Review on Slope and Writing Linear Equations

- How do you find the slope (m) of aline given two points on that line?

Example: Find the slope of the line passing through point A (1, 1) and point B (5, 9)

Slope is defined as rise over run
it is the difference in y values divided by the difference in x values

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

$$m = \frac{1 - 9}{1 - 5}$$

$$m = \frac{-8}{-4}$$

$$m = 2$$

- Parallel and Perpendicular slopes

Parallel slopes are the same i.e. $\frac{2}{1} = \frac{4}{2} = \frac{16}{8} = \frac{-4}{-2}$

Perpendicular slopes are NEGATIVE RECIPROCALS (flip the slope as a fraction AND change the sign)

$$\frac{2}{1} \perp \frac{-1}{2}$$

$\perp$ symbol for perpendicular

How to write a linear equation for aline in y = mx + b given two points on that line

Example: Write a linear equation for the line going through points A (1, 1) and B (5, 9)

You NEED TWO items: 1. Slope (m)
2. a point

- determine point using the slope formula

$$m = \frac{1 - 9}{1 - 5}$$

$$m = \frac{-8}{-4}$$

$$m = 2$$

- place your slope where m is

$$y = 2x + b$$

- take one of your points and place the coordinates in x and y

$$9 = 2(5) + b$$

- solve for b

$$9 = 10 + b$$
$$9 - 10 = b$$
$$-1 = b$$

Now take your slope (m) and your y-intercept (b) and place them in y = mx + b

$$y = 2x - 1$$