



$$y = \underline{m}x + \underline{b}$$

$$y = \underline{4}x - 9$$

$m = 4$

$m = \text{slope}$
 $b = y\text{-int}$

$$y = \underline{4}x - 6$$

$m = 4$

Which lines are parallel? (same slope)

perpendicular? (opposite reciprocals)

Where is the slope??

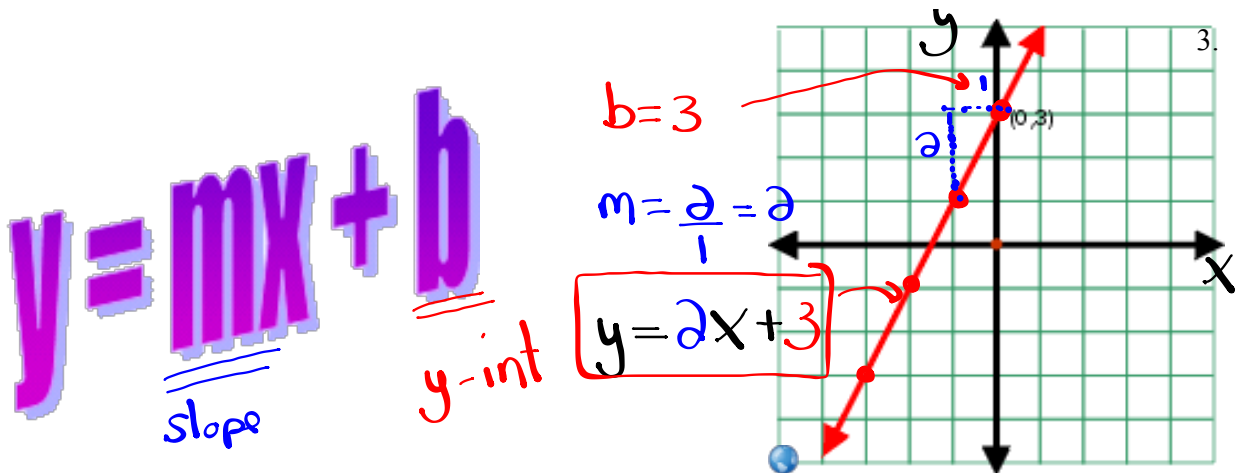
$$y = \frac{-1}{\textcircled{4}}x - 6 \quad m = -\frac{1}{4}$$

$$y = \underline{6}x - 6$$

$m = 6$

$$y = \frac{1}{\textcircled{4}}x - 6$$

$m = \frac{1}{4}$



The equation is said to be in

Slope-Intercept Form

- $m = \text{Slope}$
- $b = \text{y-intercept}$



	Parallel	Perpendicular
If $m = 2$	$m = 2$	$m = -\frac{1}{2}$
$m = -\frac{3}{7}$	$m = -\frac{3}{7}$	$m = \frac{7}{3}$

$y = mx + b$
Find the Slope and Y-intercept

1) $y = \underline{5}x + \underline{4}$

Slope(m): $\underline{m = 5}$

y-intercept(b): $\underline{b = 4}$

$$2) \quad \frac{2y}{2} = \frac{6x}{2} + \frac{8}{2}$$

Slope(m): m=3

y-intercept(b): b=4

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

3) a) $y + 3 = \frac{1}{2}x + 7$

$$y + \overset{-3}{3} = \frac{1}{2}x + \overset{-3}{7}$$

$$y = \frac{1}{2}x + \underline{4}$$

Slope(m): $m = \frac{1}{2}$

y-intercept(b): $b = 4$

b) State the parallel slope of the equation.

$$m_{||} = \frac{1}{2}$$

4) State the perpendicular slope of the equation

(opposite reciprocal)

$$m = 2$$

$$m_{\perp} = -\frac{1}{2}$$

$$2(y - 4) = 4x - 8$$

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

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

$$\frac{2y}{2} = \frac{4x}{2} + \frac{0}{2}$$

$$y = \underline{2}x + \underline{0}$$

$$m = 2 \quad b = 0$$

5) a) $3 - 5x = 3y - 6$

Slope(m): $m = -\frac{5}{3}$

$$-3y = 5x - 6 - 3$$

y-intercept(b): $b = 3$

$$\frac{-3y}{-3} = \frac{5x}{-3} - \frac{9}{-3}$$

$$y = -\frac{5}{3}x + \underline{\underline{3}}$$

b) State the perpendicular slope of the equation.

$$m_{\perp} = \frac{3}{5}$$

6) State the parallel slope of the equation

$$m_{||} = 4$$

$$4. \quad \underline{3}y = \overset{4.}{3}\overset{4.}{x} - 6$$

4

$$\frac{3y}{\underline{3}} = \frac{12x}{\underline{3}} - \frac{24}{\underline{3}}$$

$$y = \underline{4}x - \underline{8}$$

$$m=4 \quad b=-8$$

Recall:

$$y = \underline{m}x + b$$

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

$b = \text{y-intercept}$ (point where it crosses the y-axis)

To graph using $y = mx + b$ (Slope-Intercept Form):

- ① Rearrange the equation and pick out m and b
- ② Plot the y-intercept on your graph.
(b)
- ③ Use $\frac{\text{rise}}{\text{run}}$ (Slope/ m) to find other points
- ④ Join points with a straight line.

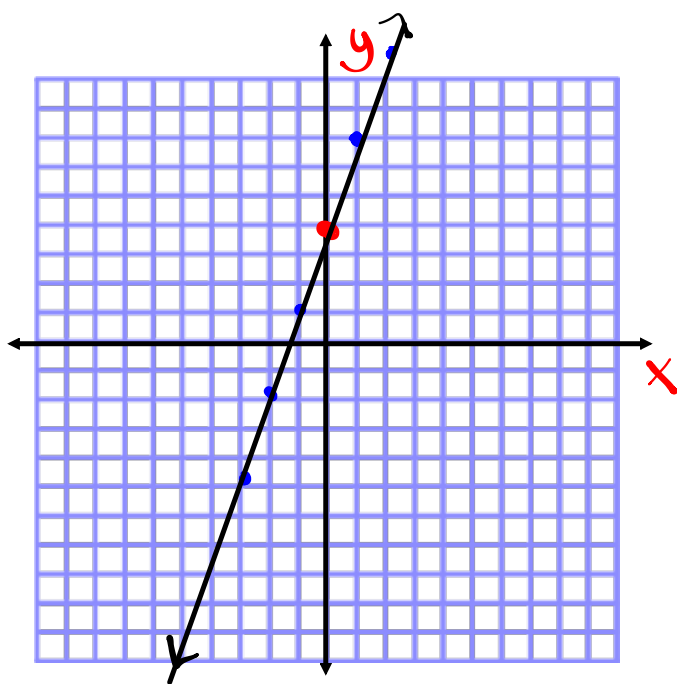
Graph the following:

$$\frac{2y}{2} = \frac{6x}{2} + \frac{8}{2}$$

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

$$m = \frac{3}{1} \begin{matrix} \text{(rise)} \\ \text{(run)} \end{matrix}$$

$$b = 4 \text{ y-intercept} \\ (0, 4)$$



Graph the following:

$$3 - 5x = 3y - 6$$

$$m = \frac{-5}{3} \quad \begin{array}{l} \text{rise} \\ \text{run} \end{array}$$

$$-3y = 5x - 3 - 6$$

$$b = 3 \quad \begin{array}{l} \text{y intercept} \\ (0, 3) \end{array}$$

$$\frac{-3y}{-3} = \frac{5x - 9}{-3}$$

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

