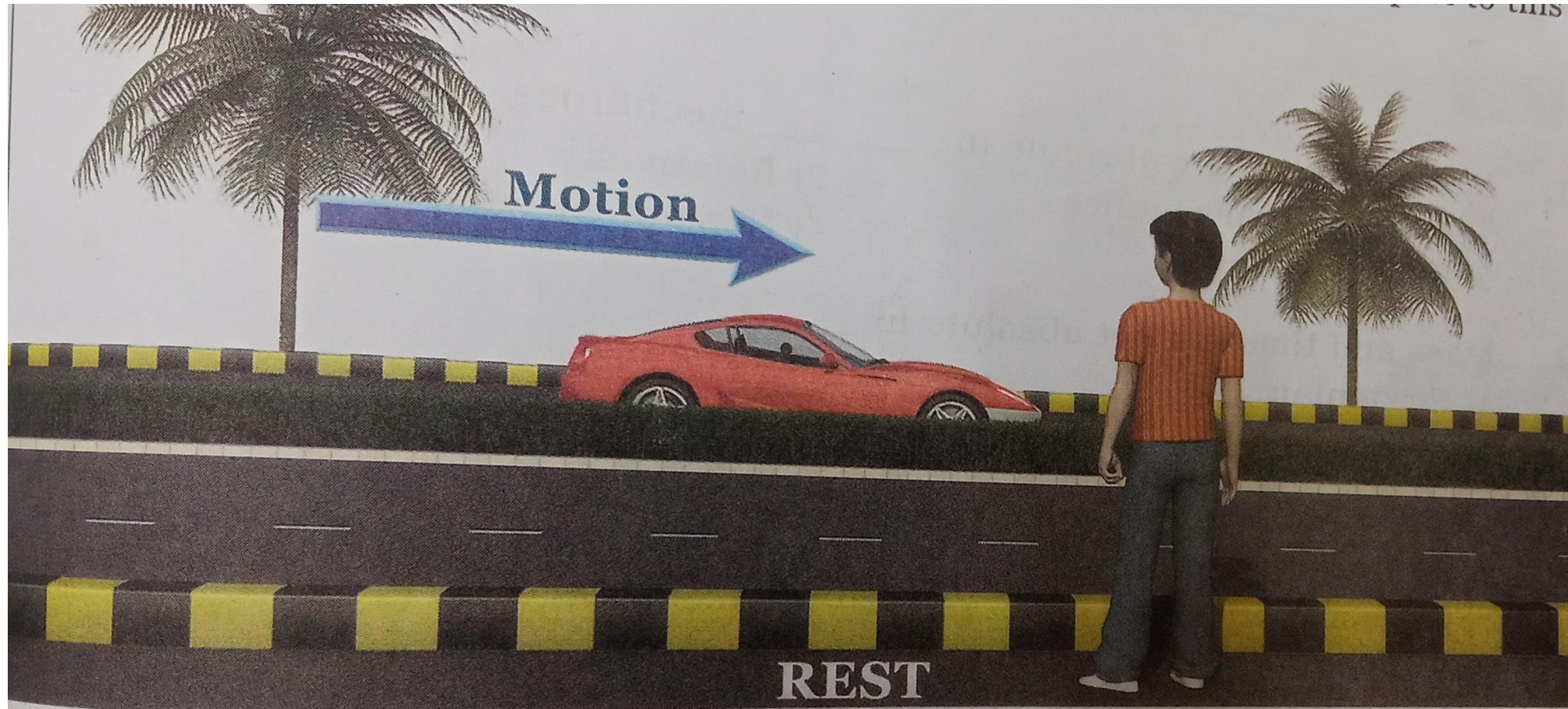# Motion

Frame of reference:

- Is another object or scene with respect to which we compare an object's position

- Also known as
  - Reference point
  - Origin

Rest: An object is said to be at rest if it does not change it's position with respect to its surroundings.

