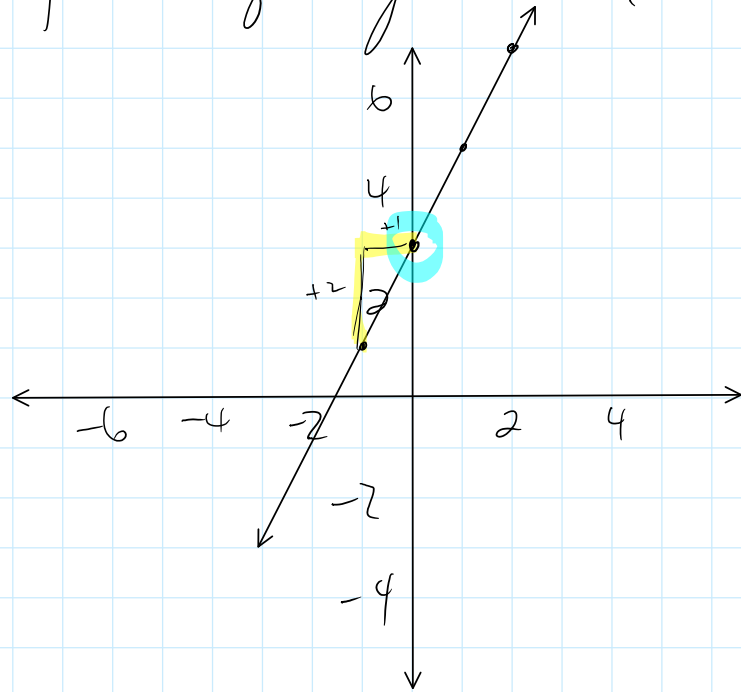


# Slope - intercept form of Equation

Wednesday, May 1, 2019 12:10 PM

$$y = 2x + 3$$

x	y
-1	1
0	3
1	5
2	7



$$\text{slope} = \frac{\Delta y}{\Delta x} = \frac{2}{1}$$

$y = mx + b$  where  $m = \text{slope}$   $b = \text{y-intercept}$

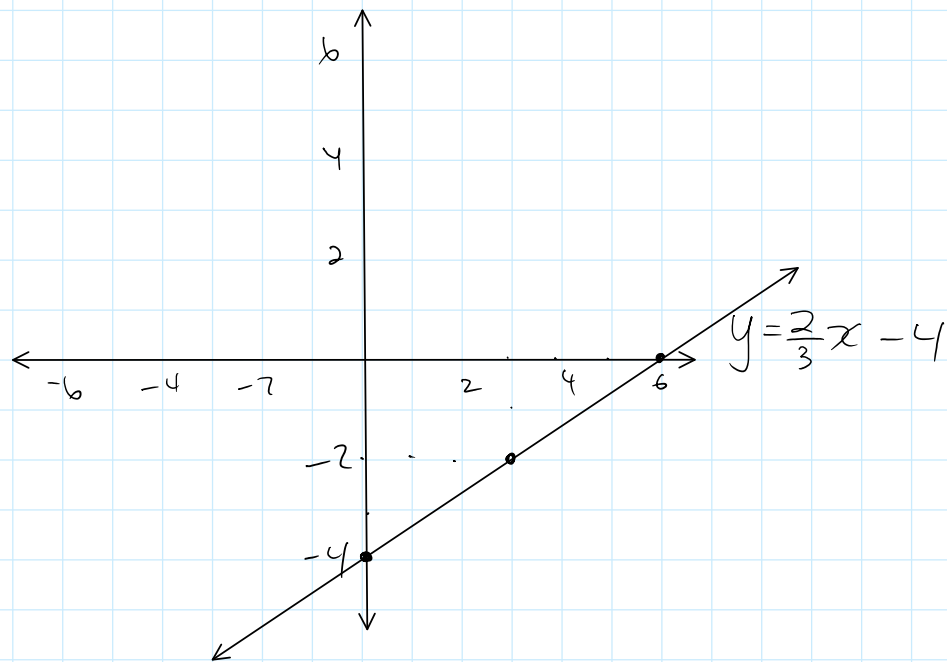
↳ This is called the slope-intercept form of equation.

