What's Going On?

Checking In

Minds on   Standard Form Review

Action!   Intercepts

Consolidation   Graphing with Intercepts

Learning Goal - I will be able to graph lines in Standard Form using intercepts.

Minds on

L.G.L.

B4 U RAFT

Complete on yesterday's page as usual!

Find the slope and y-intercept of the line in standard form below.

$$-10x - 4y + 28 = 0$$

1. First, we move every term except the term with the **y** in it to the **right side**.

OR... move the term with the **y** in it to the right side.

$$-10x - 4y + 28 = 0$$

$$+4y \qquad +4y$$

$$4y = -10x + 28$$

2. Next, we divide every term by the **coefficient on y** to get y by itself.

$$\frac{4y}{4} = \frac{-10x}{4} + \frac{28}{4}$$
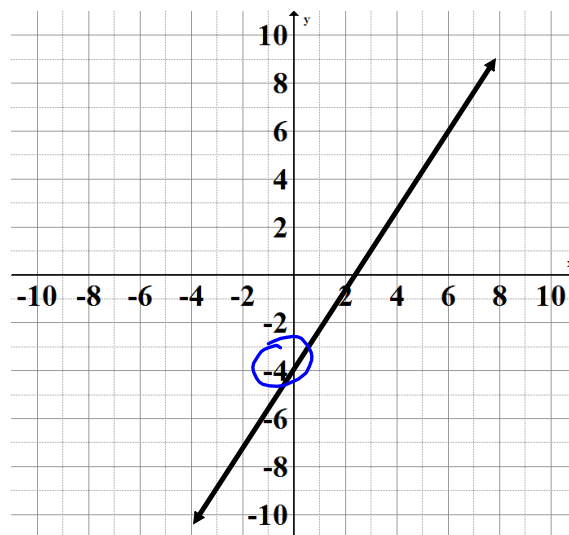
$$y = \frac{-10}{4}x + 7$$

$$y = \frac{-5}{2}x + 7$$

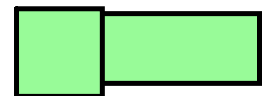$$\text{slope} = -\frac{5}{2}$$

$$y\text{-int} = 7$$
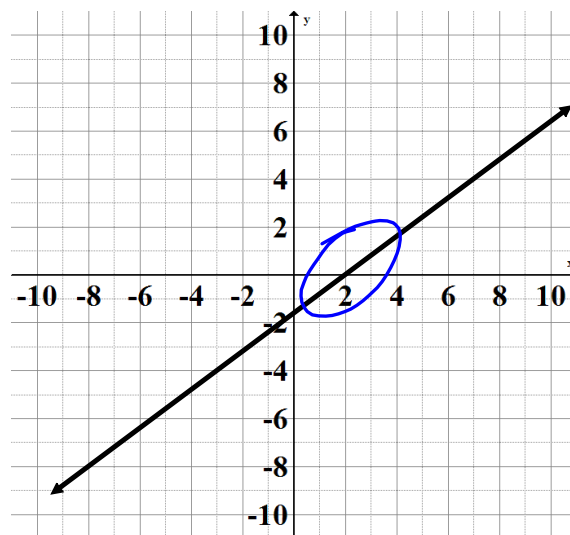
Action!

y-intercept

y-int = -4

The y-intercept of a line is the y-coordinate of the point where a line crosses the y-axis.
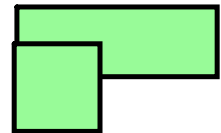
At the y-intercept, x = 0.

Action!

x-intercept

x-int = 2

The x-intercept of a line is the x-coordinate of the point where a line crosses the x-axis.

At the x-intercept, y = 0.

Action!

Intercepts

12   8

Find the x-intercept and y-intercept of the line below.

