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Write Linear Equations in Slope-Intercept Form

What is slope-intercept form?

$$y = mx + b$$

↓ Slope ↓ y-intercept

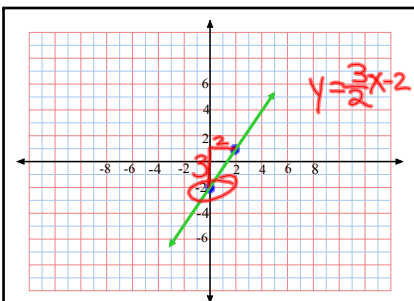
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Example:

Write an equation of the line with a slope of 8 and a y-intercept of -7

$$y = 8x - 7$$

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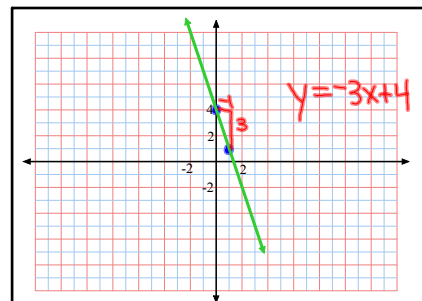


Example:

write an equation of the line shown.

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

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Example:

write an equation of the line shown.

$$y = -3x + 4$$

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Find the m or b if the given line passes through the given point

y-intercept: 1 (0, 1)
Point: (3, -2)

$$y = mx + b$$

$$-2 = m \cdot 3 + 1$$

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

$$y = -x + 1$$

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Find the m or b if the given line passes through the given point

slope: 2 (2, 2) $y = 2x - 2$
Point: (-1, -4) $y = 2x - 2$

$$y = mx + b$$

$$y = 2 \cdot x + b$$

$$-4 = 2(-1) + b$$

$$-4 = -2 + b$$

$$\frac{-2}{-2} = \frac{-2}{-2} \quad b = -2$$

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

$(0, -1), (2, 3)$

Step 1: find slope

gift $b = -1$

$\frac{3-(-1)}{2-0} = \frac{4}{2} = 2$

$m = \frac{y_2 - y_1}{x_2 - x_1} = 2$

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Step 2: find y-intercept

$(0, -1)$
 $(2, 3)$

$y = mx + b$

$y = 2x + b$

$-1 = 2 \cdot 0 + b$

$-1 = b$

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

$(4, 5)$ and $(0, 2)$

gift $b = 2$

$\frac{5-2}{4-0} = \frac{3}{4}$

$m = \frac{3}{4}$

$y = \frac{3}{4}x + 2$

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