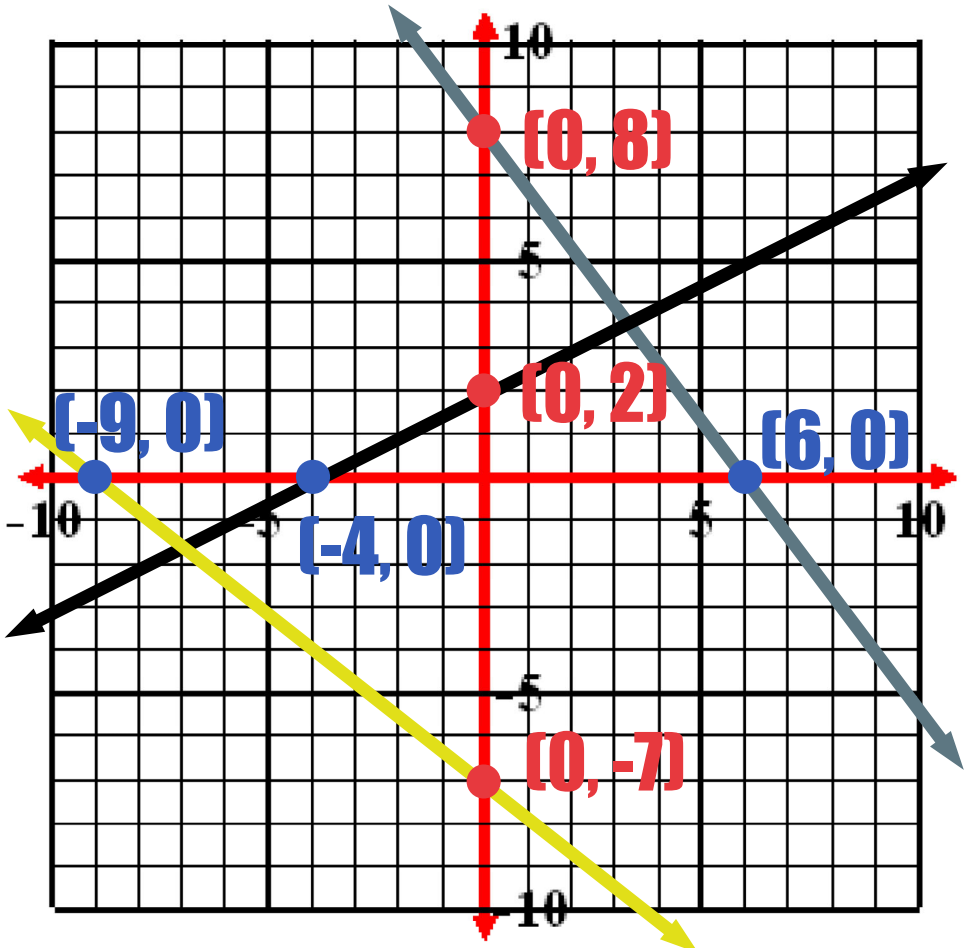
PRINCIPLES - LESSON 7C
GRAPHING USING X & Y INTERCEPTS

Recall: x- and y- Intercepts



y-intercepts

All y-intercepts have an x-coordinate of ZERO.

x-intercepts

All x-intercepts have a y-coordinate of ZERO.

Instead of using the slope and the y-intercept to graph lines, we can use an alternative method of using the x- and y-intercepts.

GRAPHING EQUATIONS BY THE X & Y INTERCEPT METHOD

ex1) Identify the x- and y- intercepts. Then use them to graph the line.

$$2x - 5y = -10$$

To find x-intercept, set $y = 0$.

$2x - 5y = -10$

$2x - 5(0) = -10$

$2x = -10$

$x = -5$

$(-5, 0)$ is the x-intercept.

To find y-intercept, set $x = 0$.

