The Slope of a Line

Preliminaries and Objectives

- Rates of Change

Objectives
- Formally define the slope of a line
- Use the slope to find missing values

The Slope Formula

$$\text{slope} = \frac{y_2 - y_1}{x_2 - x_1}$$

Interpolation

$$\text{slope} = \frac{25 - 10}{9 - 3} = \frac{15}{6} = \frac{5}{2}$$

$$\Rightarrow \frac{15 - 10}{x - 3} = \frac{5}{2} \Rightarrow x = 5$$

Finding Missing Input Value

Point-Point Form of a Line

Find the equation of a line passing through the points (2, 1) and (6, 4).

Written by: Mike Weimerskirch
Narration: Mike Weimerskirch
Graphic Design: Mike Weimerskirch

$$\text{slope} = \frac{4 - 1}{6 - 2} = \frac{3}{4} = \frac{y - 4}{x - 6}$$
Recap

\[ \text{slope} = \frac{y_2 - y_1}{x_2 - x_1} \]