$$4x + 6y - 48 = 0$$

To find the x-intercept	To find the y-intercept

To find the x-intercept

1. Sub in 0 for y.

$4x + 6y - 48 = 0$
$+48 \quad +48$

$\dfrac{4x}{4} = \dfrac{48}{4}$

2. Solve for x.

$x = 12$

$(12, 0)$

To find the y-intercept

1. Sub in 0 for x.

$4x + 6y - 48 = 0$
$+48 \quad +48$

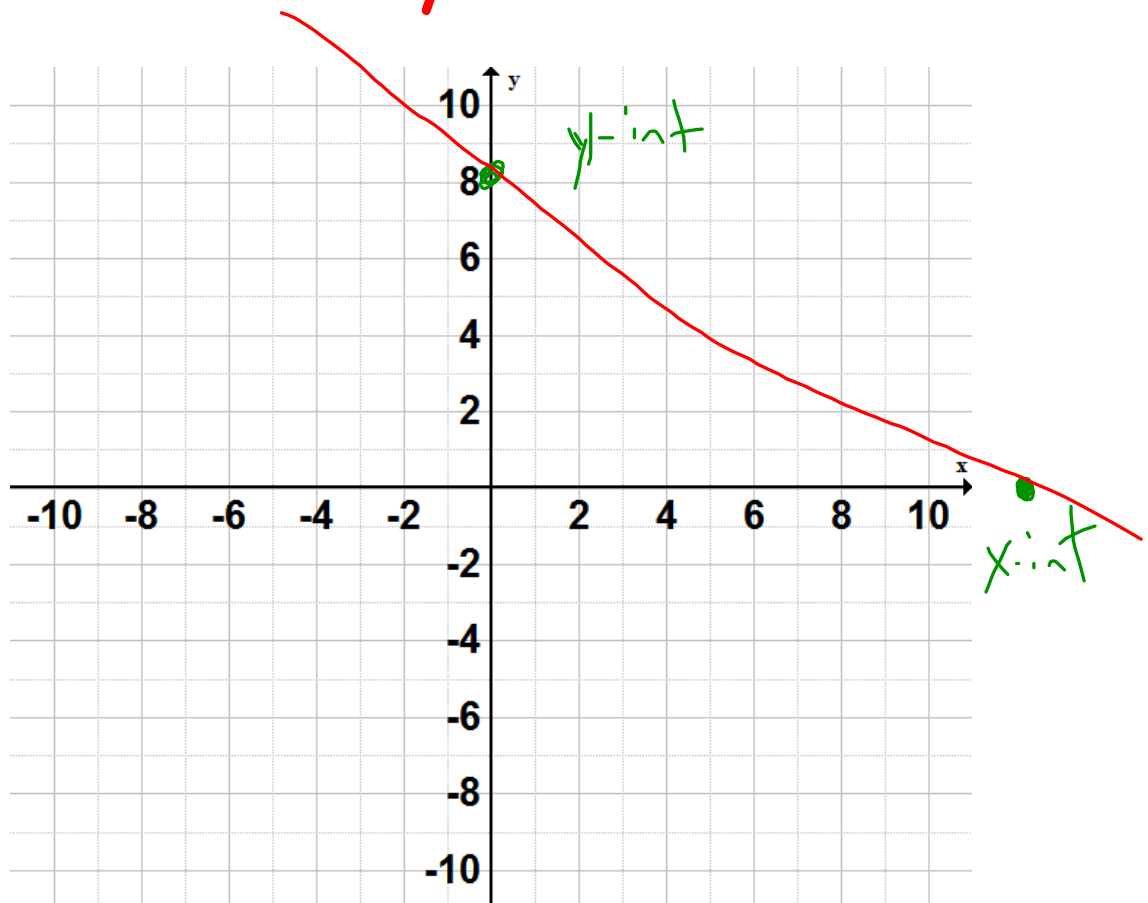$\dfrac{6y}{6} = \dfrac{48}{6}$

2. Solve for y.

$y = 8$

$(0, 8)$

Determine the x- and y-intercepts.

$$4x + 6y - 48 = 0$$

y-int

x-int

Determine the x- and y-intercepts.