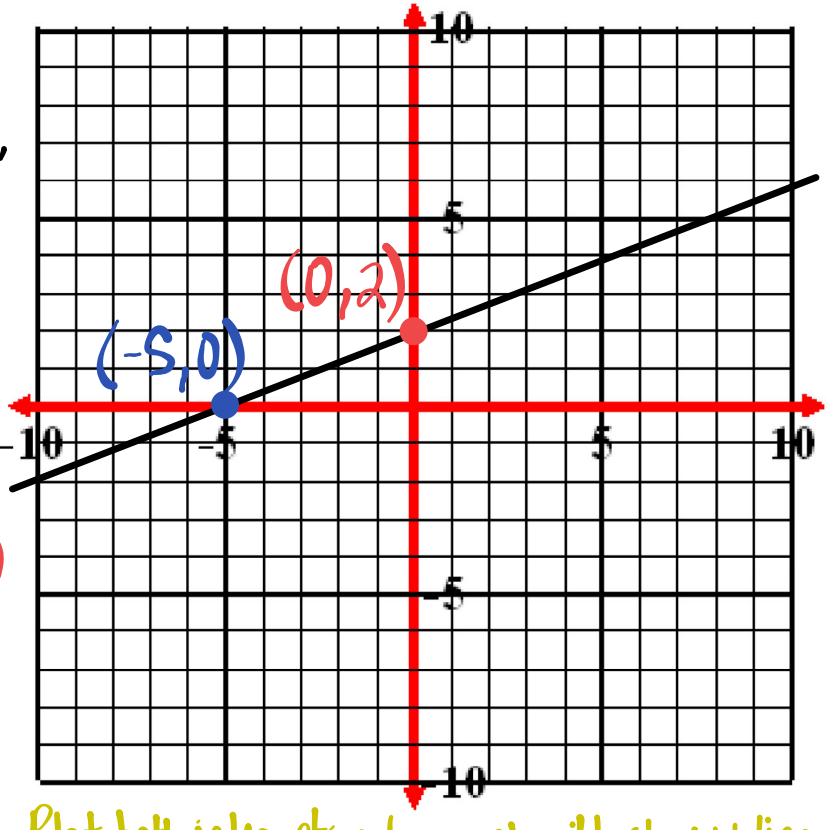
$2x - 5y = -10$

$2(0) - 5y = -10$

$-5y = -10$

$y = 2$

$(0, 2)$ is the y-intercept.



Plot both intercepts and connect with straight line.

GRAPHING EQUATIONS BY THE X & Y INTERCEPT METHOD

ex2) Identify the x- and y- intercepts. Then use them to graph the line.

$$4x + y = 4$$

To find x-intercept, set $y = 0$.

$4x + y = 4$

$4x + (0) = 4$

$4x = 4$

$x = 1$

(1, 0) is the x-intercept.

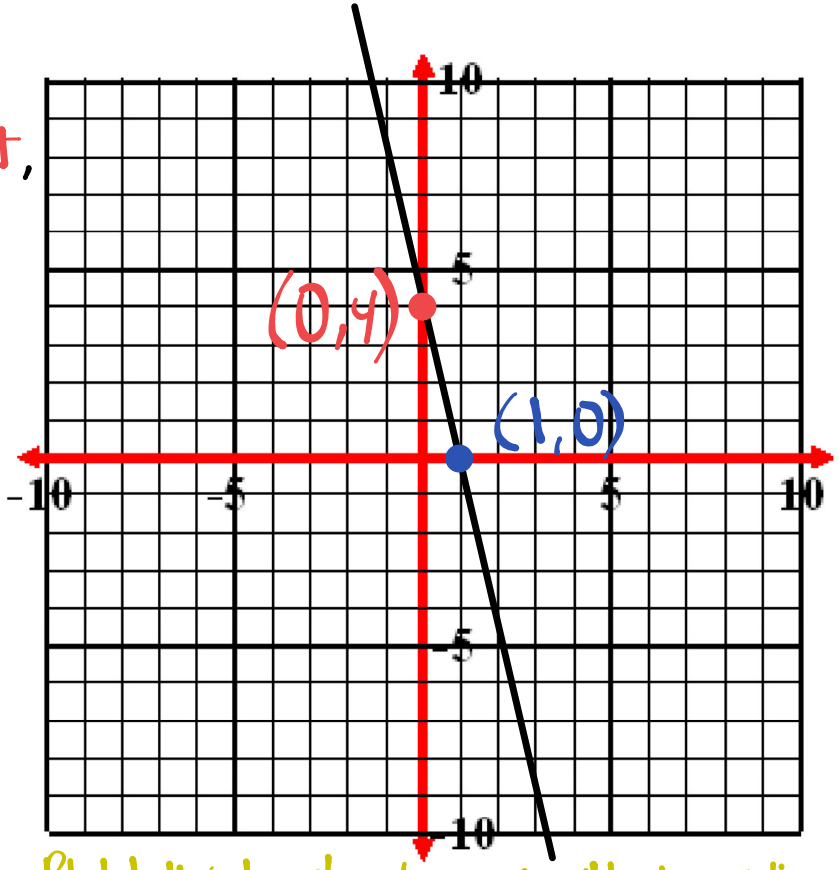
To find y-intercept, set $x = 0$.

$4x + y = 4$

$4(0) + y = 4$

$y = 4$

(0, 4) is the y-intercept.



Plot both intercepts and connect with straight line.

GRAPHING EQUATIONS BY THE X & Y INTERCEPT METHOD

ex3) Identify the x- and y- intercepts. Then use them to graph the line.

$$y + 3 = \frac{3}{7}x$$

To find x-intercept, set $y = 0$.

$y + 3 = \frac{3}{7}x$

$(0) + 3 = \frac{3}{7}x$

$3 = \frac{3}{7}x$

$7 = x$

(7,0) is the x-intercept.

To find y-intercept, set $x = 0$.

