Writing Equations of Lines

<u>All we need are</u>:

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If we are given two points, (5, 1) and (8, 10)

1. **Find the slope between the points:**

$$\frac{\Delta y}{\Delta x} =$$

2. **Substitute the slope into the Slope-Intercept equation**:

$$y = \text{\_\_\_} \; x + b$$

3. We now need to find the value of "b". We know how to solve for a variable, but what makes this difficult is that we have **3** variables at the moment.

Fortunately we have **2 solutions** for this equation and they are the two points on the line! Let's **substitute in a point (x, y) and then <u>solve for "b"</u>.**

Let's try both!

Substitute (5 , 1) in for x and y:

$$(\quad) = 3(\quad) + b$$

Substitute (8 , 10) in for x and y:

$$(\quad) = 3(\quad) + b$$

$$b =$$

4. Use your slope and y-intercept to write the equation.