

objective: To define and graph linear functions in slope-intercept form.

1.) Standard form: $Ax + By = C$

↓
 $3x - 2y = 6$

finding x and y intercepts.
x-y intercept method

2.) slope-intercept form:

provides the slope (m) and the y-intercept (b)

$$y = \underbrace{m}_\text{slope} x + \underbrace{b}_\text{y-intercept}$$

$$\text{slope} = \frac{\text{rise}}{\text{run}}$$

(0, b)

point on the y-axis.

steps:

- 1.) Equation must be in slope-intercept form. $y = mx + b$ solving for y.
- 2.) Plot b, which y-intercept on the y-axis.
- 3.) Plot a second point, starting from b on y-axis using slope (m) = $\frac{\text{rise}}{\text{run}}$ (always a fraction) $m = \frac{3}{1}$
- 4.) connect both points with a line.

example:

$$\begin{array}{r} \downarrow \\ 8x + 4y = 12 \\ \hline -8x \quad -8x \end{array}$$

$$\frac{4y}{4} = \frac{-8x}{4} + \frac{12}{4}$$

$$y = -2x + 3$$

$$m = -\frac{2}{1} \quad b = 3 \rightarrow (0, 3)$$

