

Problems on Trains - Basic

21. A train is moving at speed of 132 km/hr . If the length of train is 110 meters, how long will it take to cross a railway platform 165 m long.

- a) 2.55 b) 3.55 c) 7.55 d) 9.55

$$S_1 = 132 \frac{\text{km}}{\text{hr}}$$

$$L = 110 \text{ m}$$

$$L_p = 165 \text{ m}$$

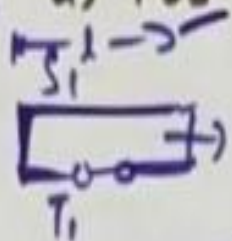
$$t = ?$$

$$d = S \times t \quad \checkmark$$

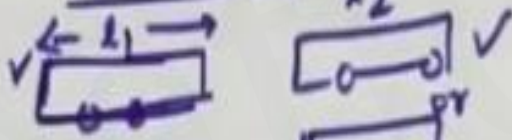
$$(110 + 165) \text{ m} = 132 \frac{\text{km}}{\text{hr}} \times t$$

$$275 \text{ m} = 132 \times \frac{5}{18} \times t$$

$$t = \frac{15}{2} = 7.55$$

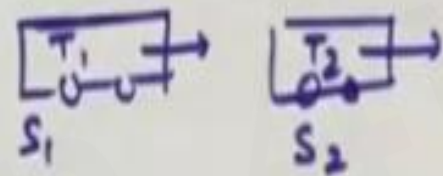


$$L_t = L + 0$$



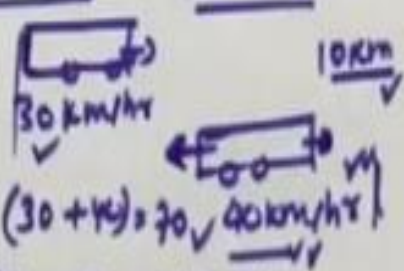
$$L_t = L_1 + L_2$$

Relative speed



Same dir = $(S_1 - S_2) \checkmark$

opposite dir = $(S_1 + S_2) \checkmark$



②

$$\text{km/hr} \rightarrow \frac{\text{m}}{\text{s}} \checkmark$$

$$\frac{\text{km}}{\text{hr}} = \frac{5}{18} \frac{1000 \text{ m}}{3600 \text{ s}} = \frac{5}{18} \checkmark$$

km/hr	$\frac{5}{18}$	$\rightarrow$	m/s	$\checkmark$
m/s	$\frac{18}{5}$	$\rightarrow$	km/hr	