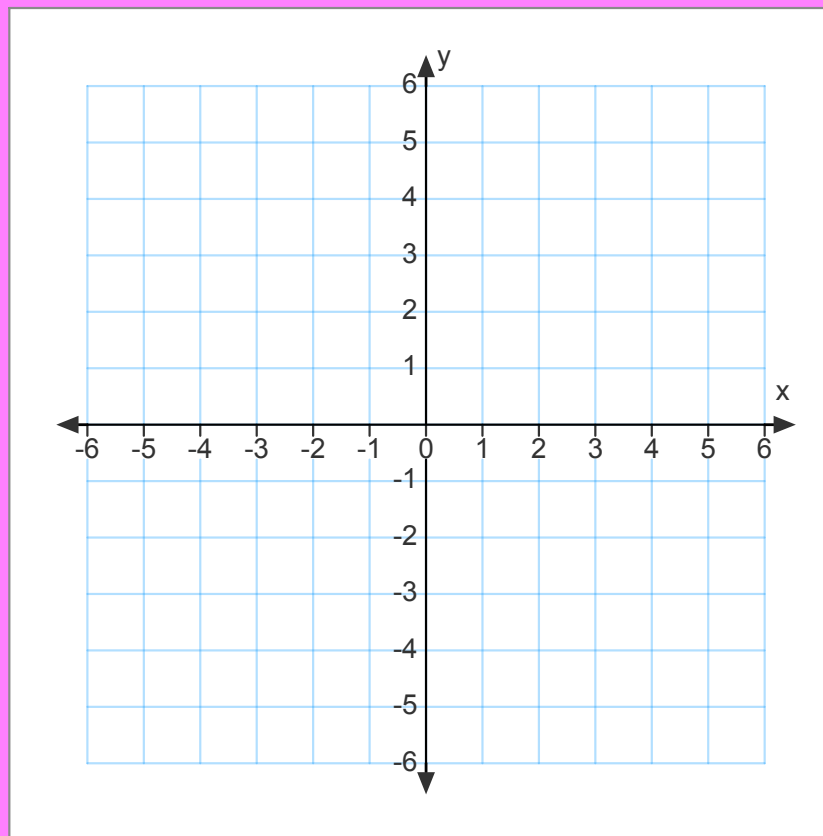
9b). Graph each equation. Use a different method for each one.

$$-5x + y = -3$$



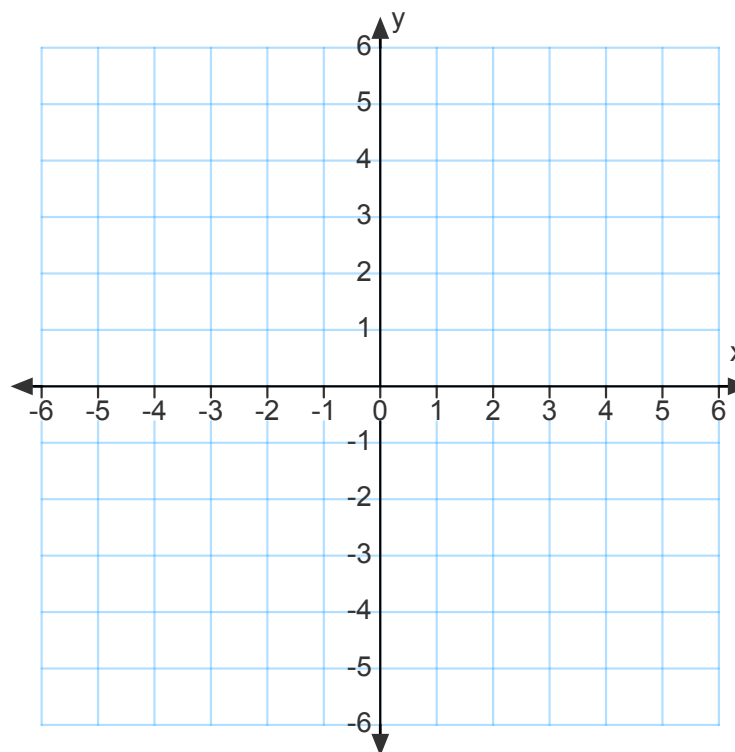
9c) Graph each equation. Use a different method for each one.

$$3x + 6 = 0$$



9d) Graph each equation. Use a different method for each one.

$$y = 5$$



Assignment:

Pgs 169-170 17-32,55,61,62,64,66-68