

TDS

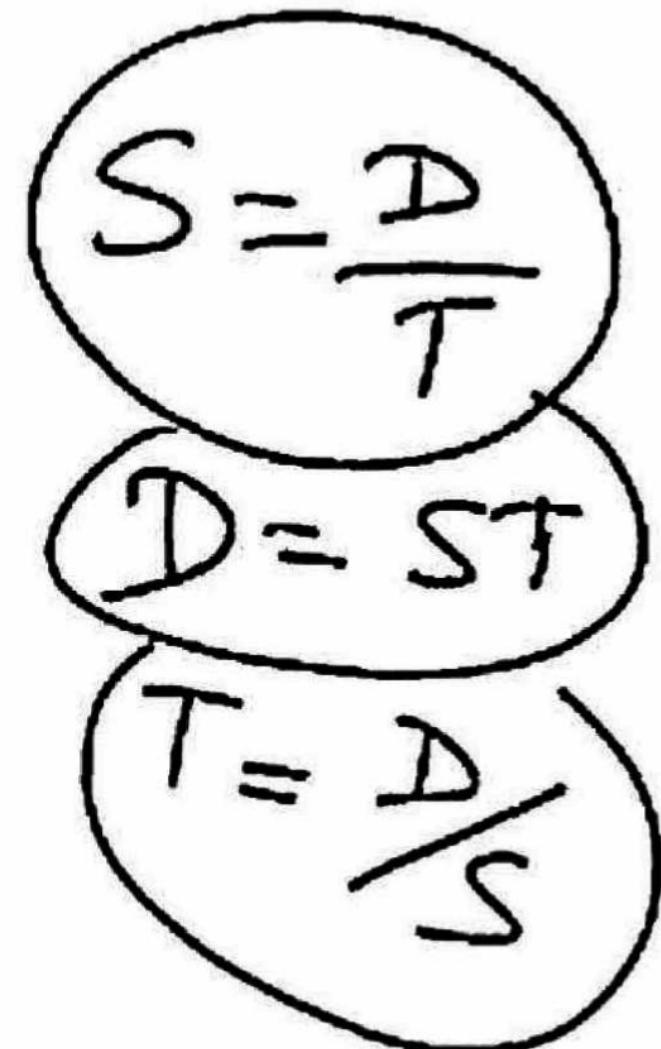
$$S = 120 \text{ kmph}$$

$$S = \frac{120}{\frac{D}{T}}$$

$$S = \frac{120 \text{ km}}{\frac{\text{hr}}{\text{hr}}}$$

SET-2

TRAINS



**TRAIN passing
Stationary objects/persons**

TYPE

1

A train, 150m long passes a pole in 15 seconds. What is the speed of the train in km.hr?

- a) 20 km/hr
- b) 24 km/hr
- c) 10 km/hr
- d) **36 km/hr**
- e) 38 km/hr

$$S = \frac{D}{T}$$

$$= \frac{150 \text{ m}}{15 \text{ s}}$$
$$= 10 \times \frac{18}{5}$$

$$S = \frac{D}{T}$$

$$4 \frac{\text{m}}{\text{s}} = TL + 80 \text{ m}$$

30 s

$$120 = TL + 80$$

$$40 = TL$$

②

A train crosses an 80m long platform in 30 seconds. If the speed of the train is 4 m/sec, what is the length of the train?

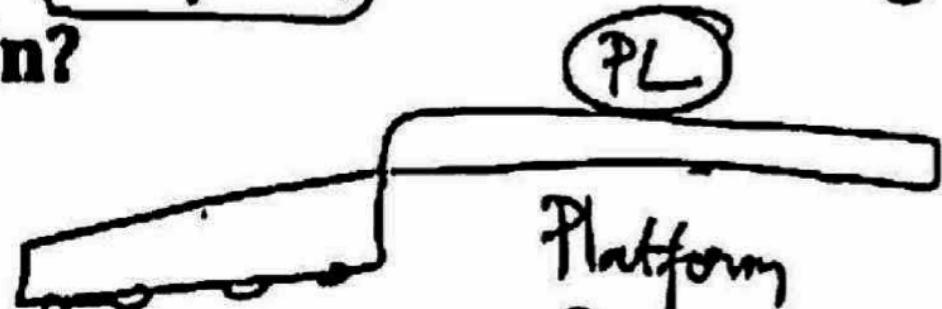
a) 40m

b) 55m

c) 80m

d) 60m

e) 50m



$$D = TL + PL$$

Tunnel

Other train

3. A 240m long train crosses a platform twice its length in 40 seconds. What is the speed of the train?

$$S = \frac{240 \times 3}{40}$$

- a) 6 m/sec
- b) 28 m/sec
- c) 18 m/sec
- d) 16 m/sec
- e) 20 m/sec

Chain Rule

4. A train 200m long takes 10 seconds to pass a standing man. Find the time taken by the train in crossing a railway platform of 260m in length.

