What's Going On?

Checking In

Minds on What's the Slope?

Action! What's My Equation?

Consolidation Simultaneous Round Table

Learning Goal - I will be able to determine the equation of a line given two points on the line.

Checking In

L.G.L.

On yesterday's learning goal log sheet, find the equation of the line with slope -3 that goes through the point (2, -7).

$y = mx + b$

$b = y - mx$

$b = (-7) - (-3)(2)$

$b = -7 - (-6)$

$b = -1$

$y = -3x - 1$

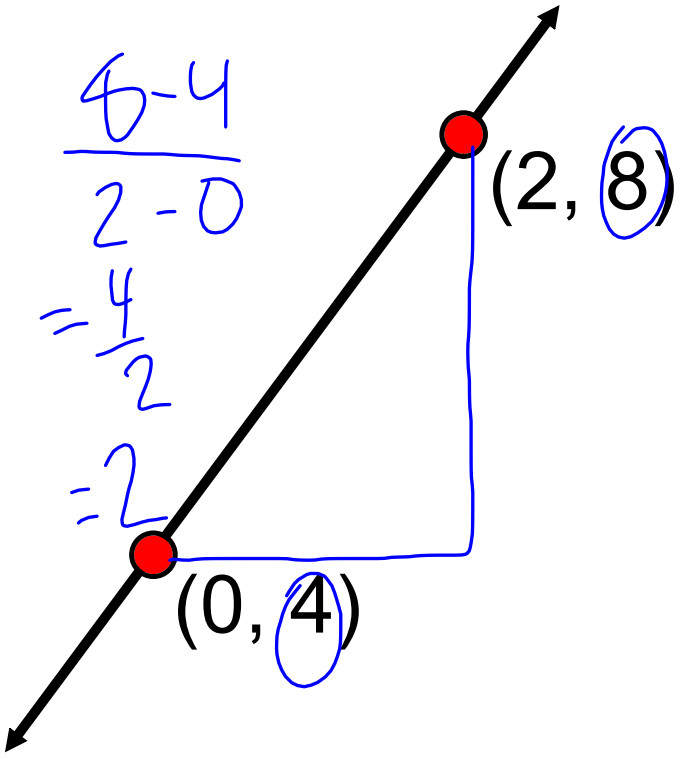
Checking In

Test!

Next Wednesday

Minds on

What's the slope?



$\frac{8-4}{2-0}$

$= \frac{4}{2}$

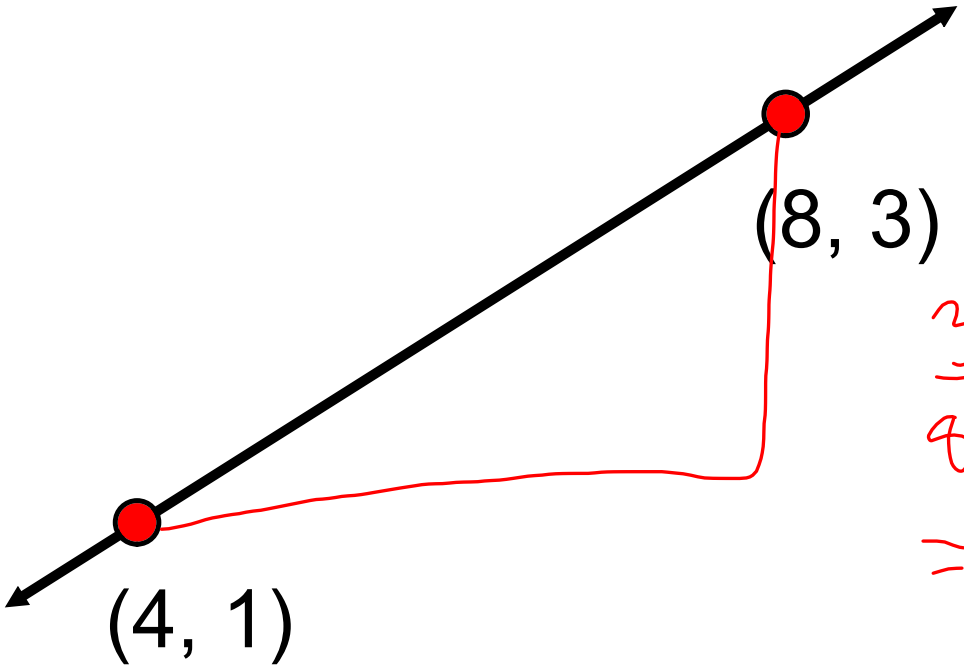
$= 2$

$\frac{+4}{2}$

$= 2$

Minds on

What's the slope?



$$\frac{3-1}{8-4}$$

$$= \frac{2}{4} = \frac{1}{2}$$

Minds on

What's the slope?

I go through the points (1, -4) and (-3, 8).

