1. Find the slope and the y-intercept of this line: $12x - 15y = 75$

$$-12x \qquad -12x$$

rewrite equation into Slope-Intercept Form

$$y = mx + b$$

$$m = \frac{4}{5}$$

$$b = -5$$

$$\frac{-15y}{-15} = \frac{75 - 12x}{-15}$$

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

2. Use this equation: $4x + 8y = 24$
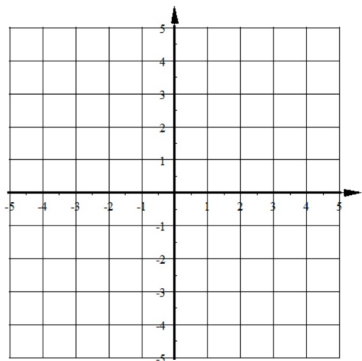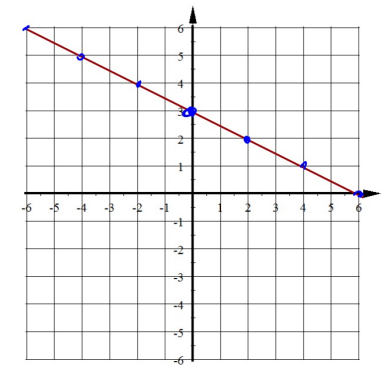
a) Rewrite this equation into Slope-Intercept Form

b) Use your answer to part a) to graph this line.

$$y = \frac{24 - 4x}{8}$$

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

c) Use the graph to identify the two intercepts:

$x - int = 6$ $y - int = 3$

$(6, 0)$ $(0, 3)$

What is true about EVERY point on the y-axis?

    the x-coordinate is zero

What is true about EVERY point on the x-axis?

    the y-coordinate is zero

---

2. Use this equation: $4x + 8y = 24$ $x-int = 6$ $y-int = 3$

d) How could you find these intercepts from the original equation $4x + 8y = 24$ without changing the equation into Slope-Intercept Form or without graphing it?

Since the x-intercept is a point on the x-axis, the y-coordinate is zero. To find the x-intercept replace y with zero and solve for x.

Since the y-intercept is a point on the y-axis, the x-coordinate is zero. To find the y-intercept replace x with zero and solve for y.

Find the x and y intercepts of each line.

1. 10x - 4y = 20

x-int: 10x -4(0)= 20   y-int: 10(0) - 4y = 20
       10x = 20   -4y = 20
       $\frac{10x}{10} = \frac{20}{10}$ $\frac{-4x}{-4} = \frac{20}{-4}$
       x-int = 2   y-int = -5

2.   -12x + 8y = -28

x - int = -28/-12 = 7/3

y - int = -28/8 = -7/2

3.   x + y = 9

x - int = 9/1 = 9

y - int = 9/1 = 9

In general: Given the equation   Ax + By = C

x-int = $\dfrac{C}{A}$ y - int = $\dfrac{C}{B}$

Ax + By = C

A, B, and C are real numbers
Both A and B can't be zero.

Standard Form: Ax + By = C   A, B, and C should be Integers

Write each equation into Standard Form:

1.   y = -2x + 8
      +2x +2x
      _____
      2x +y = 8

2. $y = \frac{2}{3}x - 11$
      $-\frac{2}{3}x$ $-\frac{2}{3}x$
      $3\left(-\frac{2}{3}x +y\right) = (-11)3$
      $-2x +3y = -33$