

Determining Slope

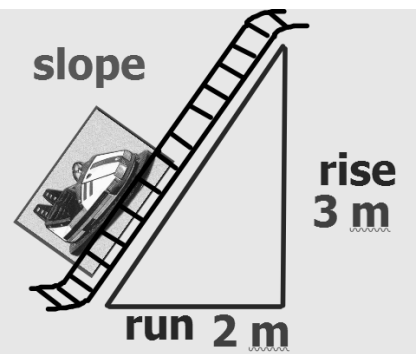
Slope - the steepness of a line (can have positive, negative, zero or no slope)

How can you use numbers to describe the steepness of a ramp?

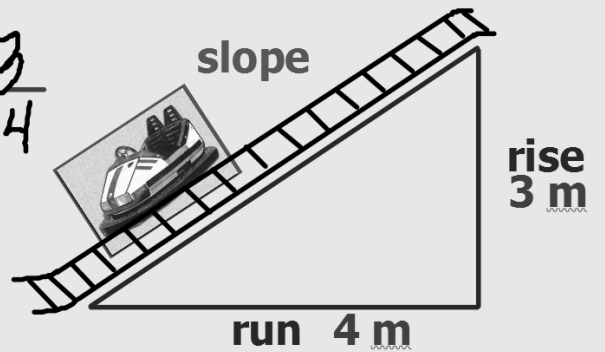
The slope of a ramp describes its steepness.

For example:

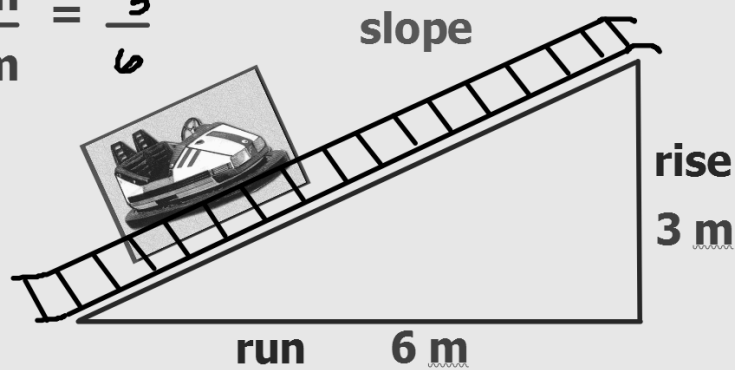
$$\text{slope} = m = \frac{\text{rise}}{\text{run}} = \frac{3 \text{ m}}{2 \text{ m}} = \frac{3}{2}$$



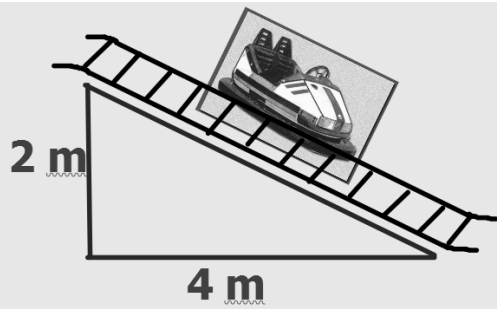
$$\text{slope} = m = \frac{\text{rise}}{\text{run}} = \frac{m}{m} = \frac{3}{4}$$



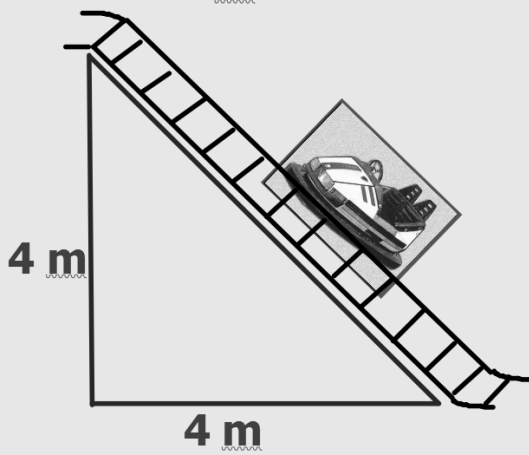
$$\text{slope} = m = \frac{\text{rise}}{\text{run}} = \frac{m}{m} = \frac{3}{6}$$



