

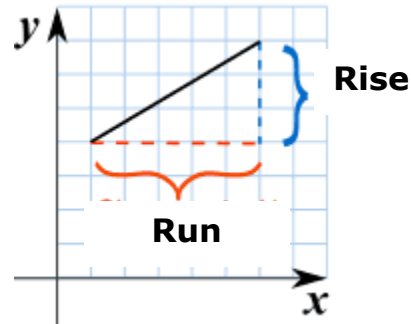
Lesson: Slope

The **slope** (also called gradient) of a straight line shows how steep a straight line is.

To Calculate the Slope

Divide the **change in height (rise)** by the **change in horizontal distance (run)**

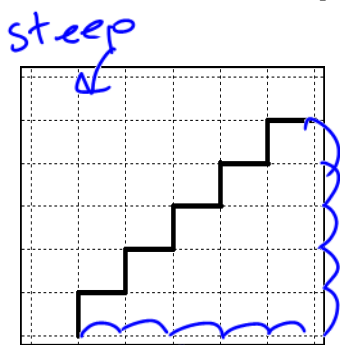
$$\text{Slope} = \frac{\text{rise}}{\text{run}}$$



LEVELS (AMOUNT) OF SLOPE

	ZERO or LEVEL	GENTLE	MODERATE	STRONG	EXTREME	STEEP
SLOPE (%)	0%	2 - 9%	9 - 15%	15 - 45%	45 - 70%	70% - 100%
DEGREE (°)	0°	1.1 - 5°	5 - 8.5°	8.5 - 24°	24 - 35°	35 - 45°

Example: For each staircase, count squares to determine the rise and the run and calculate the **slope**. Remember, $\text{slope} = \frac{\text{rise}}{\text{run}}$

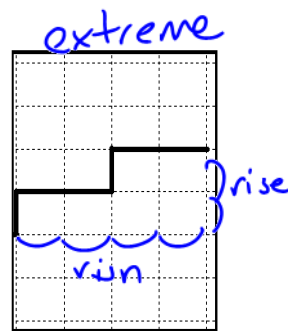


Rise = 5

Run = 5

$$\text{Slope} = \frac{5}{5} = 1$$

$$1 \times 100\% = 100\%$$

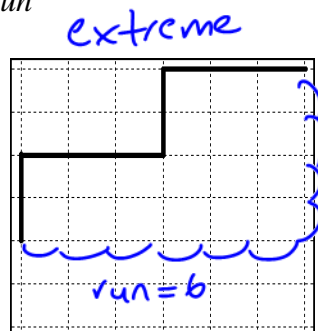


Rise = 2

Run = 4

$$\text{Slope} = \frac{2}{4} = 0.5$$

$$0.5 \times 100\% = 50\%$$

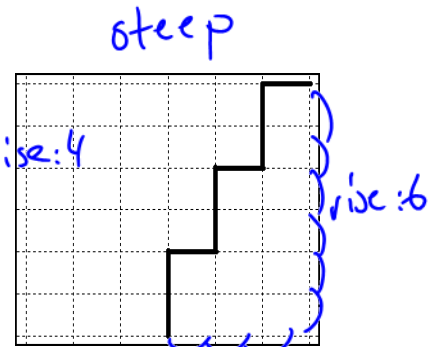


Rise = 4

Run = 6

$$\text{Slope} = \frac{4}{6} = 0.67$$

$$67\%$$



Rise = 6

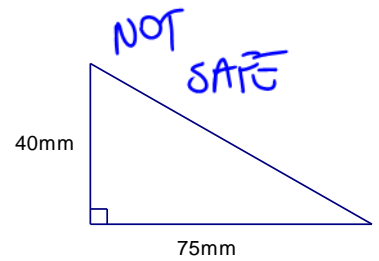
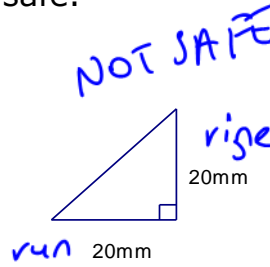
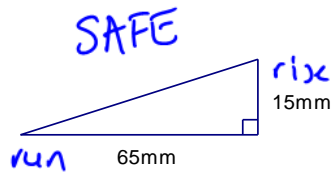
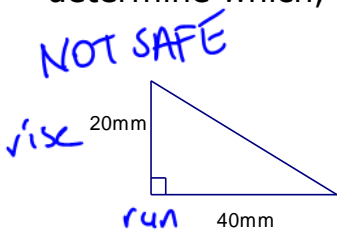
Run = 3

$$\text{Slope} = \frac{6}{3} = 2$$

$$200\%$$

Thinking:

Each of the following diagrams represents a wheelchair ramp. Wheelchair ramps cannot have a slope steeper than $\frac{1}{4}$ or 0.25. Calculate the slope of the following to determine which, if any of these ramps are safe.



Rise = 20

Rise = 15

Rise = 20

Rise = 40

Run = 40

Run = 65

Run = 20

Run = 75

Slope = $\frac{20}{40}$
= 0.5

Slope = $\frac{15}{65}$
= 0.23

Slope = $\frac{20}{20}$
= 1

Slope = 0.53

TYPES OF SLOPES

Positive Slope (uphill)	Negative Slope (downhill)	Zero Slope	Undefined Slope
ascending, increasing	descending, decreasing	horizontal	vertical

