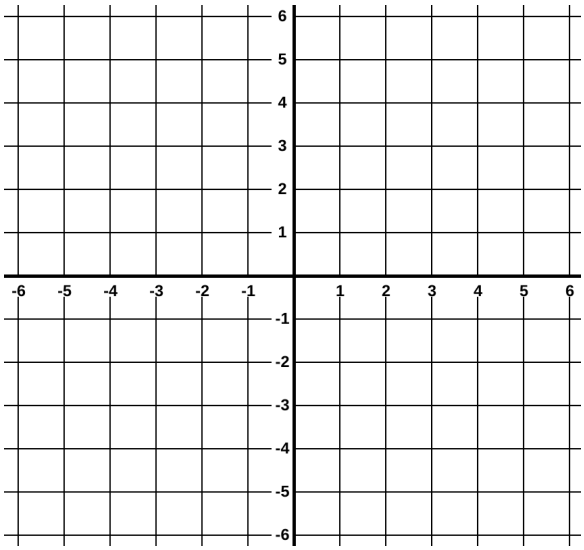
Graphs of Linear Equations

Graphing from a Table

x	y



- Given the following linear equation, create a table of solutions. Use the table to graph the line.

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

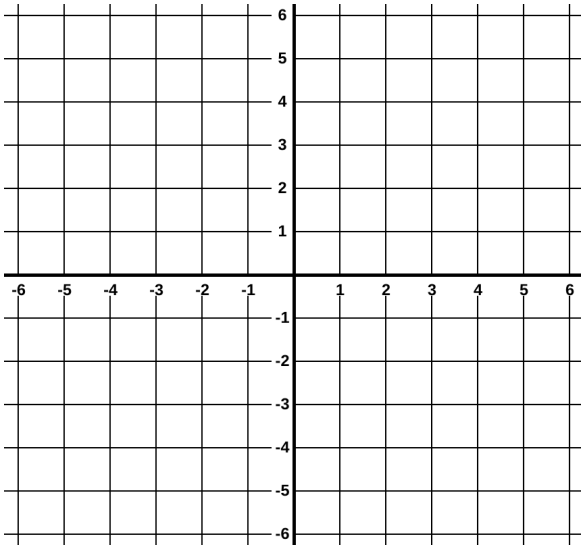
- Identify 2 additional points, one that is a solution to the equation and one that is not a solution. Plot these 2 points.

- Draw a slope triangle on your graph to verify that the slope is $\frac{2}{3}$.

  *__Slope__ refers to the measure of how steep a line is, calculated as the ratio of the vertical change (rise) to the horizontal change (run) between any two points on that line.

Standard Form: $Ax + By = C$

x	y
0	
	0



- Given the following linear equation, create a table of solutions. Use the table to graph the line.

  $2x + 4y = 4$

- Explain why, when a linear equation is written in standard form, both the horizontal and vertical intercepts are easily located.

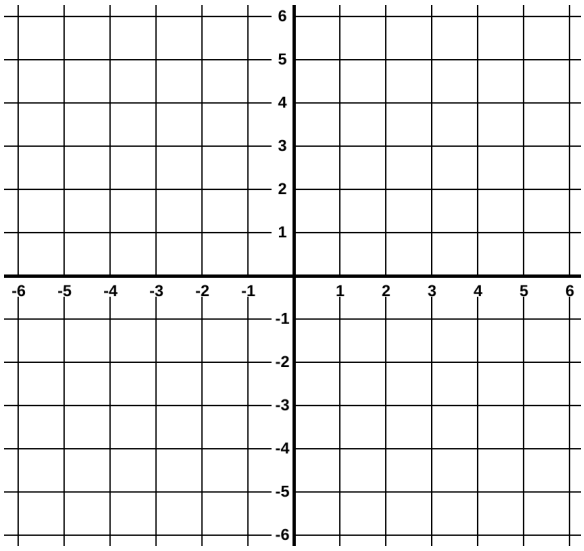
- Draw a slope triangle on your graph. What is the slope?

Slope-Intercept Form: $y = mx + b$

- Given the following linear equation, create a table of solutions. Use the table to graph the line.

  $y = -4x + 2$

x	y
0	



- Identify 2 points on the line (or in the table) and use the equation below to verify that the slope is -4.

  $m = \frac{y_2 - y_1}{x_2 - x_1}$

- Explain why this form, $y = mx + b$, is called slope-intercept form.

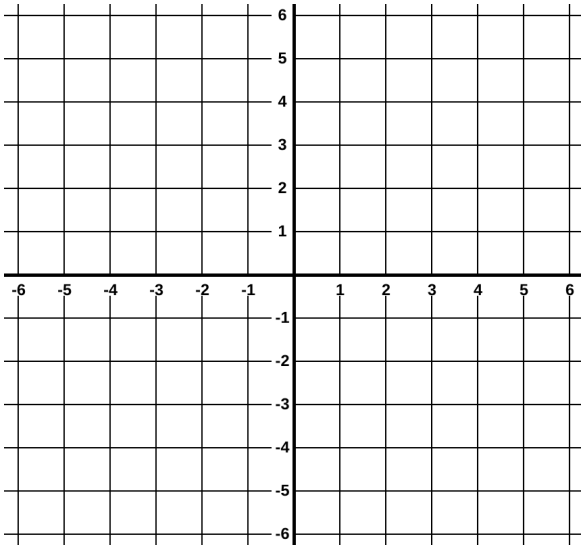
- Without using a table, graph the equation $y = -\frac{1}{2}x - 3$ on the coordinate plane above.

Point-Slope Form: $y - y_1 = m(x - x_1)$

- Given the following linear equation, create a table of solutions. Use the table to graph the line.

  $y - 3 = 2(x + 1)$

x	y



- Rewrite the equation above into slope-intercept form $y = mx + b$.

- What is similar and what is different between point-slope form and slope-intercept form?

Slope-Intercept Form	Standard Form	Point-Slope Form
$y = mx + b$	$Ax + By = C$	$y - y_1 = m(x - x_1)$