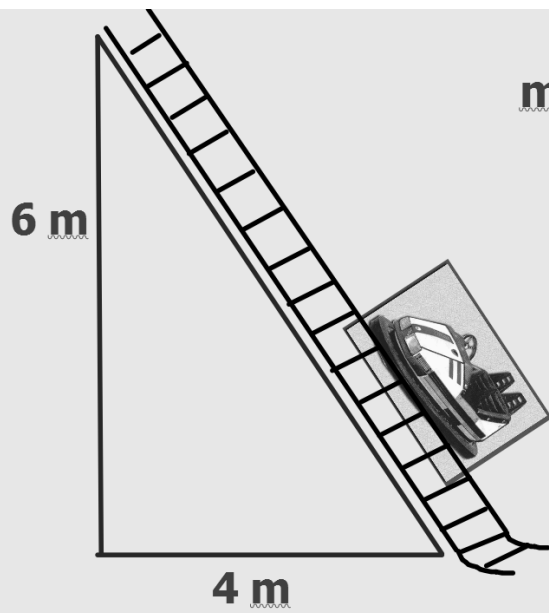
What do you notice with the slope when the rise is the same and the run is increased?



$$m = \frac{\text{rise}}{\text{run}} = \frac{2}{4}$$



$$m = \frac{\text{rise}}{\text{run}} = \frac{4}{4} = 1$$

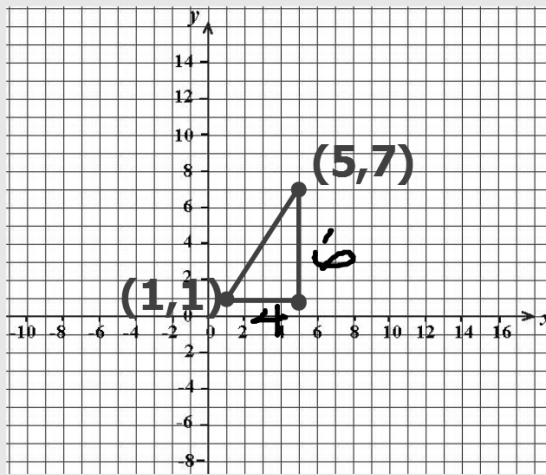


$$m = \frac{\text{rise}}{\text{run}} = \frac{6}{4} = \frac{3}{2} = 1.5$$

What do you notice with the slope when the run is the same, but the rise increases/decreases?

You can also get the slope on a coordinate plane.

$$\frac{6}{4} = \frac{3}{2}$$

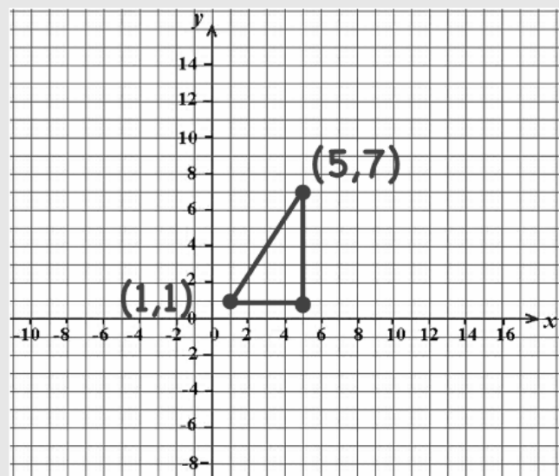


You can count the rise over the run or you can use the ordered pairs to determine the slope.

$$m = \frac{\text{rise}}{\text{run}} = \frac{\text{change in } y}{\text{change in } x} = \underline{\hspace{2cm}}$$

Using the ordered pairs (1,1) and (5,7), find the difference between the y values and the difference between the x values.

$$m = \frac{7-1}{5-1} = \frac{6}{4} = \frac{3}{2} \quad \text{so } m = \frac{3}{2}$$



Find the slope of (-2, 2) and (3, 4)

$$m = \frac{y}{x} = \frac{2 - 4}{-2 - 3} = \frac{-2}{-5} = \frac{2}{5}$$

What kind of slope (positive, negative, zero, no slope)?

What type of line will you get (diagonal, vertical, horizontal)?

Find the slope of (-3, 0) (-5, 4)

$$m = \frac{y}{x} = \frac{0-4}{-3-(-5)} = \frac{-4}{2} = -2$$

What kind of slope (positive, negative, zero, no slope)?

What type of line will you get (diagonal, vertical, horizontal)?

Find the slope of (-1, 2) (3, 2)

$$m = \frac{y}{x} = \frac{2-2}{-1-3} = \frac{0}{-4} = 0$$

What kind of slope (positive, negative, zero, no slope)?

What type of line will you get (diagonal, vertical, horizontal)?

Find the slope of (2, 4) (2, 1)

$$m = \frac{y}{x} = \frac{4-1}{2-2} = \frac{3}{0} = \text{undefined}$$

no slope⁷

What kind of slope (positive, negative, zero, no slope)?

What type of line will you get (diagonal, vertical, horizontal)?