

## Calculating Speed, Distance and Time

In this section we extend the ideas of speed to calculating distances and time, using the following formulae:

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

$$\text{Distance} = \text{Speed} \times \text{Time}$$

$$\text{Time} = \frac{\text{Distance}}{\text{Speed}}$$

1. A bus travels at a speed of 40 km/h. Calculate the speed of the bus in m/s.

Solution

$$1 \text{ km} = 1000 \text{ m}$$

$$40 \text{ km/h} = 1000 \times 40 \text{ m/hr}$$

$$1 \text{ hour} = 60 \times 60 = 3600 \text{ seconds}$$

$$40 \text{ km/h} = \frac{1000 \times 40}{3600}$$

$$= 11.1 \text{ m/s}$$

$$= 11.1 \text{ m/s to 1 decimal place}$$

2. A train travels at 40 m/s. Calculate the time it takes to travel:
  - (a) 30 000 m,
  - (b) 50 km
3. If a car travels 400m in 20 seconds how fast is it going?
4. If you move 50 meters in 10 seconds, what is your speed?
5. You arrive in my class 45 seconds after leaving math which is 90 meters away. How fast did you travel?
6. A plane travels 395,000 meters in 9000 seconds. What was its speed?

7. It takes Serina 0.25 hours to drive to school. Her route is 16 km long. What is Serina's average speed on her drive to school?
8. How much time will it take for a bug to travel 5 meters across the floor if it is travelling at 1 m/s?
9. You need to get to class, 200 meters away, and you can only walk in the hallways at about 1.5 m/s. (if you run any faster, you'll be caught for running). How much time will it take to get to your class?
10. In a competition, an athlete threw a flying disk 139 meters through the air. While in flight, the disk travelled at an average speed of 13.0 m/s. How long did the disk remain in the air?
11. A train takes 2.5 hours to reach Jaipur from Delhi at a speed of 25 km/hour. Find the distance between Jaipur and Delhi.
12. A person walks at 5 km/hour. Every morning he walks 15 km around the park. How much time will he take to complete this distance?
13. A car covers 54 km distance in 12 hours. Find out the speed of the car.
14. How many minutes does Aditya take to cover a distance of 400 m, if he runs at a speed of 20 km/hr.
15. A car moves at 80 km/hr. What is the speed of the car in meters per second?