12. Convert km/h → m/s

$$\text{km/h} \times \frac{5}{18} = \text{m/s}$$

proof :- $\text{k/h} = \frac{1000}{60 \times 60} = \frac{5}{18}$ m/s.

⇒ 18 k/h = 5 m/s.
⇒ 36 k/h = 10 m/s.
⇒ 72 k/h = 20 m/s.

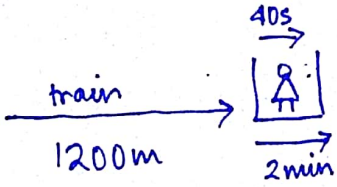
Problems :

1. A train 1200m. long crosses a platform in 40 sec. Find out the speed of the train in terms of km per hour.

— Apply rule (1).

speed of the train $= \frac{1200}{40} \times \frac{18}{5} = 108$ km/h.

2. A person standing on a platform observe a train 1200 m long crosses him in 40 sec & crosses the platform in 2 min Find out the length of platform.



As speed = $\frac{\text{dist.}}{\text{time}}$.

∴ when it crosses the man, speed is —

$$\frac{1200}{40}$$

& when it crosses the platform speed is —

$$\frac{1200+x}{2 \times 60}$$ [From rule 3].

$$\therefore \frac{1200}{40} = \frac{1200+x}{2 \times 60}$$

or, $1200 \times 30 = 1200 + x$

or, $x = 2400$

∴ length of platform is 2400 m.

k@ust@r