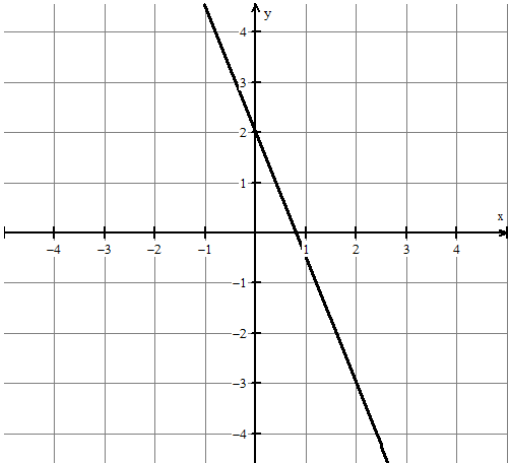
Determining $y = mx + b$

Graph

Strategy:

- Find the y**-intercept** (if possible) and **another point.** *(If you can't find the y-intercept, find two points and use the "Two Points" strategy)*.
- Calculate the **slope** by counting the rise and the run, or by using the slope formula $m = \frac{y_2 - y_1}{x_2 - x_1}$.
- Complete the equation.

Example: Find the equation for this line:



One Point and Slope

Strategy:

- **Substitute** the slope and the point into $y = mx + b$, then **solve for** b.
- Complete the equation.

Example: Find the equation for the line passing through point $(-4, -11)$ with slope $\frac{2}{3}$.

Two Points

Strategy:

- Find the **slope** using the formula $m = \frac{y_2 - y_1}{x_2 - x_1}$.
- You can now use the "One Point and Slope" strategy *[substitute the slope and either point into $y = mx + b$, then solve for b.]*.
- Complete the equation.

Example: Find the equation for the line passing through points $A(-2, -6)$ and $B(3, -1)$.