

Problems on Trains

1. Speed of the train = $\frac{\text{distance (d)} + \text{length of the train (LT)}}{\text{Time (T)}}$

$$ST = \frac{d + LT}{T}$$

15. Given, $ST = 132 \text{ kmph} \times \frac{5}{18} = \frac{110}{3} \text{ m/sec}$
 $LT = 110 \text{ m}$

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

$$T = ?$$

$$\frac{110}{3} = \frac{165 + 110}{T}$$

$$T = 7.5 \text{ sec}$$

16. Given

$$23 \text{ sec} \rightarrow 272 \text{ m}$$

$$19 \text{ sec} \rightarrow 200 \text{ m}$$

speed is constant

$$\frac{272 + LT}{23} = \frac{200 + LT}{19}$$

$$LT = 142 \text{ m}$$

$$23 \text{ sec} \rightarrow 272 \text{ m}$$

$$19 \text{ sec} \rightarrow 200 \text{ m}$$

$$(or) \quad 4 \text{ sec} \rightarrow 72 \text{ m}$$

$$1 \text{ sec} \rightarrow 18 \text{ m}$$

$$23 \text{ sec} \rightarrow 23 \times 18 = 414$$

$$19 \text{ sec} \rightarrow 19 \times 18 = 342$$

$$L.T = 414 - d \Rightarrow 414 - 272 = 142 \text{ m}$$

$$L.T = 342 - d \Rightarrow 342 - 200 = 142 \text{ m}$$