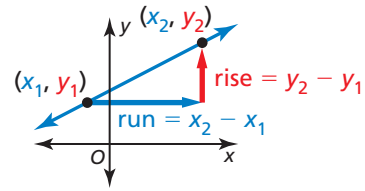


Slope of a Line

The **slope** of a nonvertical line is the ratio of vertical change (*rise*) to horizontal change (*run*) between any two points on the line. If a line in the coordinate plane passes through points (x_1, y_1) and (x_2, y_2) , then the slope m is

$$m = \frac{\text{rise}}{\text{run}} = \frac{\text{change in } y}{\text{change in } x} = \frac{y_2 - y_1}{x_2 - x_1}$$

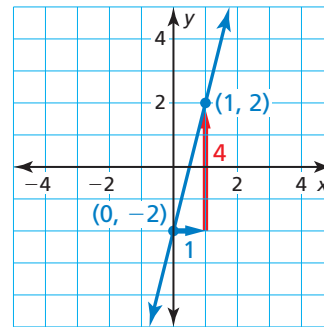


Slopes of Lines in the Coordinate Plane	
Negative slope: falls from left to right, as in line j	
Positive slope: rises from left to right, as in line k	
Zero slope (slope of 0): horizontal, as in line l	
Undefined slope: vertical, as in line n	

Example 1 Find the slope of the line shown.

Let $(x_1, y_1) = (0, -2)$ and $(x_2, y_2) = (1, 2)$.

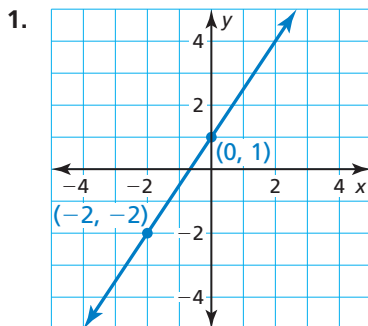
$$\begin{aligned} \text{slope} &= \frac{y_2 - y_1}{x_2 - x_1} && \text{Write formula for slope.} \\ &= \frac{2 - (-2)}{1 - 0} && \text{Substitute.} \\ &= 4 && \text{Simplify.} \end{aligned}$$



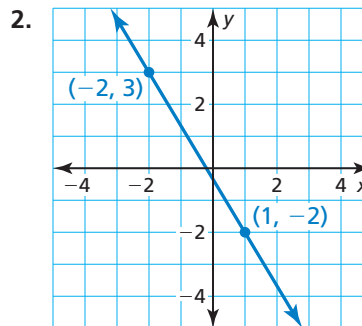
Practice

Check your answers at BigIdeasMath.com.

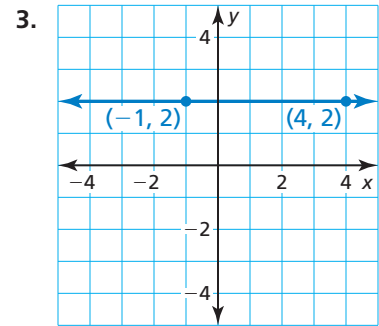
Find the slope of the line.



$\frac{3}{2}$



$-\frac{5}{3}$



0