Point-Slope Form of a Line

University of Minnesota

Preliminaries and Objectives

Preliminaries

- Equation for slope
- Slope-Intercept form of a line

Objectives

- Find the equation of a line, given the slope of the line and a point on the line

Example 1

$$\frac{y-4}{x-1} = \frac{2}{3}$$

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

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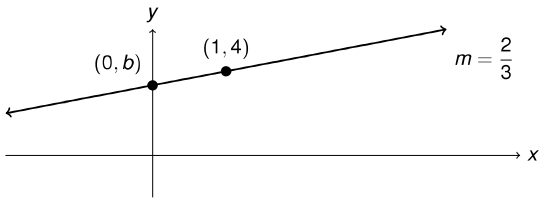
Example 2

$$\frac{y-5}{x-6} = \frac{3}{2}$$

$$y - 5 = \frac{3}{2}(x-6)$$

Example 1



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

$$b - 4 = -\frac{2}{3}$$

$$b = -\frac{2}{3} + 4 = \frac{10}{3}$$

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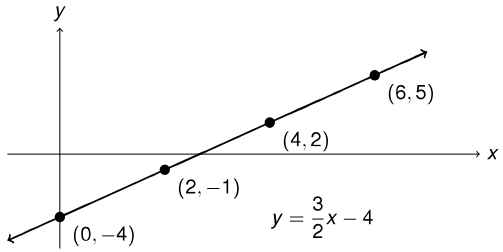
Example 2

Find the equation of the line with slope $m = \frac{3}{2}$, through the point $(6, 5)$



Example 2

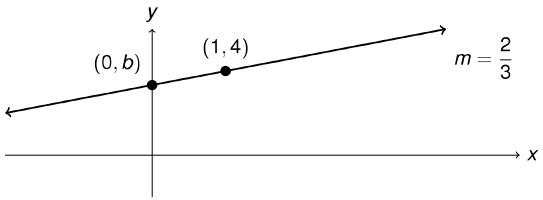
$$\frac{y-5}{x-6} = \frac{3}{2}$$

$$y - 5 = \frac{3}{2}(x-6)$$

$$y - 5 = \frac{3}{2}x - 9$$

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

Example 1

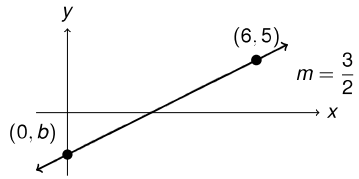


$$\frac{b-4}{0-1} = \frac{2}{3}$$

$$b - 4 = -\frac{2}{3}$$

$$b = -\frac{2}{3} + 4 = \frac{10}{3}$$

Example 2



$$\frac{b-5}{0-6} = \frac{3}{2}$$

$$b - 5 = -9$$

$$b = -4$$

Recap

$$\frac{y-k}{x-h} = m$$

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$$y - k = m(x - h)$$