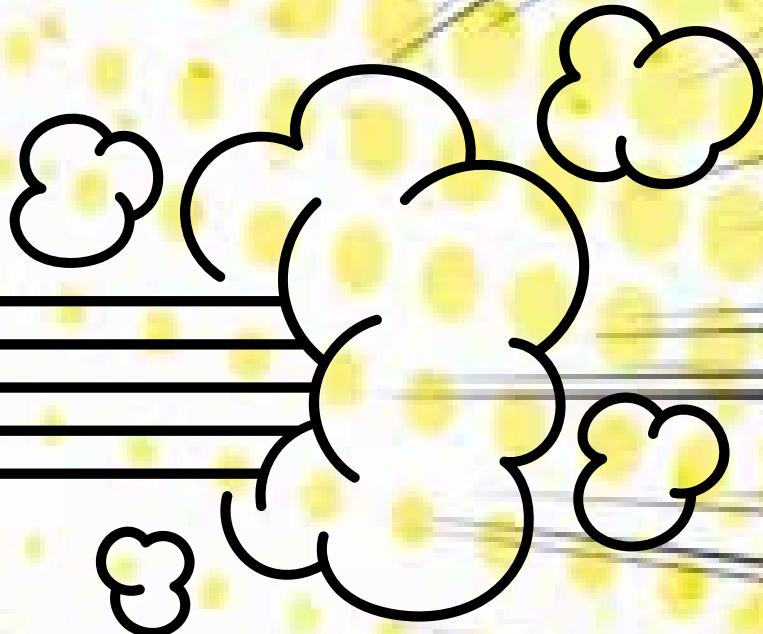


SPEED



Speed is a scalar quantity that tells us **how fast** an object is moving.

Speed can also be seen as the **rate at which an object covers distance**.

- A **fast-moving** object has a **high speed** and travels a long distance in a short time.
- A **slow-moving** object has a **low speed** and covers a shorter distance in the same amount of time.

If an object isn't moving at all, its speed is **zero**.

Average speed is a measure of the distance travelled in a given period of time. It is something referred to us as the ratio of distance and time.

$$\text{Average speed} = \frac{\text{average}}{\text{traveled time taken}}$$

Example:

Determine the average speed of a jeep that travels 4 hours.

Given:

distance = 200 miles

time = 4 hours

$$\text{average speed} = \frac{200 \text{ miles}}{4 \text{ hours}}$$

= 50 miles per hour or mph

The following table lists units in common use for speed and their abbreviations.

Distance	Time	Speed	Abbreviation
mile	hours	miles per hour	mph
kilometers	hours	kilometers per hour	km/h
meters	hours	meters per hour	m/h
meters	seconds	meters per second	m/s
feet	seconds	feet per second	f.p.s or ft. per sec.
centimeters	seconds	centimeters per second	cm/sec or cm/s

Example 1:

Lake drives from Manila to Baguio, a distance of 160 km, in 4 hours. He then drives from Baguio to Benguet, a distance of 90 km, in 1 hour and 30 minutes. Determine his average speed for each journey.

Given	Manila to Baguio	Baguio to Benguet
Distance	160 km	90 km
Time	4hrs	1 hour and 30 minutes

Example 1:

Lake drives from Manila to Baguio, a distance of 160 km, in 4 hours. He then drives from Baguio to Benguet, a distance of 90 km, in 1 hour and 30 minutes. Determine his average speed for each journey.

Solution:

Given	Manila to Baguio	Baguio to Benguet
Distance	160 km	90 km
Time	4hrs	1 hour and 30 minutes

Manila to Baguio

$$\begin{aligned} \text{Average speed} &= \frac{160 \text{ km}}{4 \text{ hour}} \\ &= 40 \text{ km/h} \end{aligned}$$

Baguio to Benguet

Time taken:
1 hour and 30 minutes

$1\frac{1}{2}$ hours or $\frac{3}{2}$ hours

Baguio to Benguet

$$\begin{aligned} &= 90 \div \frac{3}{2} = 90 \times \frac{3}{2} \\ &= 60 \text{ km/h} \end{aligned}$$

Answer: The average speed of Lake's journey from **Manila to Baguio** is **40 km/h**. While the average speed of his journey from **Baguio to Benguet** is **60 km/h**.

Example 2:

Connie can type 960 words in 20 minutes. Calculate his typing speed in: (a) words per minute, (b) words per hour.

Given:

Numbers of words = 960/hour

time = 20 minutes

Example 2:

Connie can type 960 words in 20 minutes. Calculate his typing speed in: (a) words per minute, (b) words per hour.

Given: Numbers of words = 960/hour time = 20 minutes

Solution:

(a) words per minutes

$$\text{Typing speed} = \frac{960 \text{ words}}{20 \text{ minutes}}$$

Answer = 48 words per minute

(b) words for hour

$$\text{Express 20 minutes of hours} = 20 \text{ minutes} \times \frac{1 \text{ hr}}{60 \text{ min}} = \frac{20 \text{ hrs}}{60} = \frac{1 \text{ h}}{3}$$

$$\text{Typing speed} = \frac{960 \text{ words}}{\frac{1}{3} \text{ h}} = 960 \text{ words} \times \frac{3}{1 \text{ h}}$$

Answer = 2880 words per hour