Motion: An object is said to be in motion if it changes its position with respect to its surroundings in a given time.

Fig (i)

Fig (ii)

Frame of reference
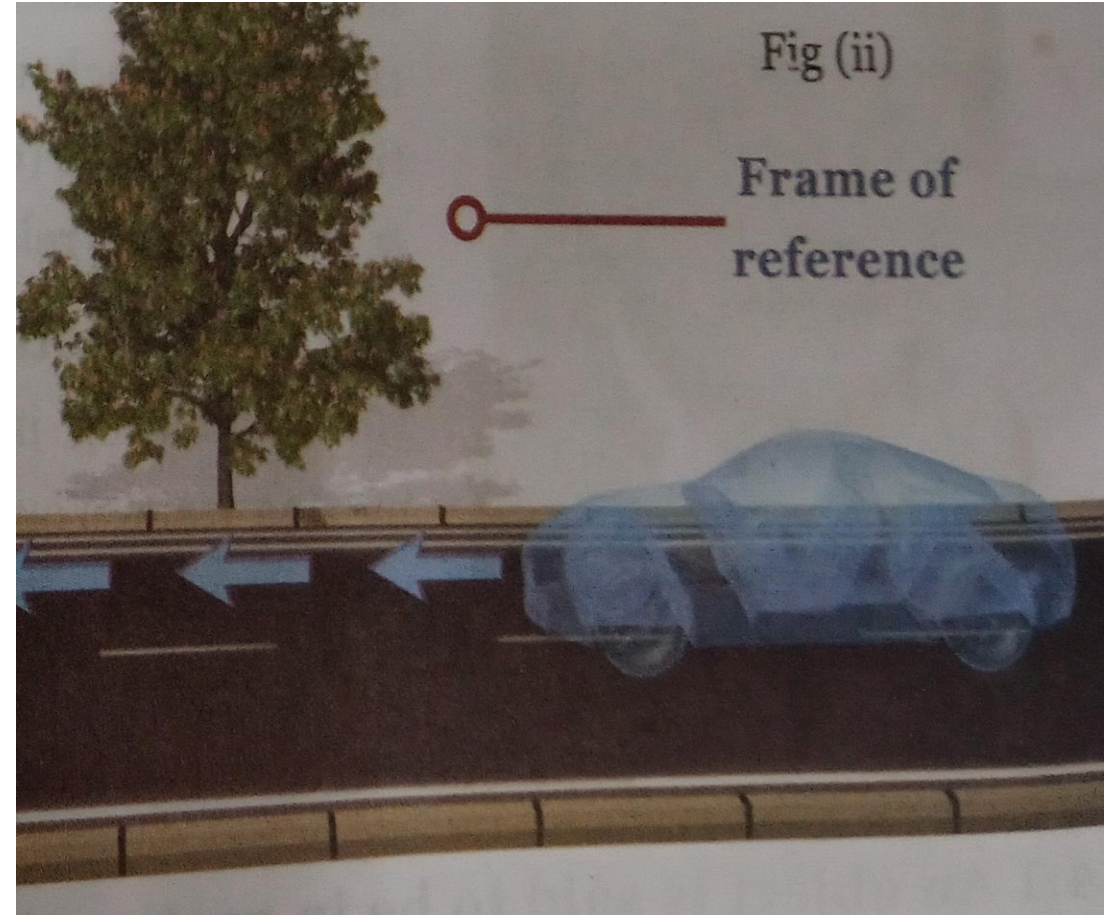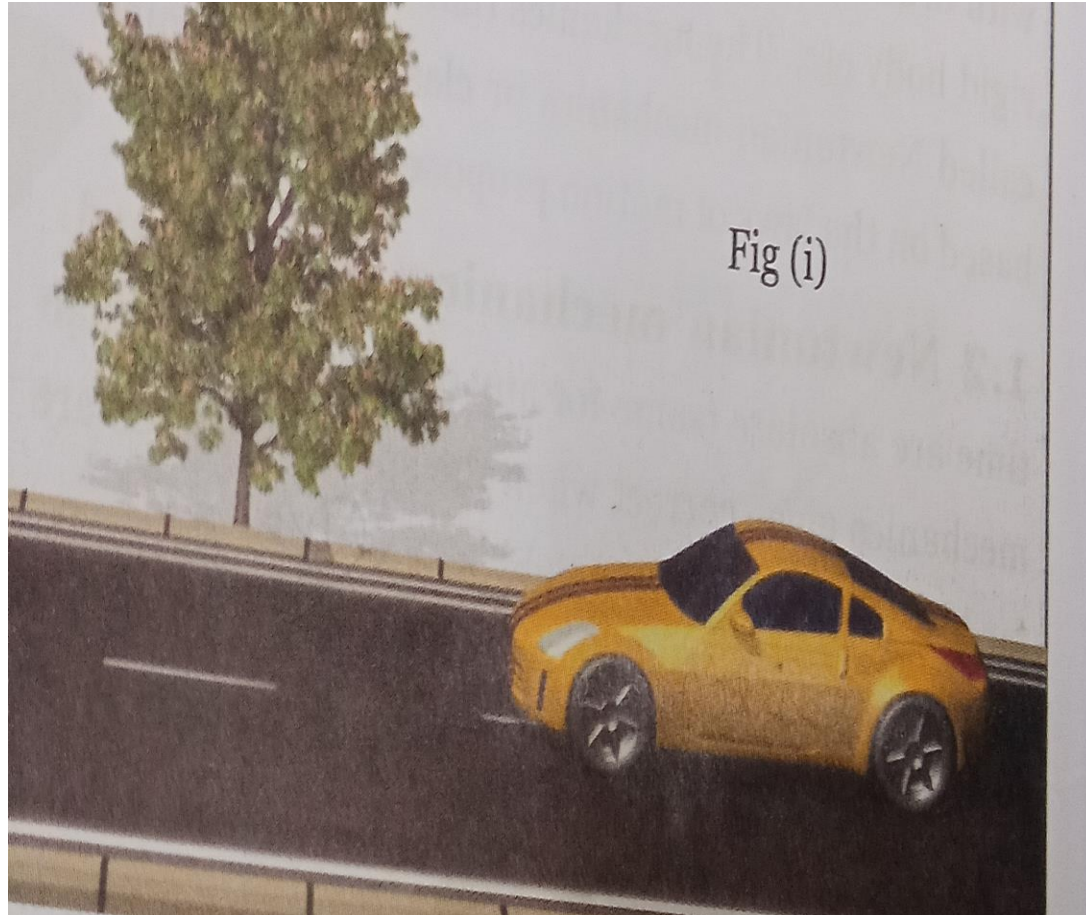
Physical quantities:

