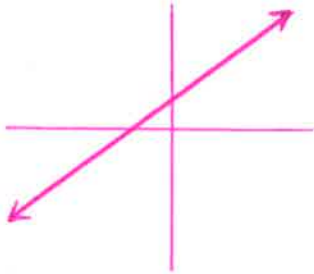


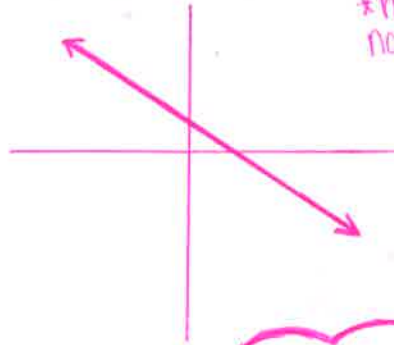
Objective: to review graphing lines in standard, slope-intercept, and point-slope form.

Warm Up: Draw an example of a line with:

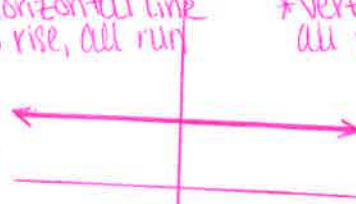
a) positive slope



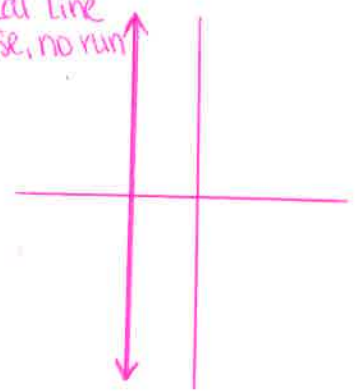
b) negative slope



c) zero slope
 $m = \frac{0}{1}$
 *horizontal line
 no rise, all run



d) undefined slope
 $m = \frac{1}{0}$
 *vertical line
 all rise, no run

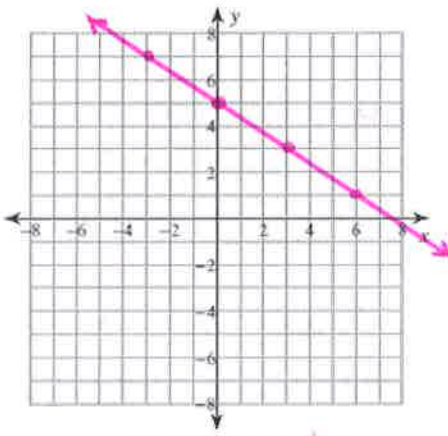


Review:

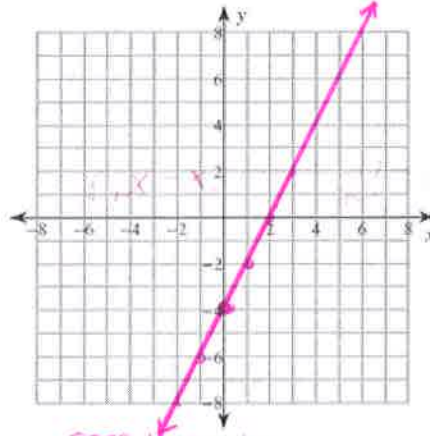
Example 1: Graph the following lines.

Slope-intercept form: $y = mx + b$

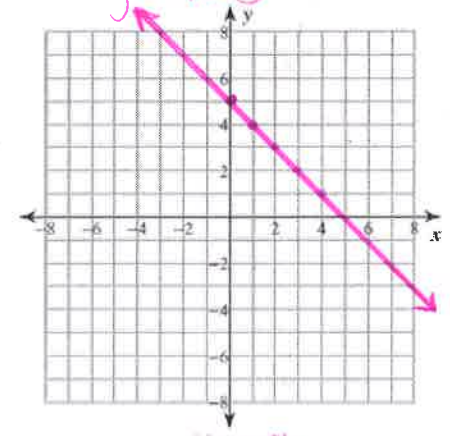
a) $y = -\frac{2}{3}x + 5$
 Slope: $-\frac{2}{3}$
 y-int: (0, 5)



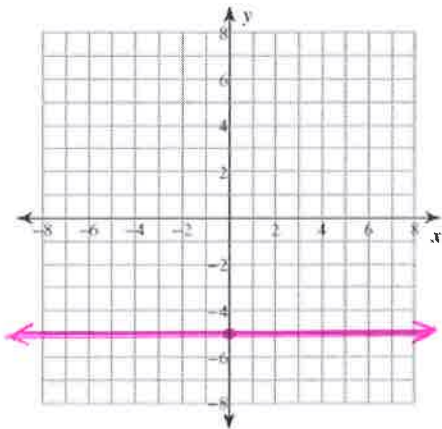
b) $y = 2x - 4$
 Slope: $\frac{2}{1}$
 y-int: (0, -4)



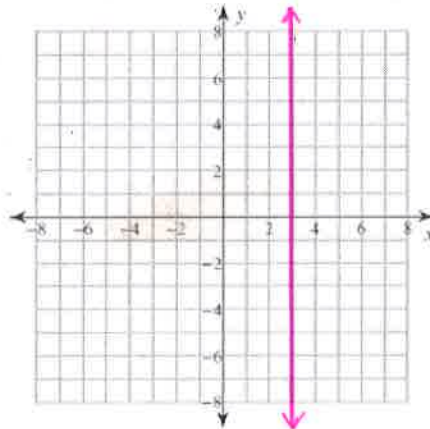
c) $y = 5 - x$
 Slope: $-\frac{1}{1}$
 y-int: (0, 5)



