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Use Linear Equations in Slope-Intercept Form

What is slope-intercept form?

$$y = mx + b$$

↓ Slope
↓ y-intercept

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Key Concept

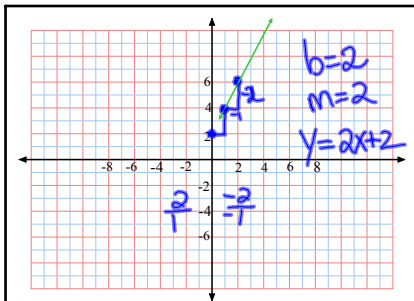
Step 1: Identify the slope m

Step 2: Find the y-intercept.

Step 3: Write an equation using

$$y = mx + b$$

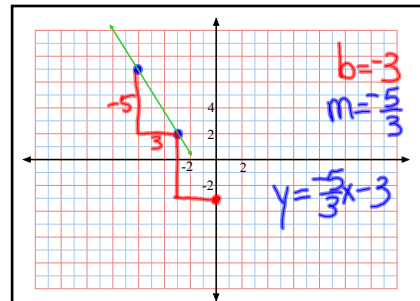
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Example:

write an equation of the line shown.

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Example:

write an equation of the line shown.

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Write the equation of the line that passes through the given points:

$(-1, -7)$, $(1, 3)$

$\begin{matrix} 1 & 2 \\ x_1 & x_2 \\ -7 & 3 \\ y_1 & y_2 \end{matrix}$

Step 1: find slope

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{3 - (-7)}{1 - (-1)} = \frac{3 + 7}{1 + 1} = \frac{10}{2} = 5$$

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Step 2: find y-intercept

$$y = 5x + b$$

$$3 = 5(1) + b$$

$$3 = 5 + b$$

$$\frac{-3}{-2} = \frac{-5 + b}{-2} = b$$

Step 3: write the equation using

$$y = mx + b$$

$$y = 5x - 2$$

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Write the equation of the line that passes through the given points:

$(4,5), (-3,-2)$

$m=1$

$$\frac{5-(-2)}{4-(-3)} = \frac{7}{7} = 1$$

$$y = mx + b$$

$$5 = 1 \cdot 4 + b$$

$$5 = 4 + b$$

$$\frac{5-4}{1} = b \quad y = x + 1$$

$y =$

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Write the equation of the line that passes through the given points:

$(5,3), (-4,3)$

$$\frac{3-3}{5-(-4)} = \frac{0}{9}$$

$$m = 0$$

Zero

$$y = 3$$



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Write the equation of the line that passes through the given points:

$(2,6), (2,5)$

$$\frac{6-5}{2-2} = \frac{1}{0}$$



no slope
undefined

$$x = 2$$

No

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