

Name: KEY Hour: _____ Date: _____

NOTES: Sections 4.3-4.4 – Graphing Horizontal and Vertical Lines and Graphing Lines Using Intercepts

Goals: #1 – I can graph horizontal and vertical lines.



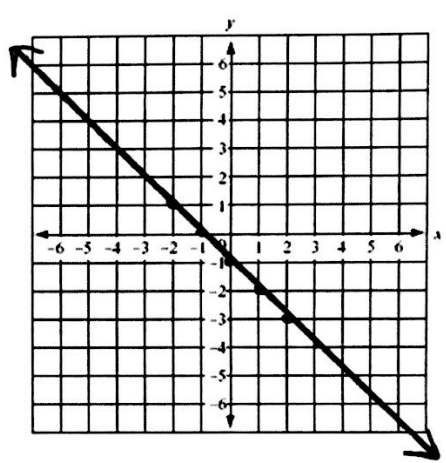
#2 – I can find the x and y-intercepts of a linear equation and use them to graph.

Homework: Sections 4.3-4.4 worksheet

Warm Up:

1. Use a table of values to graph the equation $y = -x - 1$.

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



2. Rewrite the equation $5y - 2x = 15$ in function form.

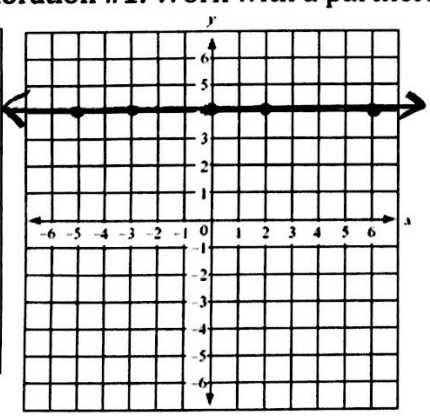
$$5y = 2x + 15$$

$$\frac{5y}{5} = \frac{2x + 15}{5}$$

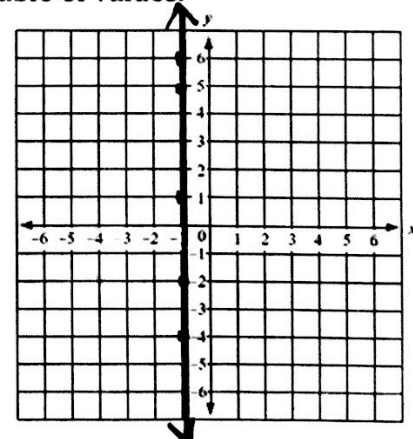
$$y = \frac{2}{5}x + 3$$

Exploration #1: Work with a partner. Plot the points from the table of values.

x	y
-5	4
-3	4
0	4
2	4
6	4



x	y
-1	-4
-1	-2
-1	1
-1	5
-1	6



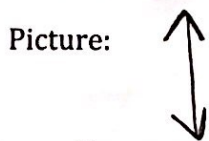
What do you notice? How could you model this line?

Horizontal & vertical lines
 $y = 4$ $x = -1$

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Notes:

Equations of vertical lines are written as: $X = \#$

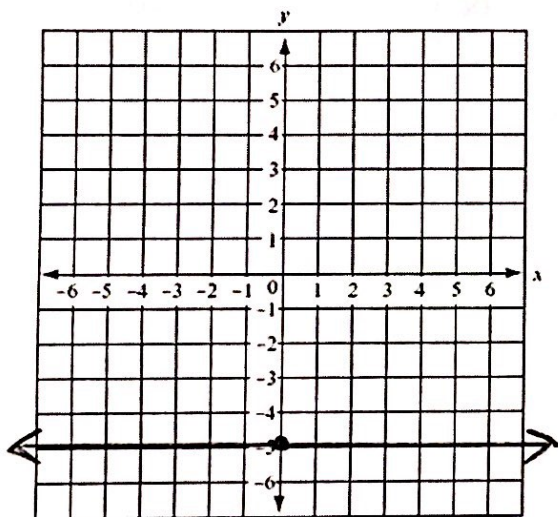


Equations of horizontal lines are written as: $Y = \#$

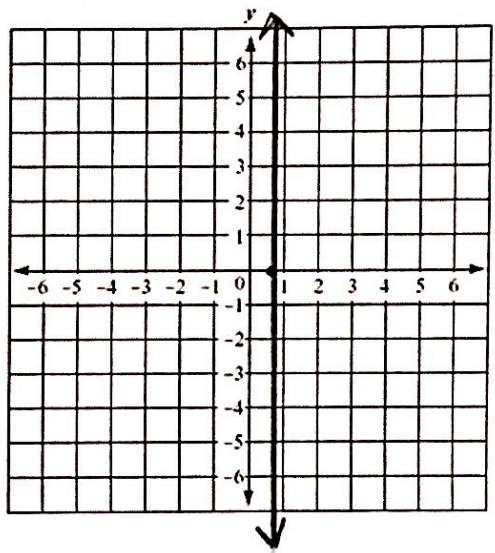


Example #1: Graph the equation.