- Are of two types – **Scalar** and **vector**

- **Scalars** – Physical quantities which can be described only by their magnitude (numerical value) but not by their direction

- **Examples** – mass, distance travelled, density, area, volume, temperature and speed
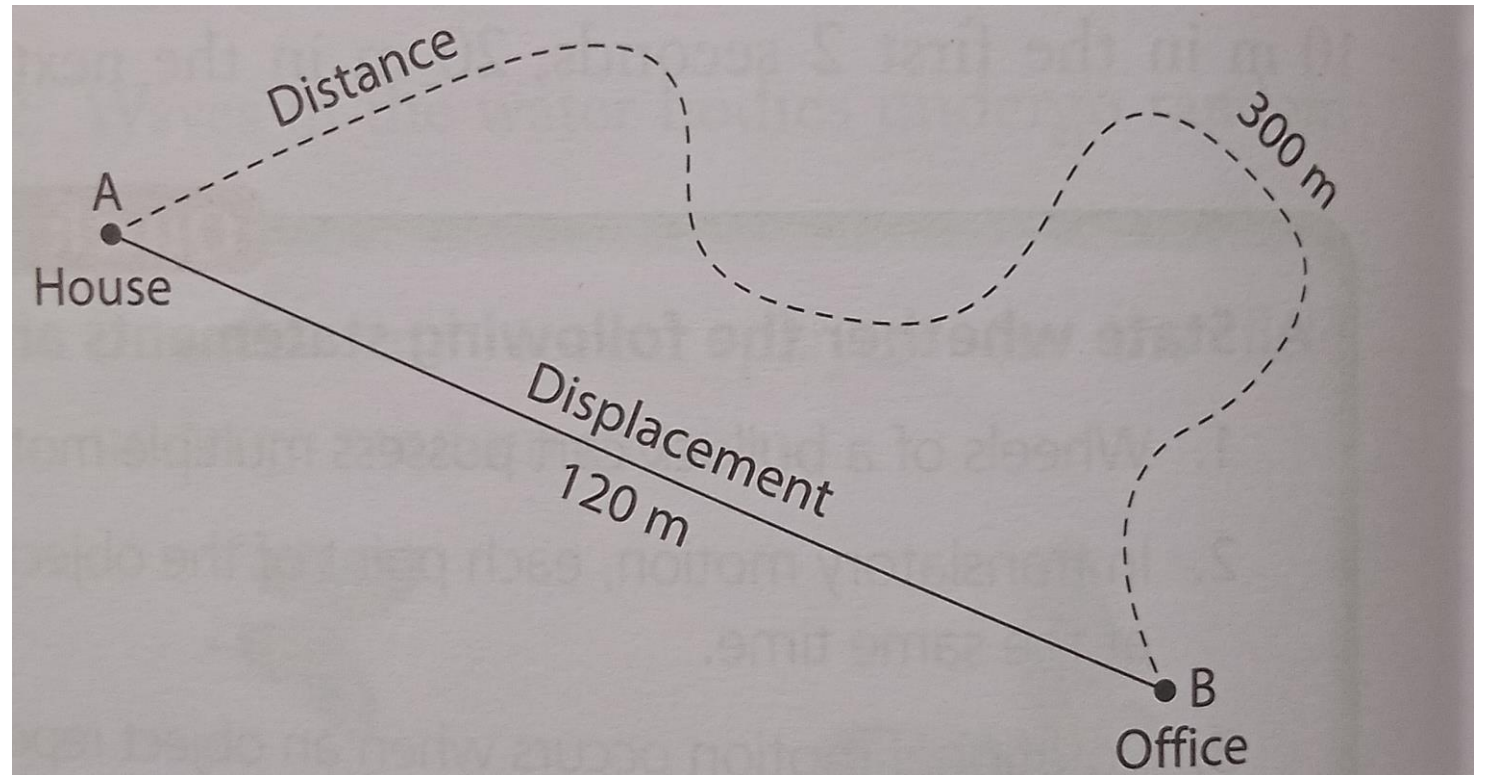
Physical quantities:

- Vectors – Physical quantities which can be described both by magnitude and direction