$$y = \frac{2}{3}x - 4$$

$$m(\text{slope}) = \frac{2}{3}$$

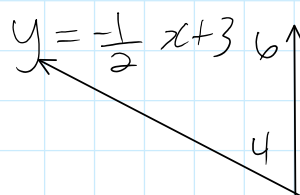
$$\text{y-int}(b) = -4$$

$(0, -4)$



Try: Graph

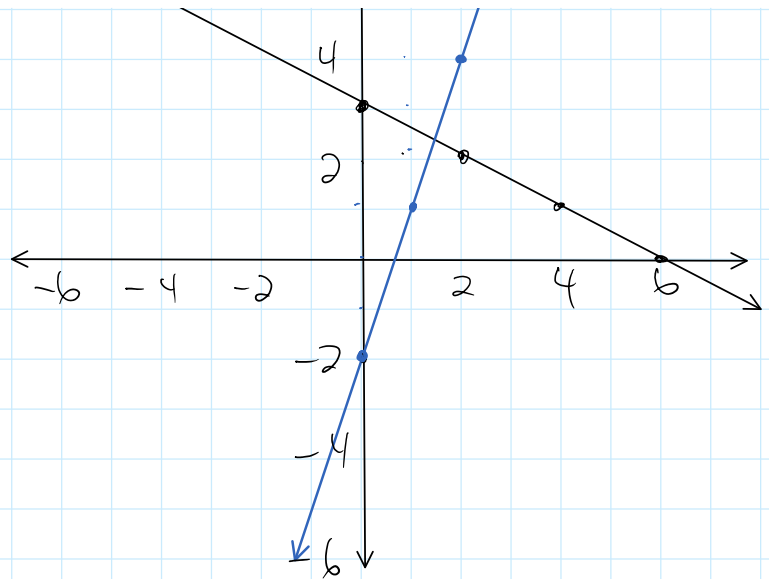
$$(1) \quad y = (-1)x + 3$$



$$y = 3x - 2$$

$$\textcircled{1} y = \left(-\frac{1}{2}\right)x + \underline{\underline{3}}$$

$$\textcircled{2} y = \frac{3x - 2}{1}$$



Graph:  $2x + 3y = 6$

$$y = mx + b$$

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

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

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

$$\text{slope} = \frac{-2}{3}$$

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

$$y\text{-int} = (0, 2)$$

Rewrite the following in slope intercept form then state the slope and y-intercepts

