

Rate of Change and Slope

$$\text{Rate of Change} = \text{Slope} = m = \frac{\text{Rise}}{\text{Run}} = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$$

Find the rate of change.

① Time (min.)	Distance (ft.)
1	120
2	240
3	360
4	480

$$\begin{aligned}\text{Rate of Change} &= \frac{y_2 - y_1}{x_2 - x_1} \\ &= \frac{240 - 120}{2 - 1} \\ &= \frac{120}{1} = 120 \frac{\text{ft}}{\text{min}}\end{aligned}$$

Find the slope.

② $(-1, 0)$ and $(3, -2)$

$$\begin{aligned}m &= \frac{y_2 - y_1}{x_2 - x_1} \\ &= \frac{0 - (-2)}{-1 - 3} \\ &= \frac{2}{-4} \\ &= -\frac{1}{2}\end{aligned}$$

③ $(1, 3)$ and $(4, -1)$

$$\begin{aligned}m &= \frac{y_2 - y_1}{x_2 - x_1} \\ &= \frac{3 - (-1)}{1 - 4} \\ &= \frac{4}{-3} \\ &= -\frac{4}{3}\end{aligned}$$