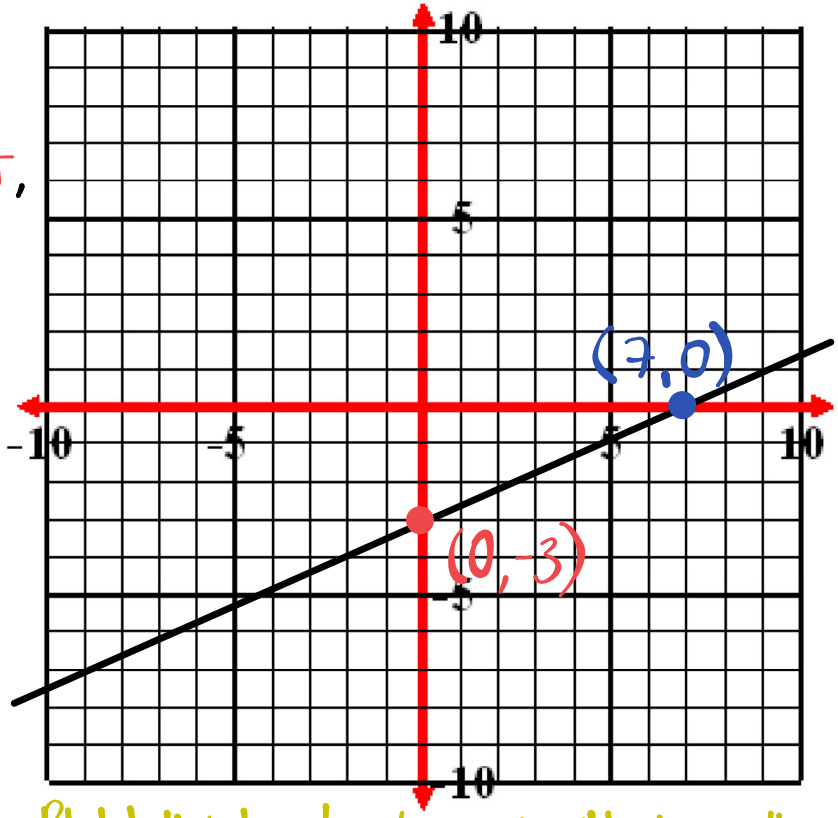
$y + 3 = \frac{3}{7}x$

$y + 3 = \frac{3}{7}(0)$

$y + 3 = 0$

$y = -3$

(0,-3) is the y-intercept.



Plot both intercepts and connect with straight line.

GRAPHING EQUATIONS BY THE X & Y INTERCEPT METHOD

ex4) Identify the x- and y- intercepts. Then use them to graph the line.

$$-y = 5x$$

To find x-intercept, set $y = 0$.

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

Uh oh! The x-intercept is (0,0), which is also the y-intercept! We won't have 2 points to graph our line!

Whenever a line passes through the origin, the x/y-intercept method will not work. Instead, convert to slope-intercept form by solving the equation for y!

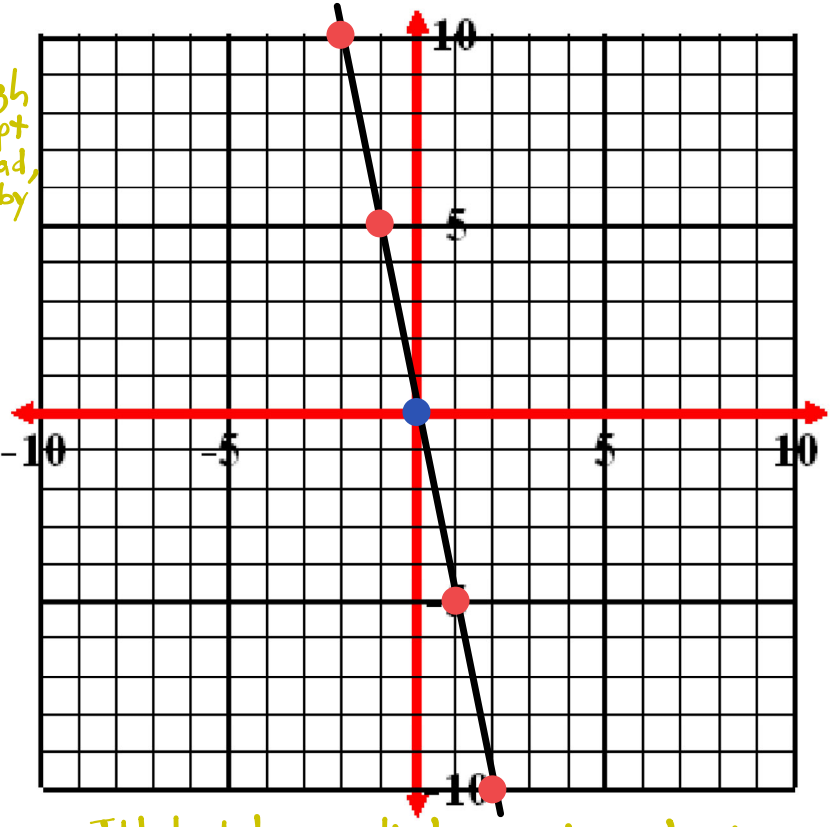
$$\frac{-1y}{-1} = \frac{5x}{-1}$$

$$y = -5x + 0$$

$$y = mx + b$$

$m = -\frac{5}{1}$ $b = 0$

We already knew that.



It helps to know multiple ways to graph a line.