Slope Point Form

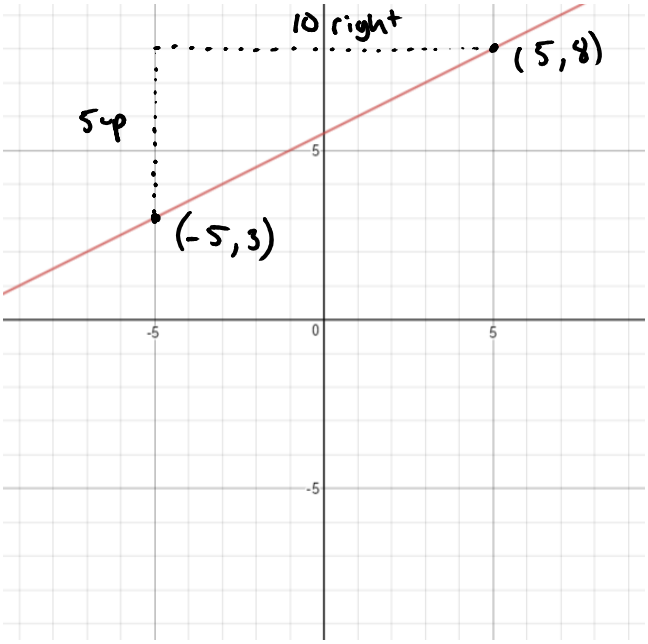
May 17, 2017 10:46 AM

Slope Point form is useful when our linear relation does not have a nice y-intercept

$$(y-y_1) = m(x-x_1)$$

m : slope
(x_1,y_1) : Any point on the line

Writing Slope Point form from a graph



$m : \frac{5}{10} = \frac{1}{2}$

$(x_1, y_1) : (-5, 3)$

$y - y_1 = m(x - x_1)$

$y - 3 = \frac{1}{2}(x - (-5))$

$\boxed{y - 3 = \frac{1}{2}(x + 5)}$

$(x_1, y_1) = (5, 8)$

$\boxed{y - 8 = \frac{1}{2}(x - 5)}$

Graphing Slope Point form

$y+3 = 3(x-1)$

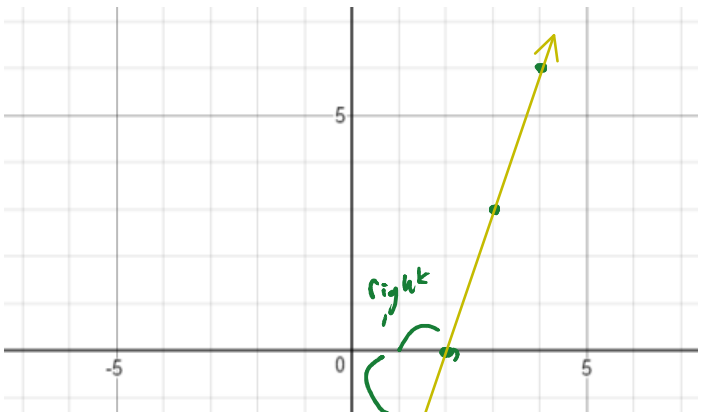
$y - (-3) = 3(x - 1)$

$y_1 \quad x_1$

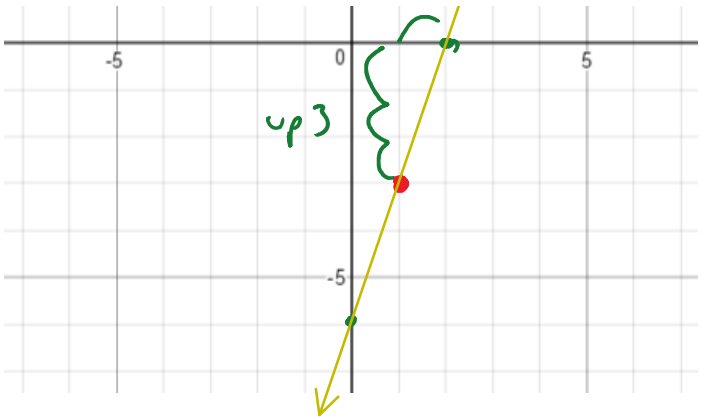
$y - y_1 = m(x - x_1)$

$m = \frac{3}{1}$ how to move

$(x_1, y_1) = (1, -3)$



Start with (1, -3)



Slope Point Form to Slope intercept form

$y - 3 = 2(x - 3)$

$y = mx + b$

$y - 3 = 2x - 6$

$+3 \qquad +3$

$y = 2x - 3$

$y + 4 = -\frac{3}{5}(x - 2)$

$y + 4 = -\frac{3}{5}x + \frac{6}{5}$

$-4 \qquad -4$

$y = -\frac{3}{5}x + \frac{6}{5} - 4 \times \frac{5}{5}$

$$= \frac{-3}{5}x + \frac{6}{5} - \frac{20}{5}$$

$$y = \frac{-3}{5}x - \frac{14}{5}$$

Slope Point Form to General form

$$y + 1 = \frac{3}{2}(x + 1)$$

$$Ax + By + C = 0$$

$$2 \times \left[y + 1\right] = \left[\frac{3}{2}x + \frac{3}{2}\right] \times 2$$

$$2y + 2 = 3x + 3$$

$$-3x \qquad -3x$$

$$-3x + 2y + 2 = 3$$

$$-3 \quad -3$$

$$-3x + 2y - 1 = 0$$

$$\rightarrow (-1)(-3x + 2y - 1) = (0)(-1)$$

or

$$3x - 2y + 1 = 0$$

Homework Pg: 367 Q: 10, 13

Pg: 377 Q: 1, 2, 3, 6, 7, 8, 17

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