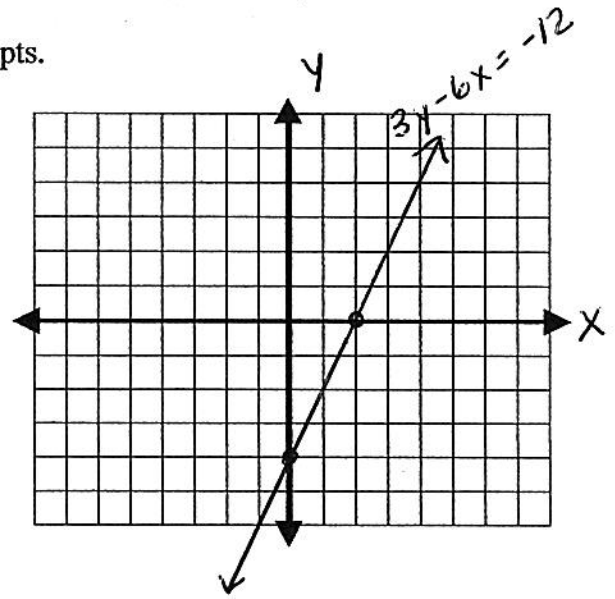**Essential Question:** How can we graph a linear relationship using the Slope-Intercept Method?

Do Now: Graph $3y - 6x = -12$ by finding the x and y-intercepts.

x int : y = 0	y int : x = 0
$3y - 6x = -12$	$3y - 6x = -12$
$3(0) - 6x = -12$	$3y - 6(0) = -12$
$-6x = -12$	$3y = -12$
$x = 2$	$y = -4$

Complete the table below:

| Equation	Slope of the Line	Y-Intercept	Equation in $y = mx + b$
$3y - 6x = -12$	$\frac{4}{2} \rightarrow 2$	-4	$3y - 6x = -12$ $\frac{3y}{3} = \frac{6x}{3} - \frac{12}{3}$ $y = 2x - 4$

Can you draw a conclusion based on the information in the table?

co-efficient of x is slope
constant is the y intercept [once the equation is in y=mx+b form]

Graphing Lines using the <u>Slope-Intercept Method</u>

- **Rewrite the equation in slope-intercept form ($y = mx + b$).**

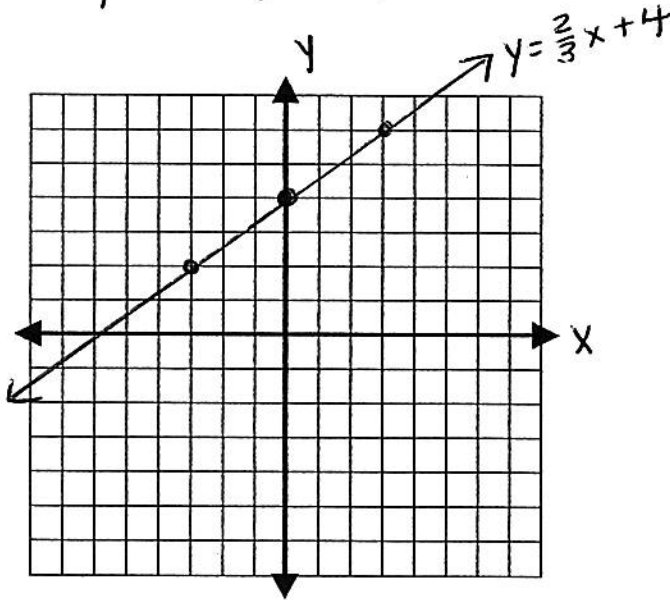- **Identify the slope and y-intercept of the equation.**

$$y = \mathbf{m}x + \mathbf{b}$$
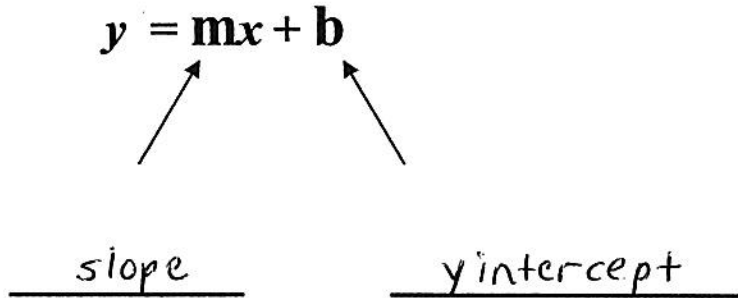
slope   y intercept

- **Plot the y-intercept (*the point where the line crosses the y-axis*).**

- **From the y-intercept, use the slope to plot a few more points.**

- **Connect the points and graph the line.**

Graph each linear function using the slope-intercept method.

