

1. Speed, Time and Distance:

$$\text{Speed} = \left(\frac{\text{Distance}}{\text{Time}} \right), \text{Time} = \left(\frac{\text{Distance}}{\text{Speed}} \right), \text{Distance} = (\text{Speed} \times \text{Time}).$$

2. km/hr to m/sec conversion:

$$x \text{ km/hr} = \left(x \times \frac{5}{18} \right) \text{ m/sec.}$$

3. m/sec to km/hr conversion:

$$x \text{ m/sec} = \left(x \times \frac{18}{5} \right) \text{ km/hr.}$$

4. If the ratio of the speeds of A and B is $a : b$, then the ratio of the times taken by them to cover the same distance is $\frac{1}{a} : \frac{1}{b}$ or $b : a$.

5. Suppose a man covers a certain distance at x km/hr and an equal distance at y km/hr. Then,

the average speed during the whole journey is $\left(\frac{2xy}{x + y} \right)$ km/hr.