Section 3.4: THE SLOPE-INTERCEPT FORM OF THE EQUATION OF A LINE

When you are done with your homework you should be able to...
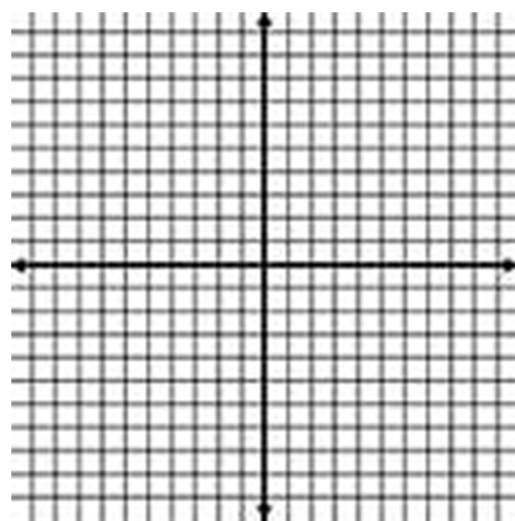
- π Find a line's slope and *y*-intercept from its equation
- π Graph lines in slope-intercept form
- π Use slope and *y*-intercept to graph $Ax + By = C$
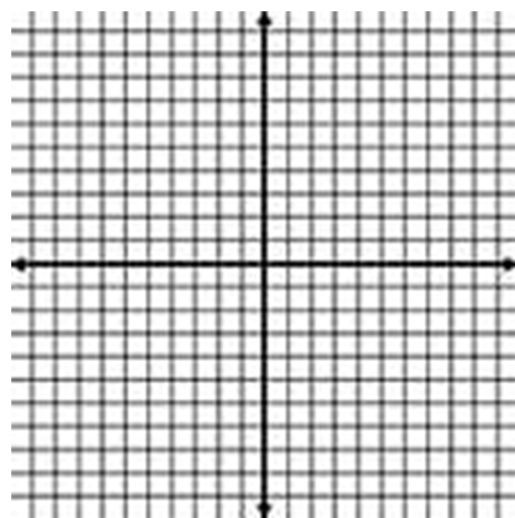- π Use slope and *y*-intercept to model data

WARM-UP:

Graph each equation.

a. $4x - 8y - 2 = 0$

x	$4x - 8y - 2 = 0$	(x, y)

b. The line which passes through the points $(-1, 2)$ and $(3, 0)$.

SLOPE-INTERCEPT FORM OF THE EQUATION OF A LINE

The _____ - _____ form of the _____

of a nonvertical line with slope _____ and _____ _____ is

Example 1: Find the slope and the *y*-intercept of the line with the given equation:

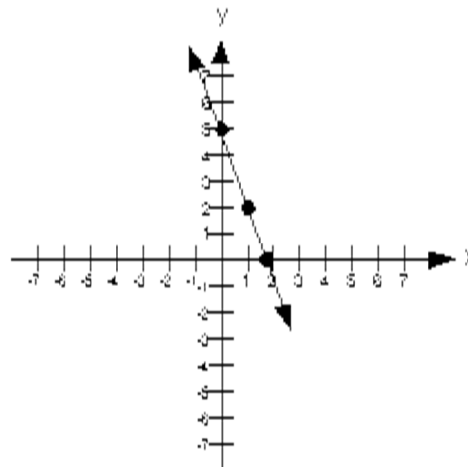   a. $y = -4x - 1$ b. $6x - y = -1$

    c. $y = \dfrac{5}{7}x + 2$ d. $y = -\dfrac{x}{3} + \dfrac{2}{3}$

Example 2: Use the graph to find the equation of the line in slope-intercept form.

GRAPHING BY USING $y = mx + b$ **SLOPE AND Y-INTERCEPT**

1. Plot the point containing the _____ on the _____ axis.

   This is the point _____.

2. Obtain a second _____ using the _____, _____. Write

   _____ as a _____, and use _____ over _____,

   starting at the _____.