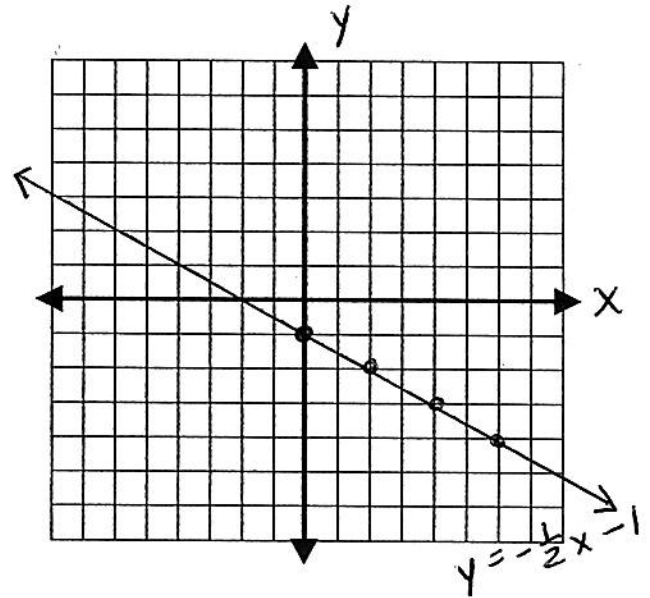1. Graph $y = \dfrac{2}{3}x + 4$

slope $(m) = \dfrac{2}{3}$

y intercept $(b) = 4$

$y = \dfrac{2}{3}x + 4$

2. Graph $y = -\dfrac{1}{2}x - 1$

$m = -\dfrac{1}{2}$
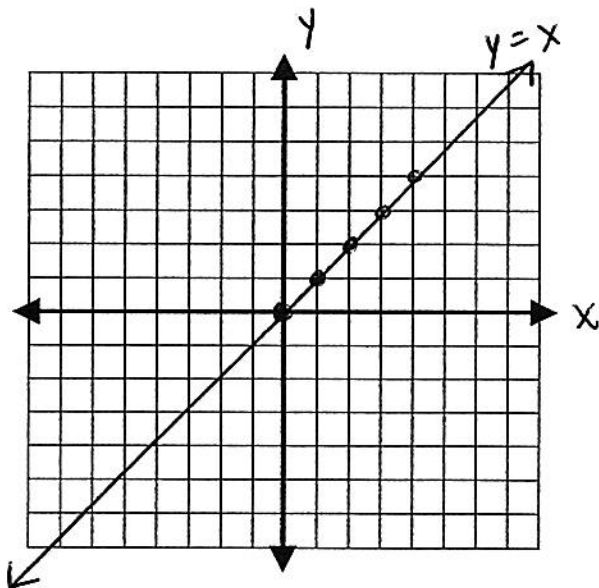
$b = -1$

$y = -\dfrac{1}{2}x - 1$
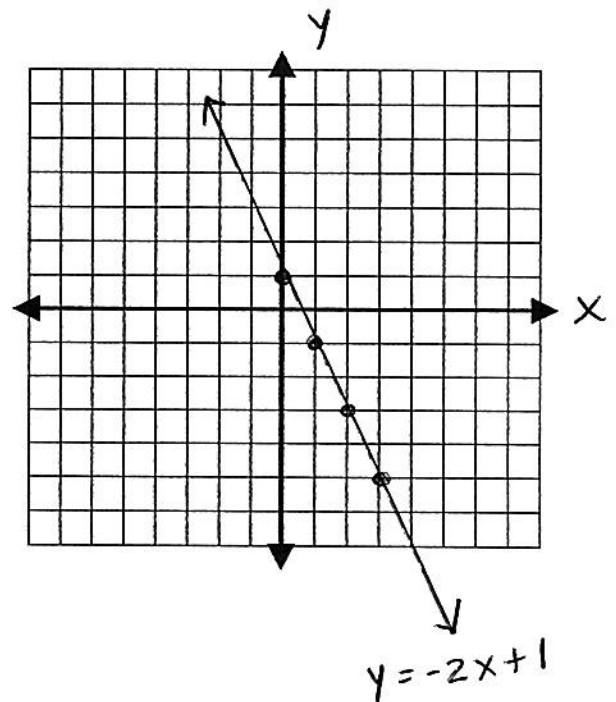
3. Graph $y = x$

