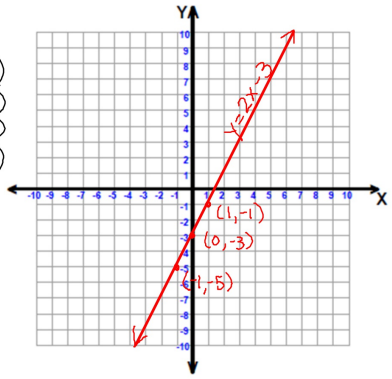
DO NOW

Graph $y = 2x - 3$

x	2x − 3	y	(x, y)
−1	2(−1) − 3	−5	(−1, −5)
0	2(0) − 3	−3	(0, −3)
1	2(1) − 3	−1	(1, −1)



Find the slope.

$m = \frac{\text{rise}}{\text{run}} = \frac{2}{1} = 2$

$\boxed{m = 2}$

Find the *y*-intercept.

$\boxed{y = -3}$

Page 1

3.4 Graphing a Linear Equation

Slope Intercept Form of a line:

$y = mx + b$ "y=" form

m = slope (in front of the x)

b = y-intercept (constant)

Examples: Find the slope and *y*-intercept.

1. $y = \frac{3}{4}x + 7$
   $m = \frac{3}{4}$
   $b = 7$
2. $y = -2x$
   $m = -2$
   $b = 0$
3. $y = -4x + \frac{1}{2}$
   $m = -4$
   $b = \frac{1}{2}$

Page 2

A linear equation can be graphed using:

$y = mx + b$

"y=" form — slope — y-intercept (point on y-axis)

* Start by plotting the y-intercept.
  Then count using slope to place other points.

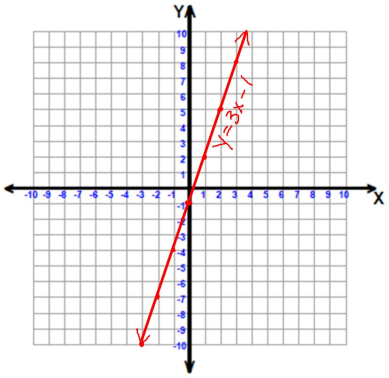
Page 3

1. Graph:

$y = 3x - 1$

$m = \frac{3\uparrow}{1\rightarrow}$

$b = -1$



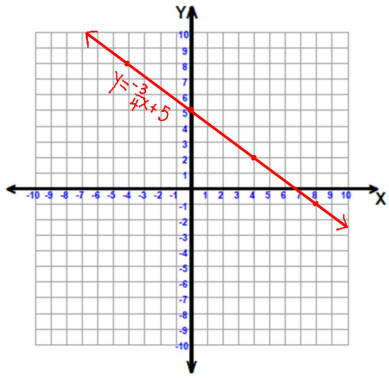
Page 4

2. Graph:

$y = -\frac{3}{4}x + 5$

$m = \frac{-3\downarrow}{4\rightarrow}$ or $\frac{3\uparrow}{-4\rightarrow}$

$b = 5$



Page 5

3. Graph:

$-y - 2x = -4$

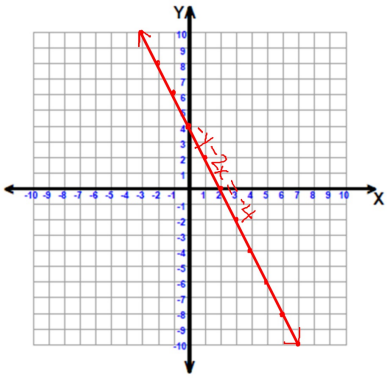
$-y = 2x - 4$

$y = \frac{2x - 4}{-1}$

$y = -2x + 4$

$m = \frac{-2\downarrow}{1\rightarrow}$

$b = 4$



Page 6

4. Graph:

$5x + 2y = 6$

$2y = -5x + 6$

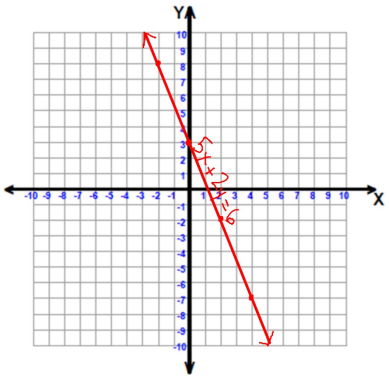
$y = \frac{-5x+6}{2}$

$y = \frac{-5x}{2} + \frac{6}{2}$

$y = \frac{-5}{2}x + 3$

$m = \frac{-5\downarrow}{2\rightarrow}$

$b = 3$



Page 7

HOMEWORK

Worksheet - HW 3.4 - Graphing Linear Equations

Page 8