What's Going On?

Checking In

Minds on Showing Off Your Skillz.

Action! Leading Questions.

Consolidation Step by step.

Learning Goal - I will be able to determine the equation of a line given the slope and a point on the line.

L.G.L.

For each slope given below, determine the slope of a line **perpendicular**.

$\frac{3}{1}$ → $-\frac{1}{3}$

-5 → $\frac{1}{5}$

$\frac{3}{2}$ → $-\frac{2}{3}$

$-\frac{1}{7}$ → 7

0 → undefined

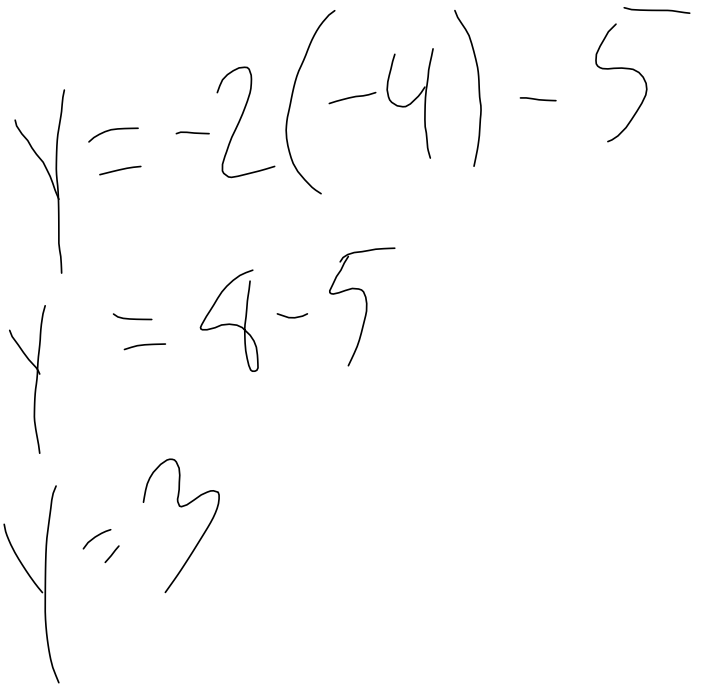
Minds on

Showing off your skillz.

Does the line defined by the equation

$y = -2x - 5$

go through the point (-4, 3)?



Minds on

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Does the line defined by the equation

$y = 5x + 3$

go through the point (2, 9)?

$y = 5(2) + 3$

$y = 13$

Action!

Finding the Equation of a Line Given the Slope and a Point

Find the equation of the line with slope 2 that goes through the point (4, 6)

x y

$y = 2x - 2$

$(6) = 2(4) + b$

Action!

Finding the Equation of a Line Given the Slope and a Point

Find the equation of the line with slope -3 that goes through the point (2, -1)

1. Start with **y = mx + b**

2. Either Rearrange **y = mx + b** for b $b = y - mx$

   OR

   Plug in your values of x, y, and m.

3. Solve for **b**. This is your y-intercept!

4. Write the equation with **m** and **b** plugged in!

Action!

Leading Questions

Find the equation of the line with slope 2
that goes through the point (4, 6)

1. What do I need to determine the equation of a line?

Slope and y-intercept

Action!

Leading Questions

Find the equation of the line with slope 2
that goes through the point (4, 6)

2. What do I have?

The slope and a point

Action!

Leading Questions

Find the equation of the line with slope 2 that goes through the point (4, 6)

3. What do I still need?

The y-intercept

Action!

Leading Questions

Find the equation of the line with slope 2
that goes through the point (4, 6)

4. How can I find it?

Use **y = mx + b** to find the **b** value

*You already have a value of x, y and m!

Find the equation of the line with slope 4 that goes through the point (-2, 8)

$y = mx + b$

$b = y - mx$

$b = 8 - (4)(-2)$

$b = 8 + 8$

$b = 16$

$y = 4x + 16$

$b = 8 - (-8)$

$b = 8 + 8$

Find the equation of the line with slope 1/2 that goes through the point (-4, 7)

$b = y - mx$

$b = 7 - \frac{1}{2}(-4)$

$b = 7 - \frac{-4}{2}$

$b = 7 - -2$

$b = 9$

$y = \frac{1}{2}x + 9$

$b = 7 - \left(\frac{1}{2}\right)\left(\frac{-4}{1}\right)$

$b = 7 - \left(\frac{-4}{2}\right)$

$b = 7 - (-2)$

$b = 9$

Find the equation of the line with slope -2/3 that goes through the point (6, 8)

$b = y - mx$

$b = 8 - \left(\frac{-2}{3}\right)\left(\frac{6}{1}\right)$

$b = 8 - -4$

$b = 12$

$\frac{-12}{3} = -4$

$y = \frac{-2}{3}x + 12$