$m = 1$

$b = 0$

$y = x$

4. Graph $y = -2x + 1$

$m = -2$

$b = 1$

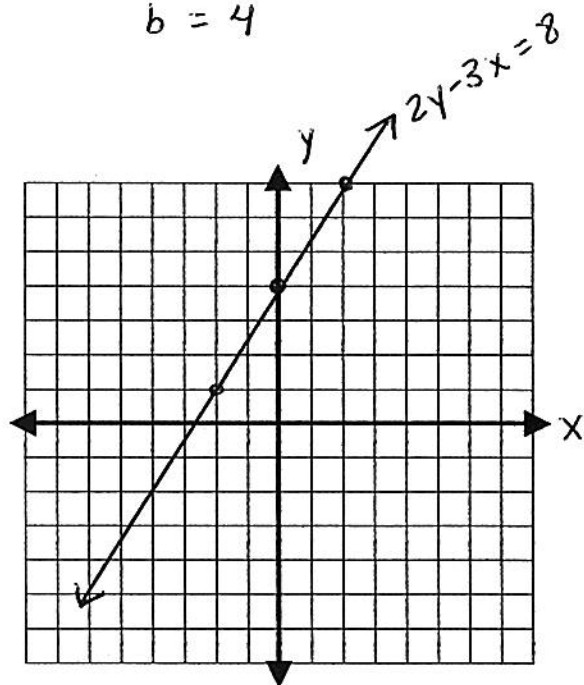$y = -2x + 1$

5. Graph $2y - 3x = 8$

$$+3x \quad +3x$$

$$\frac{2y}{2} = \frac{3x}{2} + \frac{8}{2}$$

$$y = \frac{3}{2}x + 4$$
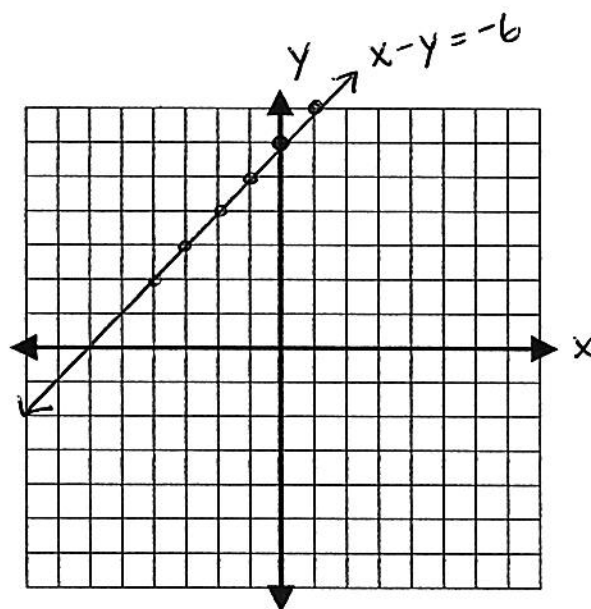
$$m = \frac{3}{2}$$

$$b = 4$$

6. Graph $x - y = -6$

$$-x \qquad -x$$

$$\frac{-y}{-1} = \frac{-x}{-1} - \frac{6}{-1}$$

$$y = x + 6$$

$$m = 1$$

$$b = 6$$

![graph for problem 5 with line labeled 2y-3x=8]

![graph for problem 6 with line labeled x-y=-6]

The TAKE AWAY

In order to graph a linear relationship using the slope-intercept method, first put the equation in _____ $y = mx + b$ _____ form (*slope-intercept form*). Next, identify the ___ slope (m) ___ and ___ y intercept (b) ___. The first point plotted is the ___ y intercept ___ (0,*b*). Use the _____ slope _____ (rise/run) to create a second point, third point, etc....

Connect the points to create a line.