

The slope of the line through the following pairs of points:

(2,1) and (4,7)

$$\text{Slope of line } m = \frac{y_1 - y_2}{x_1 - x_2} = \frac{1 - 7}{2 - 4} = \frac{-6}{-2} = 3$$

Therefore the slope of the line is 3

The slope of the line through the following pairs of points:

(3,-5) and (3,1)

$$\text{Slope of line } m = \frac{y_1 - y_2}{x_1 - x_2} = \frac{-5 - 1}{3 - 3} = \frac{-6}{0} = \text{undefined}$$

When the line is vertical then the slope is undefined.

When horizontal then it is zero.

