Unit 4
Day 2

KEY

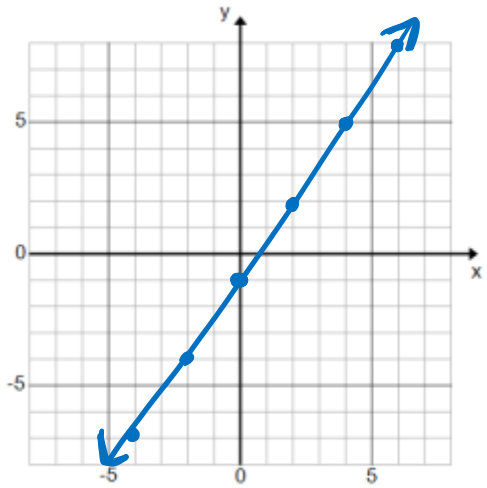
Write Linear Equations in Slope-Intercept Form

Directions: Write an equation of a line in slope-intercept form given the slope and a point.

Example 1: Write an equation of the line that passes through (0, -1) and has a slope of $\frac{3}{2}$.

(0, -1) = b

Graph:



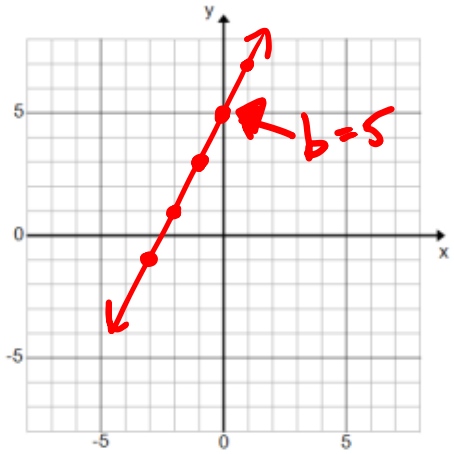
$y = \frac{3}{2}x - 1$

What if the y-intercept is not given?

Example 2: Write an equation of the line that passes through (-1, 3) and has a slope of 2.

2 = $\frac{2}{1}$

Graph:



$y = 2x + 5$

Example 3: Write an equation of the line that passes through the point (6,-3) and has a slope of $\frac{1}{3}$.

x y Find b. $\frac{1}{3} = m$

$y = mx + b$

$-3 = \frac{1}{3}(6) + b$

$-3 = 2 + b$

$-5 = b$

$y = \frac{1}{3}x - 5$

Example 4: Write an equation of the line that passes through the point (-4 , 5) and has a slope of $-\frac{1}{2}$.

x y Find b. $-\frac{1}{2} = m$

$y = mx + b$

$5 = \frac{-1}{2}(-4) + b$

$5 = 2 + b$

$3 = b$

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

Directions: Write an equation of a line in slope-intercept form given two points.

Example 5: Write an equation of the line that passes through (3, 0) and (2, -4).

* x y

* Find slope (m) first!

$m = \frac{-4-0}{2-3} = \frac{-4}{-1} = 4$

use either point to plug in and find b.

$y = mx + b$

$0 = 4(3) + b$

$0 = 12 + b$

$b = -12$

$y = 4x - 12$

Example 6: Write an equation of the line that passes through (-2, 5) and (2, -1).

$m = \frac{-1-5}{2-(-2)} = \frac{-6}{4} = \frac{-3}{2}$

$y = mx + b$

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

$-1 = -3 + b$

$b = 2$

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

Read through the scenario out loud with your partner:

You and your Turnabout date decide you want to have the best moves on the dance floor (a.k.a. - field house floor), so you start taking dance lessons at local studio. You have to start early…turnabout is in February! The studio has a one-time membership fee of $25 per couple, and then charges $10 per lesson (per couple).

1. Write an equation in slope intercept form that represents the situation.
   Be sure to DEFINE YOUR VARIABLES.

   $y = 10x + 25$

   x = # of lessons

   y = total cost

2. If you and your partner attend 9 lessons by Turnabout, how much will you have spent?

   $x = 9$

   $y = 10(9) + 25$

   $y = \$115$