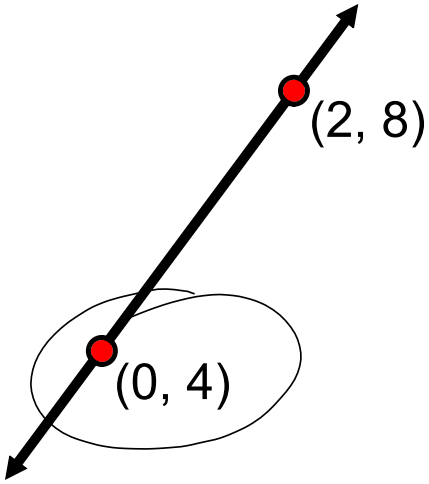
$$\frac{8-(-4)}{-3-1} = \frac{12}{-4}$$

$$= -3$$

Action!

What's my equation?

We need the slope and the y-intercept!



$y = 2x + 4$

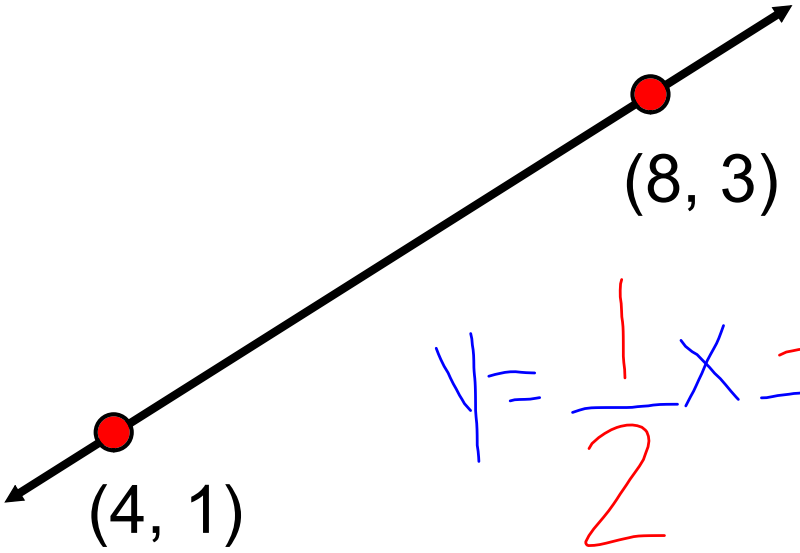
Slope: $\frac{8-4}{2-0} = 2$

y-intercept: 4

$y = 2x + 4$

Action!

What's my equation?



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

1. Find the slope

$m = \frac{3-1}{8-4}$

$m = \frac{2}{4}$

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

2. Find the y-intercept

$y = mx + b$

$b = y - mx$

(6,3) (4,1)

$b = (3) - (\frac{1}{2})(6)$ | $b = (1) - (\frac{1}{2})(4)$

$b = 3 - 4$ | $b = 1 - 2$

$b = -1$ | $b = -1$

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

Action!

What's my equation?

I go through the points (1, -4) and (-3, 8).

$$m = \frac{8 - -4}{-3 - 1}$$

$$= \frac{12}{-4}$$

$$m = -3$$

$$b = y - mx$$

$$b = (-4) - (-3)(1)$$

$$b = (-4) - (-3)$$

$$b = -4 + 3$$

$$b = -1$$

$$y = -3x - 1$$

Action!

Finding the Equation of a Line Given Two Points

Find the equation of the line through the points (-1, -3) and (2, 3)

1. Determine the slope using our slope formula. $m = \frac{y_2 - y_1}{x_2 - x_1}$

2. Use our slope and either point to determine the y-intercept.

$b = y - mx$ where x and y are the coordinates of the point and m is the slope you just found!

3. Write our equation with the slope and y-intercept plugged in.

4. Check our equation by substituting the x-value of the other point into the equation and solving for y.

Action!

Finding the Equation of a Line Given Two Points

Find the equation of the line through the points (-1, -3) and (2, 3)

x_1 y_1 x_2 y_2

1. Determine the slope using our slope formula. $m = \frac{y_2 - y_1}{x_2 - x_1}$

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

$$= \frac{6}{3}$$

$$m = 2$$

Action!

Finding the Equation of a Line Given Two Points

Find the equation of the line through the points (-1, -3) and (2, 3)

2. Use our slope and either point to determine the y-intercept.

$b = y - mx$

where x and y are the coordinates of the point and m is the slope you just found!

$m = 2$ using (2,3)

$b = (3) - (2)(2)$

$b = 3 - 4$

$b = -1$

Action!

Finding the Equation of a Line Given Two Points

Find the equation of the line through the points (-1, -3) and (2, 3)

3. Write our equation with the slope and y-intercept plugged in.

$m = 2 \quad b = -1$

$y = 2x - 1$

Action!

Finding the Equation of a Line Given Two Points

Find the equation of the line through the points (-1, -3) and (2, 3)

4. Check our equation by substituting the x-value of the other point into the equation and solving for y.

$y = 2x - 1$

$y = 2(-1) - 1$

$y = -2 - 1$

$y = -3$

Consolidation

Simultaneous Round Table

In teams of 4 you will work together as a relay team to find the equations of various lines.

You will be given two points.

1. The **first person** will determine the **slope** and pass the paper.

2. The **second person** will determine the **y-intercept** and pass the paper.

3. The **third person** will write the **equation** with the information provided by the people before them.

4. The **fourth person** will take each original point and plug them into the new **equation** and verify the equation.