

Point Slope Form

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ES: How do we find the equation of a line from a point and slope OR from two points?

point Slope Form

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

ex1

$(1, 2)$ $m = 2$
 x_1, y_1

$$y - 2 = 2(x - 1)$$

$$y - 2 = 2x - 2$$

$$y = 2x$$

ex2

$(2, 3)$ $(5, 4)$
 x_1, y_1 x_2, y_2

step1

Find m

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{4 - 3}{5 - 2} = \frac{1}{3}$$

step2

plug into form

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

$$\begin{aligned} y - 3 &= \frac{1}{3}x - \frac{2}{3} \\ y &= \frac{1}{3}x - \frac{2}{3} + \frac{9}{3} \\ y &= \frac{1}{3}x + \frac{7}{3} \end{aligned}$$

Summary