

2-3 Rate of Change and Slope

Find the slope of the line that passes through each pair of points. Express as a fraction in simplest form.

12. $(-2, 11), (5, 6)$

SOLUTION:

$$\begin{aligned} m &= \frac{y_2 - y_1}{x_2 - x_1} \\ &= \frac{6 - 11}{5 - (-2)} \\ &= \frac{-5}{5 + 2} \\ &= -\frac{5}{7} \end{aligned}$$

The slope of the line that passes through $(-2, 11)$ and $(5, 6)$ is $-\frac{5}{7}$.

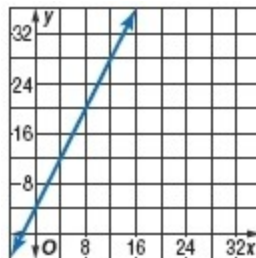
15. $(-4.5, 9.5), (-1, 2.5)$

SOLUTION:

$$\begin{aligned} m &= \frac{y_2 - y_1}{x_2 - x_1} \\ &= \frac{2.5 - 9.5}{-1 - (-4.5)} \\ &= \frac{-7}{-1 + 4.5} \\ &= -\frac{7}{3.5} \\ &= -2 \end{aligned}$$

The slope of the line that passes through $(-4.5, 9.5)$ and $(-1, 2.5)$ is -2 .

Determine the rate of change of each graph.



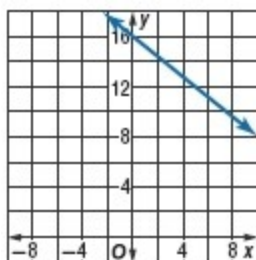
18.

SOLUTION:

The graph passes through the points $(0, 4)$ and $(8, 20)$.

$$\begin{aligned} \text{Rate of change} &= \frac{\text{change in } y}{\text{change in } x} \\ &= \frac{20 - 4}{8 - 0} \\ &= \frac{16}{8} \\ &= 2 \end{aligned}$$

So, the rate of change is 2.



21.

SOLUTION:

The graph passes through $(0, 16)$ and $(5, 12)$.

$$\begin{aligned} \text{Rate of change} &= \frac{\text{change in } y}{\text{change in } x} \\ &= \frac{12 - 16}{5 - 0} \\ &= \frac{-4}{5} \\ &= -0.8 \end{aligned}$$

So, the rate of change is -0.8 .