$$\textcircled{1} 3x - 4y = 8$$

$$\textcircled{2} 2x + 3y + 9 = 0$$

$$\Rightarrow \frac{-4y}{-4} = \frac{-3x + 8}{-4}$$

$$\frac{3y}{3} = \frac{-2x - 9}{3}$$

$$y = \frac{3}{4}x - 2$$

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

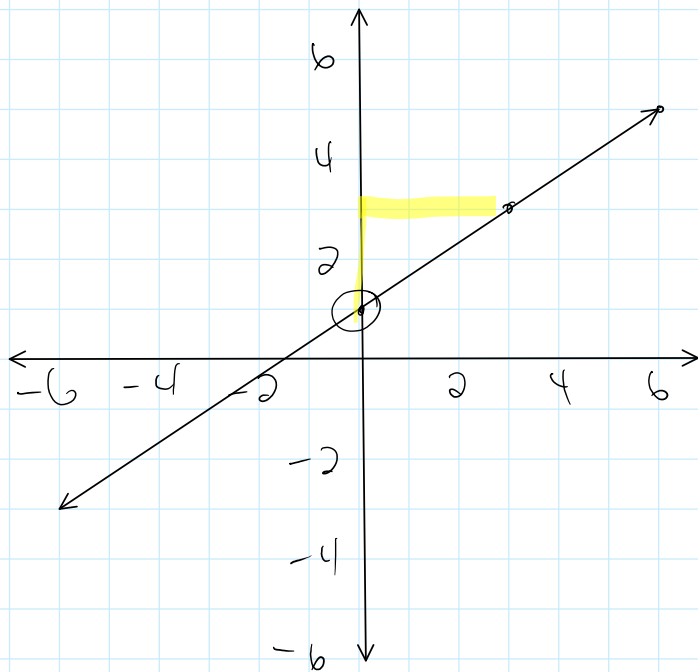
$$\text{slope} = \frac{3}{4}$$

$$\text{Slope} = \frac{-2}{3}$$

$$y\text{-int} = (0, -2)$$

$$y\text{-int} = (0, -3)$$

b ↑



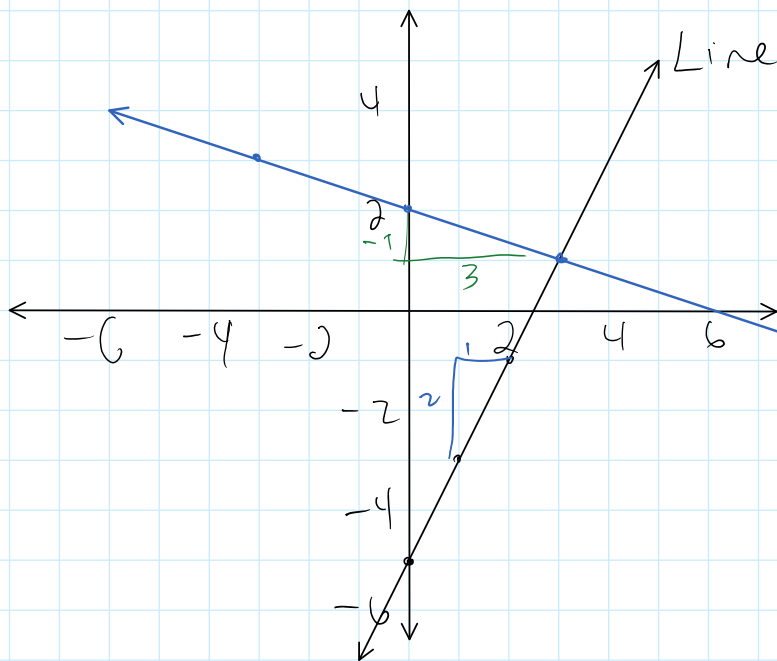
Write the equation of the line.

need slope:  $\frac{2}{3}$   
y-int: 1

$$y = mx + b$$

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

Try: Write the equations of the lines graphed below:



Line 1  $m = \frac{2}{1}$   $b = -5$

$$y = 2x - 5$$

Line 2  $m = -\frac{1}{3}$

$b = 2$ .

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

For the linear function  $y = 2x + b$  find  $b$  if the line passes through point  $A(x, y)$

$$y = 2x + b$$

$$4 = 2(1) + b$$

$$4 = 2 + b$$

Note: you could also find  $b$  by graphing

$$4 = 2(1) + b$$

$$4 = 2 + b$$

$$2 = b$$

$b$  by graphing  
the line.

Try ① Find  $b$  for the line  $y = \frac{1}{2}x + b$  if  
the line passes through point  $C(4, -1)$

$$y = \frac{1}{2}x + b$$

$$-1 = \frac{1}{2}(4) + b$$

$$-1 = 2 + b$$

$$-3 = b$$

② Find  $m$  for the line  $y = mx + 4$  if  
the line passes through point  $D(2, -2)$

$$y = mx + 4$$

$$-2 = 2m + 4$$

$$\frac{-6}{2} = \frac{2m}{2}$$

$$-3 = m$$

$$(2, -2) \quad (0, 4)$$

$$m = \frac{4 - (-2)}{0 - 2} = \frac{6}{-2} = -3$$

Pg 349 - 356 # 1-13, 15, 19-21.