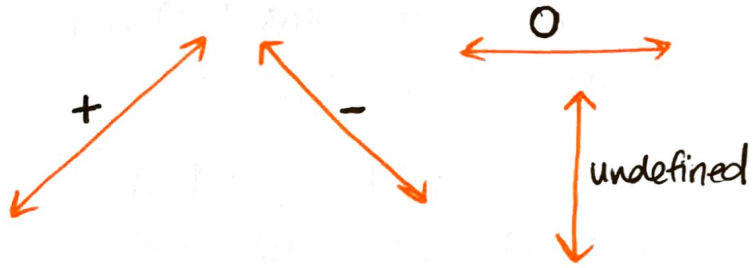
## Review:

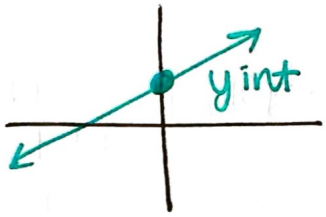
$$y = mx + b$$

**Slope:** more steepness

rise / run




**y-intercept:** begin starting point




## Identify the slope and *y*-intercept for the following equations.

**Ex. 1:** $y = 5x - 3$

$m = 5$ $b = -3$

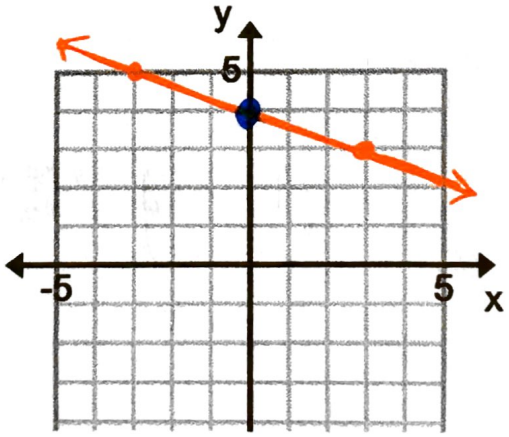
**Ex. 2:** $y = 1x + 2$

$m = 1$ $b = 2$

## Graph the equation.

**Ex. 3:** $y = -\frac{1}{3}x + 4$

Slope y-int



## Ex. 4: Write the equation of the line in slope-intercept form given the slope and one point.

$m = 2$ and $(\overset{x}{3}, \overset{y}{5})$

We want the equation of the line with SLOPE $m=2$ that passes through $(3,5)$.

$y = mx + b$

$5 = (2)(3) + b$

$5 = 6 + b$

$-6 \quad -6$

$-1 = b$

$b = -1$

$y = \underline{2}x + \underline{-1}$

$y = 2x - 1$

**Steps:**

1. $y = mx + b$
2. Label $m$, $x$ & $y$
3. Plug in
4. Solve for $b$
5. Write equation! $y = \underline{m}x + \underline{b}$

**Ex. 5: Write the equation of the line in slope-intercept form.**

$m = 3$ and $(\overset{x}{4}, \overset{y}{6})$

$y = mx + b$

$6 = (3)(4) + b$

$6 = 12 + b$

$-12 \quad -12$

$-6 = b$

$y = 3x + (-6)$

$y = 3x - 6$

**Ex. 6: Write the equation of the line in slope-intercept form.**

$m = \frac{2}{3}$ and $(\overset{x}{6}, \overset{y}{5})$

$y = mx + b$

$5 = \left(\frac{2}{3}\right)(6) + b$

$5 = 4 + b$

$-4 \quad -4$

$1 = b$

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

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

**Ex. 7: Write the equation of the line in slope-intercept form.**

$m = -\frac{1}{2}$ and $(-8, -3)$ (x, y)

$y = mx + b$

$-3 = -\frac{1}{2}(-8) + b$

$-3 = 4 + b$

$-4 \quad -4$

$-7 = b$

$y = \frac{-1}{2}x + \frac{-7}{}$

$y = -\frac{1}{2}x - 7$

**Ex. 8: Write the equation of the line in slope-intercept form.**

$m = 0$ and $(-2, 4)$ (x, y)

$y = mx + b$

$4 = 0(-2) + b$

$4 = 0 + b$

$4 = b$

$y = \frac{0}{}x + \frac{4}{}$

$y = 0x + 4$

$y = 4$