a. $y = -5$ H \leftrightarrow

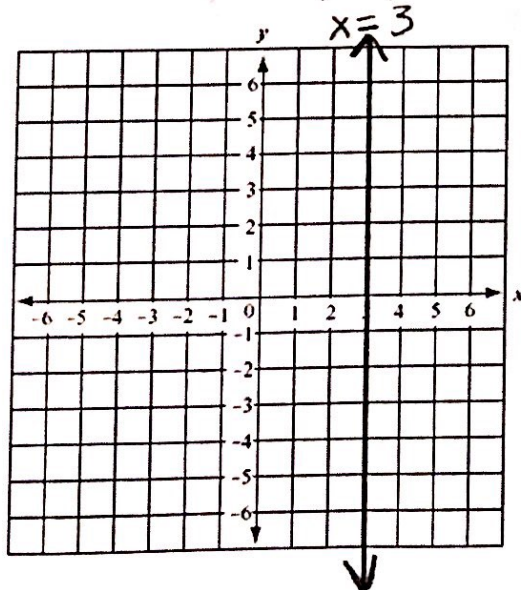


b. $x = \frac{3}{4}$ V \updownarrow

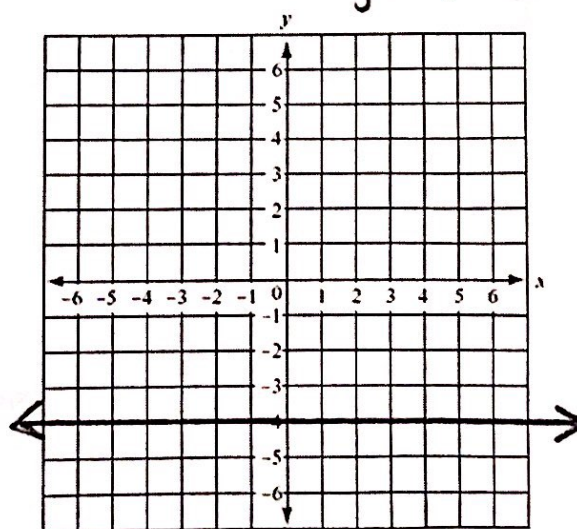


CHALLENGE: Graph the equation.

a. $7x = 21$ $\frac{7x}{7} = \frac{21}{7}$
 $x = 3$

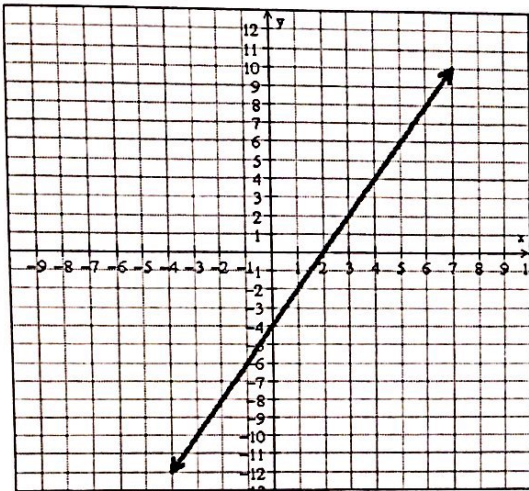


b. $20 + 5y = 0$ $5y = -20$
 $y = -4$



Exploration #2: Work with a partner.

1. What do you know about an *x-intercept*?
2. What do you know about a *y-intercept*?
3. What would the *x*- and *y*-intercepts of this graph be? Write as an ordered pair.



x-intercept: $(2, 0)$

y-intercept: $(0, -4)$

Notes:

The *x*-intercept is the point where a graph intersects the *x*-axis. The *y* value for the *x*-intercept is always 0. $(\#, 0)$

The *y*-intercept is the point where a graph intersects the *y*-axis. The *x* value for the *y*-intercept is always 0. $(0, \#)$

Example #2: Find the *x*- and *y*-intercepts of the line with the given equation. Write your intercepts as ordered pairs.

1. $x - y = 3$

x-int: $(y=0)$
 $x - (0) = 3$
 $x = 3$
x-intercept: $(3, 0)$

y-int: $(x=0)$
 $(0) - y = 3$
 $-y = 3$
 $y = -3$
y-intercept: $(0, -3)$

2. $2x + 4y = 16$

x-int: $(y=0)$
 $2x + 4(0) = 16$
 $2x = 16$
 $x = 8$
x-intercept: $(8, 0)$

y-int: $(x=0)$
 $2(0) + 4y = 16$
 $4y = 16$
 $y = 4$
y-intercept: $(0, 4)$

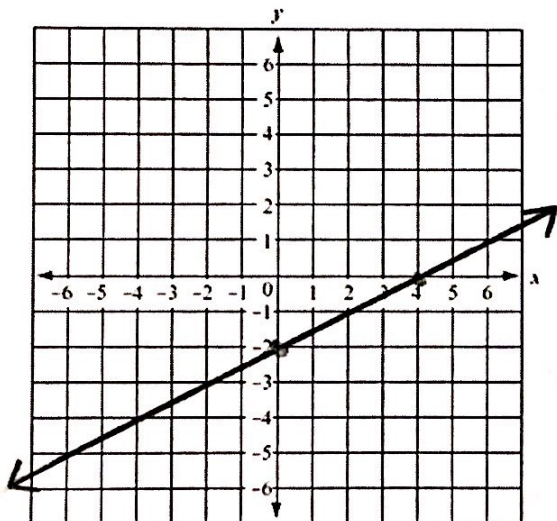
Example #3: Graph the following equations using its x - and y -intercepts. Write your intercepts as ordered pairs.

1. $3x - 6y = 12$

x -int: ($y=0$)
 $3x - 6(0) = 12$
 $3x = 12$
 $x = 4$

y -int: ($x=0$)
 $3(0) - 6y = 12$
 $-6y = 12$
 $y = -2$

x -intercept: (4, 0)
 y -intercept: (0, -2)



2. $-x - y = 3$

x -int: ($y=0$)
 $-x - (0) = 3$
 $-x = 3$
 $x = -3$

y -int: ($x=0$)
 $-(0) - y = 3$
 $-y = 3$
 $y = -3$

x -intercept: (-3, 0)
 y -intercept: (0, -3)

