

8.4) Slope-Intercept Form ($y=mx+b$) | May 19, 2016

Pg 428.

#53. An equation is $y=2x+b$. Find "b" if the line passes through

a) $(4, 2)$

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

$$2 = 8 + b$$

$$-6 = b$$

$$\therefore y = 2x - 6$$

d) $(-1, -3)$

$$-3 = 2(-1) + b$$

$$-3 = -2 + b$$

$$-1 = b$$

$$\therefore y = 2x - 1$$

54. Given $y = mx + 3$ determine "m".

b) $(-4, 5)$

$$5 = m(-4) + 3$$

$$\frac{2}{-4} = \frac{-4m}{-4}$$

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

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

Another way

$\rightarrow$ y-int is 3

or $(0, 3)$

Then find slope of

$(-4, 5)$ and $(0, 3)$

c) $(4, -5)$

$$-5 = m(4) + 3$$

$$-8 = 4m$$

$$-2 = m$$

$$\therefore y = -2x + 3$$

55. Explain why these lines belong to a family:

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

(2) $5x - 2y - 2 = 0$

$$\frac{5}{2}x - \frac{2}{2} = \frac{2}{2}$$
$$\frac{5}{2}x - 1 = y$$

(3) $2x + y + 1 = 0$

$$y = -2x - 1$$

(4) $y + 1 = 0$

$$y = -1$$

they all
share the
y-int of -1

$\rightarrow$ share a property

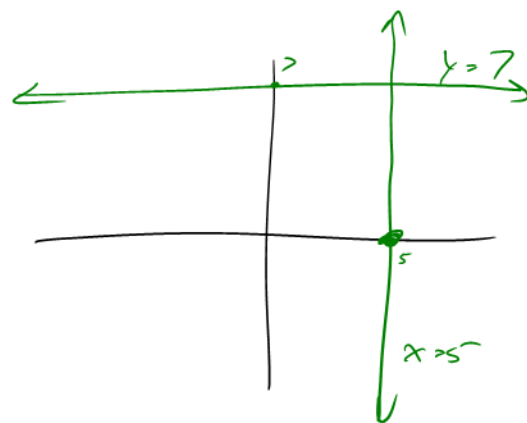
$\rightarrow$ slope

$\rightarrow$ y-int

$\rightarrow$ x-int

60.

a) $y = 7$	d) $x = 5$	
Slope	0	undefined
y-int	7	none / NA
x-int	NA	5
Domain	all numbers	just 5
Range	just 7	all numbers



8.5] Methods of Graphing

Use the x-ints and y-ints to graph.

1. $3x + 2y = 6$

To find the x-int, $y = 0$

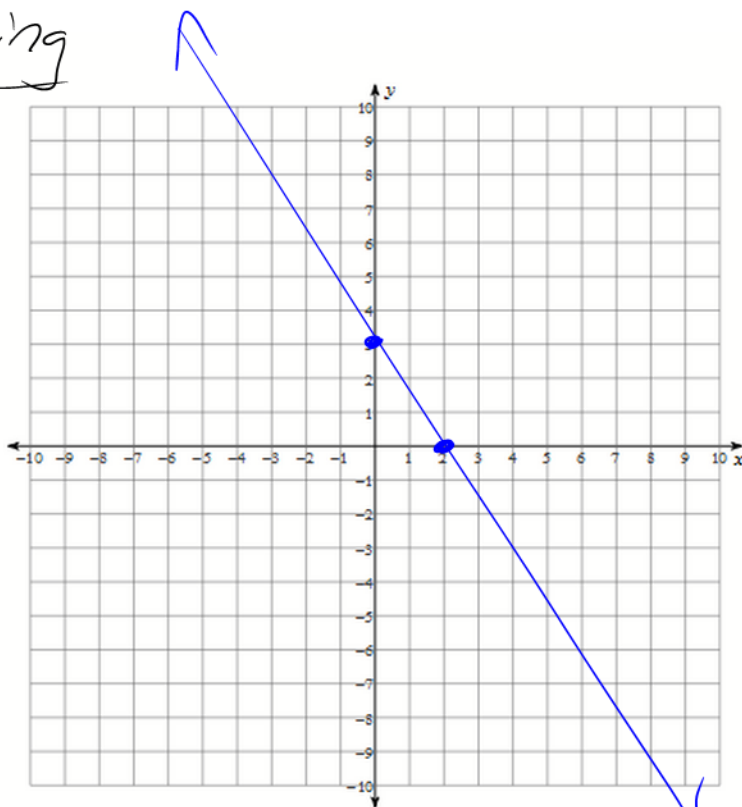
$$\frac{3x}{3} + \frac{2(0)}{2} = \frac{6}{3}$$