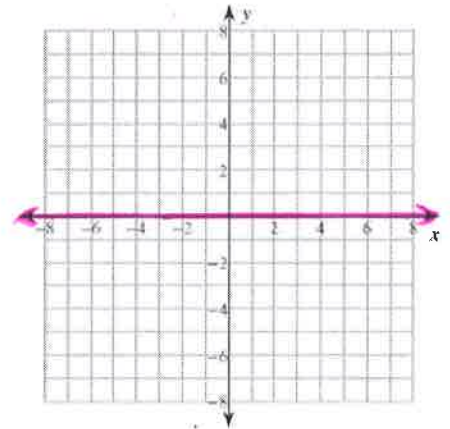
d) $y = -5$
 goes through the y-axis at -5
 y-int: (0, -5)
 no slope



e) $x = 3$
 goes through the x-axis at 3



f) $y = 0$
 goes through the y-axis at 0

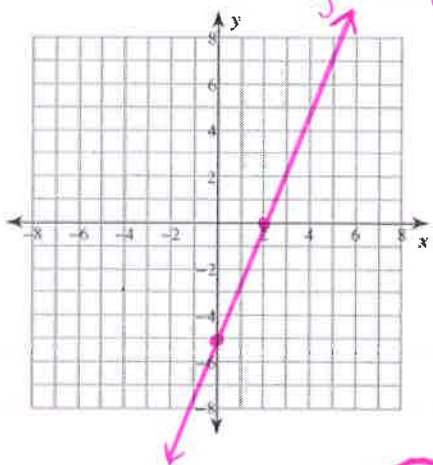


Standard form
hide and cover

Example 2: Graph each equation using intercepts.

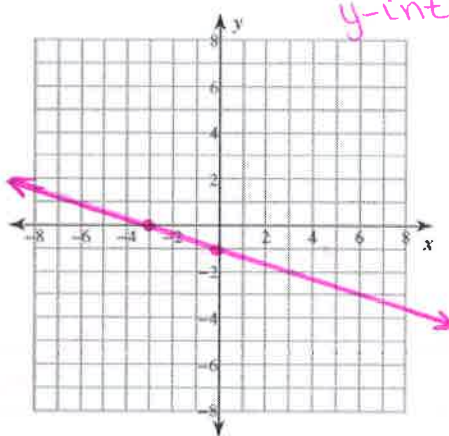
a) $5x - 2y = 10$

x-int: (2,0)
y-int: (0,-5)



b) $x + 3y = -3$

x-int: (-3,0)
y-int: (0,-1)



Example 3: Write each equation in slope-intercept form. Then, find the slope and y-intercept.

a) $x + y = 1$

$$\begin{array}{r} -x \quad -x \\ \hline y = 1 - x \end{array}$$

or

$$y = -x + 1$$

Slope: $-\frac{1}{1}$ y-int: (0,1)

New Idea: Point-Slope Form

*in order to use this, you only need to know one point on the line and the slope

b) $2x + 4y = -4$

$$\begin{array}{r} -2x \quad -2x \\ \hline 4y = -2x - 4 \\ \frac{4y}{4} = \frac{-2x - 4}{4} \\ y = -\frac{1}{2}x - 1 \end{array}$$

Slope: $-\frac{1}{2}$ y-int: (0,-1)

c) $3x = -4y + 24$

$$\begin{array}{r} -24 \quad -24 \\ \hline 3x - 24 = -4y \\ \frac{3x - 24}{-4} = \frac{-4y}{-4} \end{array}$$

$$-\frac{3}{4}x + 6 = y$$

or

$$y = -\frac{3}{4}x + 6$$

Slope: $-\frac{3}{4}$
y-int: (0,6)

$$y - y_1 = m(x - x_1)$$

y-coordinate of point

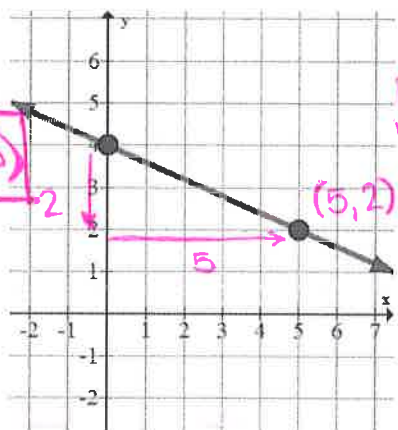
x-coordinate of point

Reminder:

$$\text{slope}(m) = \frac{y_2 - y_1}{x_2 - x_1}$$

Example 4: Write the equation for the graphs below.

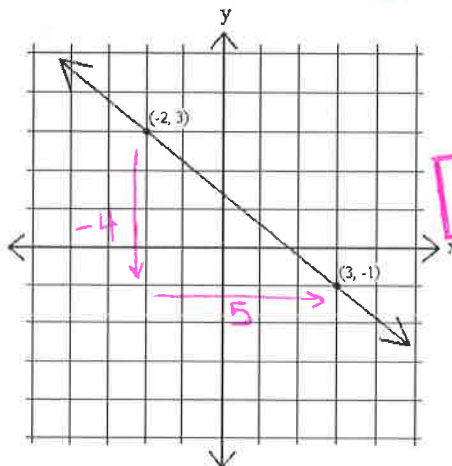
a)



$$y - 2 = -\frac{2}{5}(x - 5)$$

pt: (5,2)
m = $-\frac{2}{5}$

b)



pt: (-2,3)
m = $-\frac{4}{5}$

$$y - 3 = -\frac{4}{5}(x + 2)$$

Example 5: Transform the given equation into slope intercept form: $y - 4 = 3(x + 5)$

$$\begin{array}{r} y - 4 = 3x + 15 \\ +4 \quad \quad +4 \\ \hline \end{array}$$

$$y = 3x + 19$$