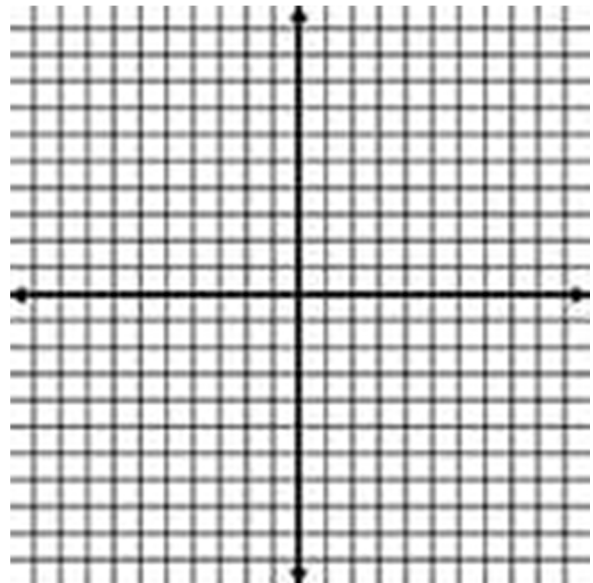3. Use a _____ to draw a _____ through the two

   _____. Draw _____ at the _____

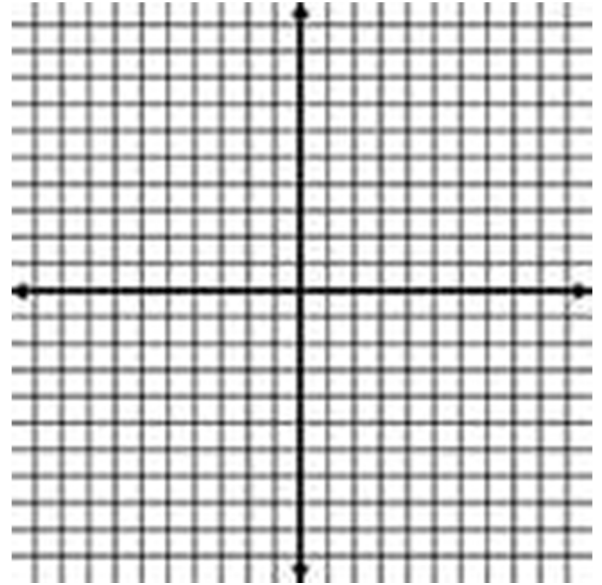   of the line to show that the line continues _____ in both

   directions.

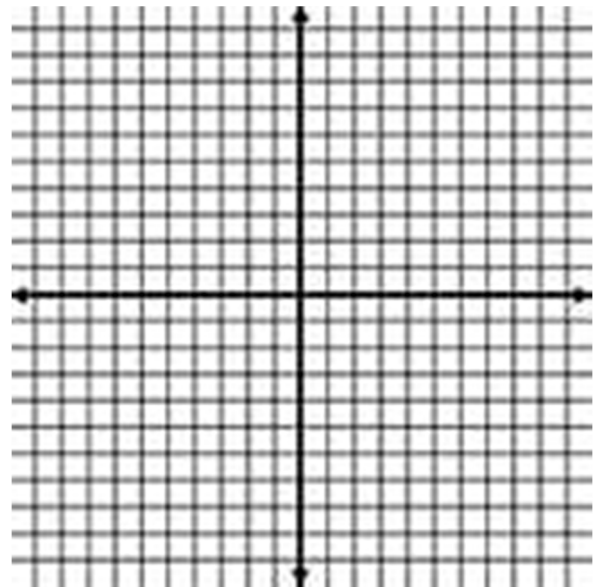Example 3: Graph using the slope and *y*-intercept.
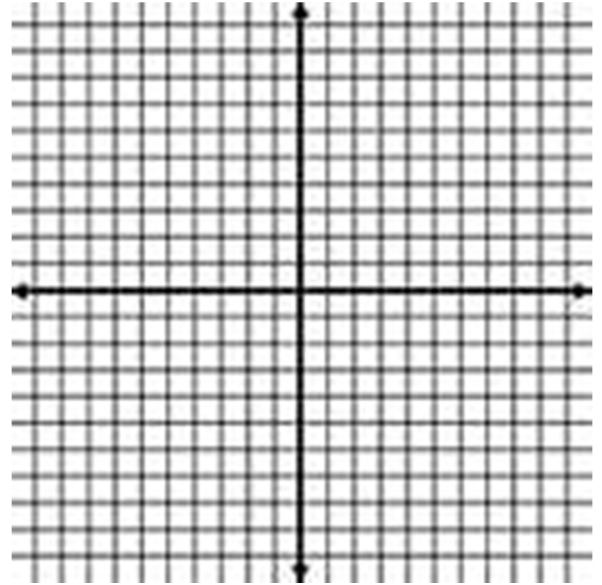
   a. $y = -5x + 3$

b. $10x - 5y = 25$

c. $x = 2y - 3$

d. $-y = x - 1$

e. $y = -\dfrac{6}{7}x + 4$

APPLICATION

Write an equation in the form of $y = mx + b$ of the line that is descried.

a. The y-intercept is -4 and the line is parallel to the line whose equation is $2x + y = 8$.

b. The line falls from left to right. It passes through the origin and a second point with opposite x- and y-coordinates.