- Examples – weight, displacement, force and velocity
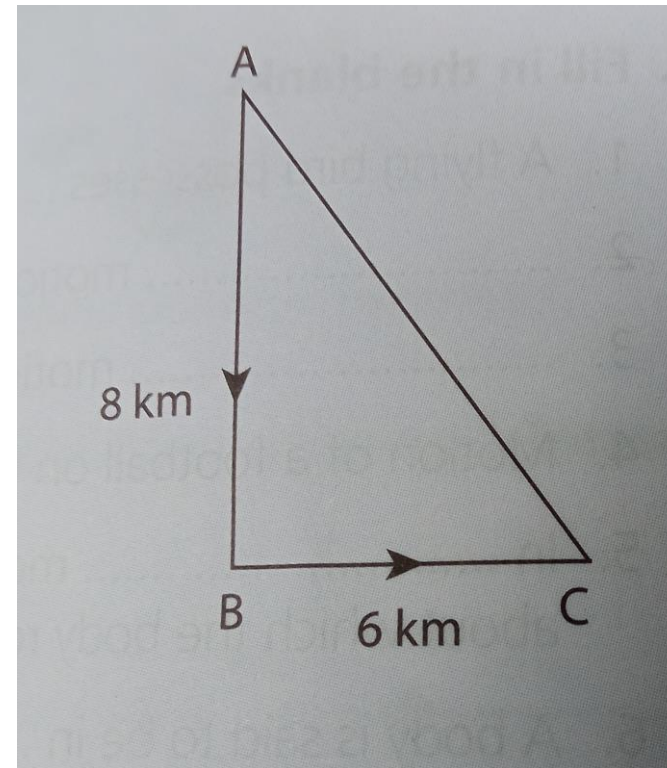
Distance and Displacement:

Actual length travelled by a moving object

- SI unit – metre (m)

Shortest possible distance travelled by a moving object between the initial and final objects
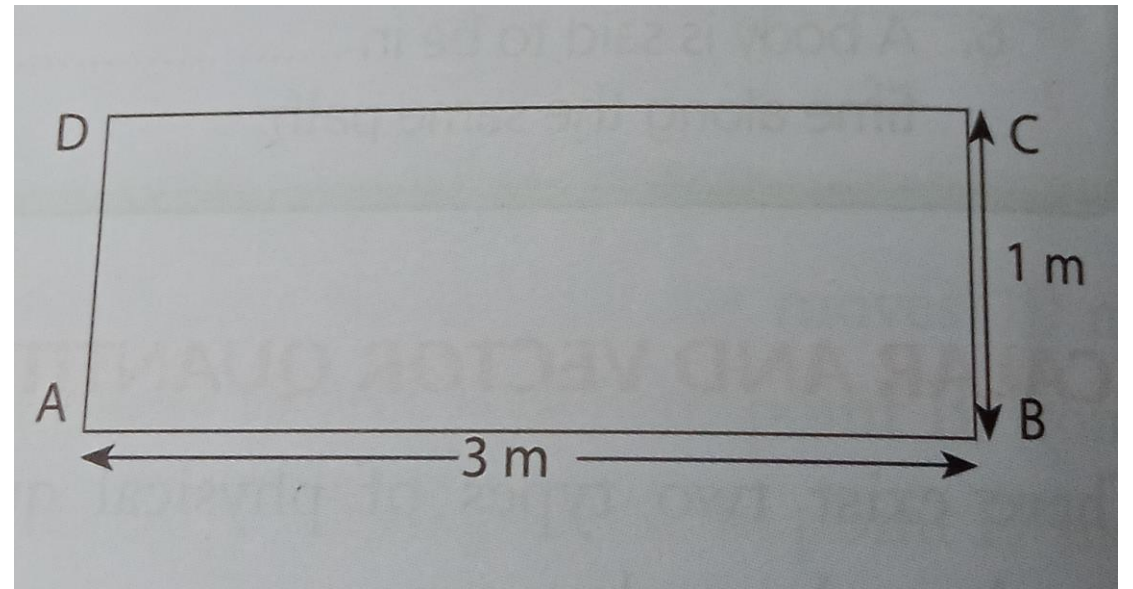
An object moves 8 km from point A to point B and then 6 km from point B to point c. Find the distance covered by the object and the displacement.

Raman moves along the perimeter of a rectangular field. He takes 4 rounds and returns to his starting point A.
i) What distance does he cover?
Ii) What is his displacement?

D   C

1 m

A   B

3 m

- What symbol can you put between 5 and 6 so that the result is greater than 5, but less than 6?

- I am black when you buy me, Red when you use me and grey when you throw me away?