

3.3.5 -Writing Equations in Slope-Intercept form given two points.

1. You head out on a road trip with your mom. She fills the car up with gas before you leave. After 1 hour of driving, you have 12 gallons of gas left. After 4 hours of driving you still have 6 gallons of gas left.

a. Write two ordered pairs given in the situation.

$(1, 12)$ $(4, 6)$
x₁ hour y₁ gallons *x₂ hour y₂ gallons*

b. Find the rate of change/slope for this situation. Explain what the slope means in context of the situation.

$$\frac{6-12}{4-1} = \frac{-6}{3} = -2$$

-2 gallons every hour

c. Find the y-intercept for this situation. Explain what the y-intercept means in the context of the situation.

$(4, 6)$ $y = mx + b$ *At the start you have 14 gallons*

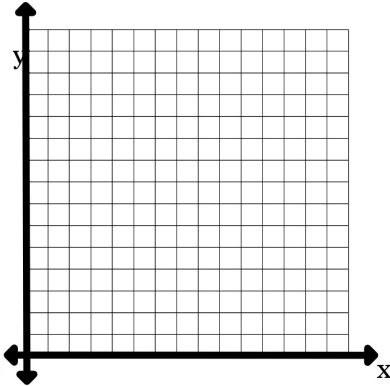
$$6 = -2(4) + b$$

$$6 = -8 + b$$

$$b = 14$$

d. Write an equation of the line in slope-intercept form that represents the situation.

$$y = -2x + 14$$



Find the equation of the line that goes through the points (1,5) and (2,9).

x_1, y_1, x_2, y_2

a. Find the slope/rate of change

$$\frac{\text{rise}}{\text{run}} = \frac{4}{1}$$

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{9 - 5}{2 - 1} = \frac{4}{1}$$

b. Find the y-intercept.

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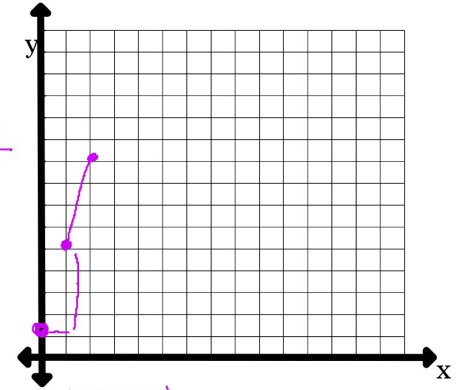
$$(1, 5)$$

$$4 \cdot 1 = 4$$

$$5 - 4 = 1$$

c. Write the equation in slope-intercept form.

$$y = 4x + 1$$



OR

$$y = mx + b$$

$$5 = 4(1) + b$$

$$5 = 4 + b$$

$$b = 1$$