CONTENTS

(TEACH N LEARN · PRIMARY 6)

*More challenging problems especially for advanced pupils.

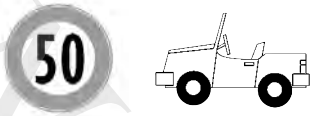
UNIT 7 SPEED

DISTANCE AND SPEED

Vocabulary

Speed How fast someone or something is moving. It is measured as distance travelled per unit time.

Example: Unless otherwise stated, the speed limit on all roads in Singapore is 50 kilometres per hour (50 km/h).



How To

There are 3 related quantities: distance, time and speed. Given any two quantities, the third quantity can be calculated.

Speed = Distance ÷ Time

Distance = Speed x Time

Time = Distance ÷ Speed

1. A motorist takes 2 hours to travel 180 km. What is his speed?

Method 1

2 h → 180 km
1 h → 180 ÷ 2 = 90 km

His speed is 90 km/h.

To find the speed is to find the distance travelled per hour.

Method 2

Speed = 180 ÷ 2
= 90 km/h

His speed is 90 km/h.

Speed = Distance ÷ Time

AVERAGE SPEED

Average Speed The average distance travelled per unit time.

To find average speed for whole journey, we need to find total distance travelled and total time taken, then divide the total distance travelled by the total time taken.

$$\textbf{Average speed} = \frac{\textbf{Total distance travelled}}{\textbf{Total time taken}}$$

1. Annie took 4 minutes to swim 200 m and another 4 minutes to run 1000 m. What is her average speed for the whole journey?

   Total distance travelled = 200 + 1000
   = 1200 m
   Total time taken = 4 + 4
   = 8 min
   Average speed = $\frac{1200}{8}$
   = 150 m/min

   Her average speed for the whole journey is 150 m/min.

2. Joe drives for 3 hours at a speed of 60 km/h and another 2 hours at a speed of 70 km/h. What is his average speed for the whole journey?

   Total distance travelled = 3 x 60 + 2 x 70
   = 320 km
   Total time taken = 3 + 2
   = 5 h
   Average speed = $\frac{320}{5}$
   = 64 km/h

   His average speed for the whole journey is 64 km/h.

Exercise 7.4 CHALLENGES

*1. A train is 120 m long.
It travels through a tunnel at a speed of 15 m/s.
The entire train takes 3 minutes 40 seconds to pass through the tunnel.
What is the length of the tunnel?

*2. Three boys took part in a 600-metre race.
When Andy crossed the finishing line, he was 100 m ahead of Ben and 200 m ahead of Chris.
How far was Chris from the finishing line when Ben completed the race?