$$x = 2 \quad \therefore (2, 0)$$

To find the y-int, $x = 0$

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

$$y = 3 \quad \therefore (0, 3)$$



4. $2x + y - 4 = 0$

x-int, $y = 0$

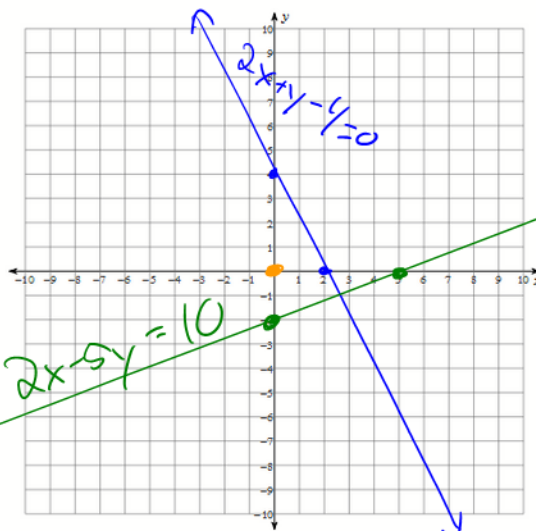
$$2x + 0 - 4 = 0$$

$$2x = 4 \quad \therefore (2, 0)$$

y-int, $x = 0$

$$2(0) + y - 4 = 0$$

$$y = 4 \quad \therefore (0, 4)$$



5. $2x - 5y = 10$

x-int, $y = 0$

$$\frac{2x}{2} - \frac{5(0)}{5} = \frac{10}{2}$$

$$x = 5 \quad \therefore (5, 0)$$

y-int, $x = 0$

$$\frac{2(0)}{2} - \frac{5y}{5} = \frac{10}{-5}$$

$$y = -2 \quad \therefore (0, -2)$$

Graph using slope and intercept.

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

$m = \frac{1}{2}$ $y\text{-int} = 4$ or $(0, 4)$

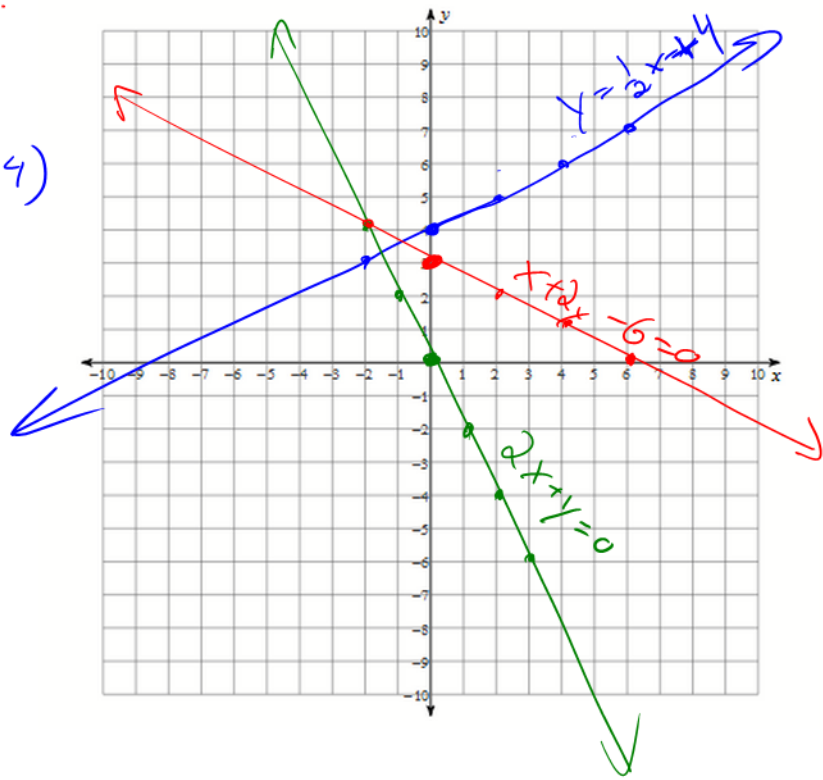
13. $2x + y = 0$

$y = -2x + 0$

14. $x + 2y - 6 = 0$

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

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



On boards, 17, 20 pg 432



$y = 2(x - 3)$

Homework: 8.4 pg 428 # 53 to end

8.5 pg 432 # 2 - 12