$$3x - 2y + 19 = 0$$
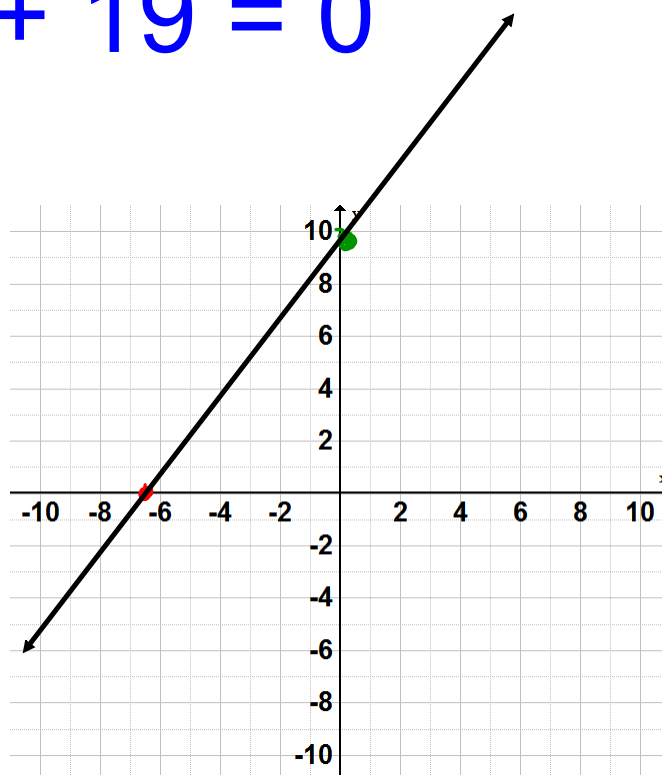
x-intercept $y = 0$

$3x - 2y + 19 = 0$

$-19 \quad -19$

$\dfrac{3x}{3} = \dfrac{-19}{3}$

$x = -6.\overline{33}$

y-intercept $x = 0$

$3x - 2y + 19 = 0$

$-19 \quad -19$

$\dfrac{-2y}{-2} = \dfrac{-19}{-2}$

$y = 9.5$

Determine the x- and y-intercepts.

$-5x + 2y = -15$

x-intercept $Y = 0$

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

$$x = 3$$

y-intercept $X = 0$

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

$$y = -7.5$$
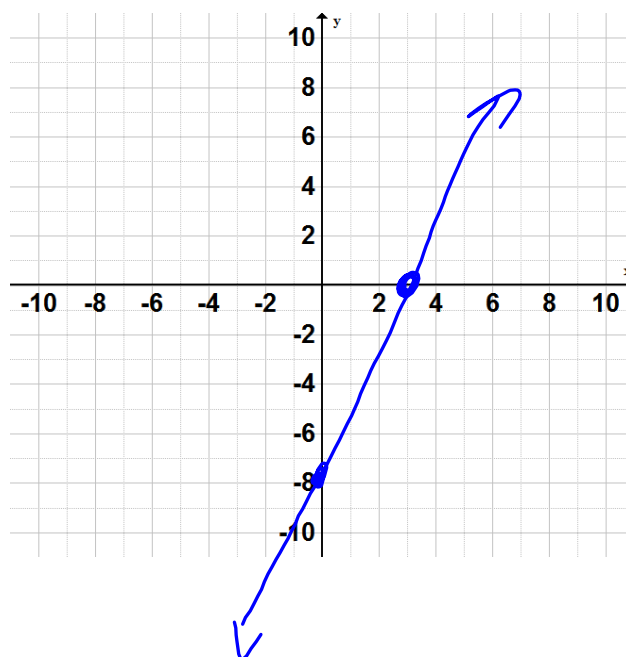
Action!

Applying Intercepts Cnt'd

Determine the slope of the line whose x-intercept is -4 and y-intercept is -6.

In this case our points are the x-intercept and the y-intercept.

At the x-intercept, y = 0. So one of our points is (-4, 0)

At the y-intercept, x = 0. So our other point is (0, -6)

Action!

Applying Intercepts $\frac{3}{2}$ $\boxed{\frac{-3}{2}}$

Determine the slope of the line whose x-intercept is -4 and $\frac{1}{2}$ y-intercept is -6.

Remember that we can find the slope of a line given two points.

We just have to use the formula: $$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Where (x_1, y_1) and (x_2, y_2) are our two points!

x-int $(-4, 0)$ $\dfrac{-6-0}{0--4}$

y-int $(0, -6)$ $= \dfrac{-6}{4}$

$= -3/2$

Determine the **slope y-intercept form equation** of the line with an x-intercept of -3 and a y-intercept of 7.

$(-3, 0)$
$x_1 \quad y_1$

$(0, 7)$
$x_2 \quad y_2$

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{7 - 0}{0 - -3}$$

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

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

Consolidation

Graphing Using Intercepts

Graph the line below by first finding the x- and y-intercepts. Then, determine the Slope y-Intercept form equation.

$3x - 5y + 15 = 0$

1. Find the x-intercept and y-intercept.

2. Plot the intercepts.

3. Draw the line connecting the two points.

4. Determine the slope.

5. Write the equation in **y = mx + b** form.