a) 23 seconds

b) 13 seconds

c) 26 seconds

d) 36 seconds

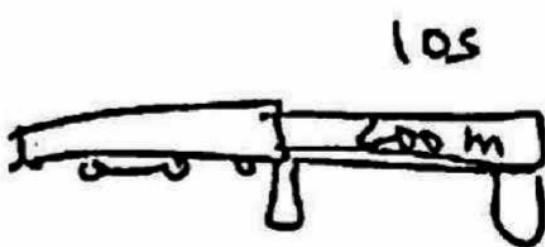
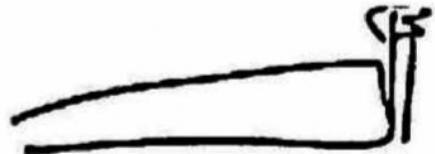
e) 20 seconds

$$200 \text{ m} \rightarrow 10 \text{ s}$$

$$460 \text{ m} \rightarrow ?$$

$$\begin{array}{ccc} 400 \text{ m} & \rightarrow & 20 \text{ s} \\ 60 \text{ m} & \rightarrow & 3 \text{ s} \end{array}$$

$$\begin{array}{l} 200 \rightarrow 10 \\ 460 \rightarrow ? \end{array}$$



5. A train crosses a pole and bridge 300m long in 10 seconds and 25 seconds, respectively. How long will the train take to cross a 200m long platform?

- a) 10 seconds
- b) 18 seconds
- c) 20 seconds
- d) 25 seconds
- e) 30 seconds

$$\begin{aligned} TL &\rightarrow 10 \text{ s} \\ TL + 300 \text{ m} &\rightarrow 25 \text{ s} \\ 10 & \quad 15 \text{ s} \\ 300 \text{ m} &\rightarrow 15 \text{ s} \\ TL + 200 \text{ m} &\rightarrow 10 \text{ s} \\ 10 & \quad 20 \text{ s} \end{aligned}$$

$S \propto D$

$S \propto 1/T$



a) 2:3

b) 3:4

c) 5:9

d) 5:8

e) 4:3

$T \propto 3:5$

$\cancel{D} \quad \cancel{180:200}$

$3:5$

$\cancel{D} \quad \cancel{180:200}$

$3:5$

6. What is the ratio between the times taken by a train of length 500m to cross an electric pole and a bridge of length 400m?

$$T_{\text{pole}} : T_{\text{bridge}}$$

$$500 : 400$$

$$180:200$$

$$3:5$$

7. A train passes a signal pole and a bridge of length 648m in 12 seconds and 24 seconds, respectively. What is the speed of the train?

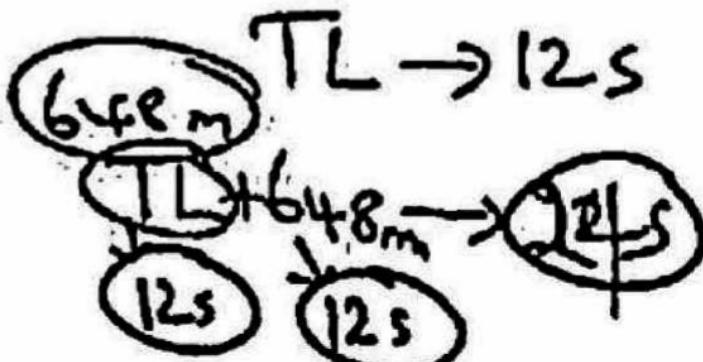
a) 186.4 km/hr

b) 180 km/hr

c) 179 km/hr

d) 194.4 km/hr

e) 134.8 km/hr



$$S = \frac{54}{648 \text{ m}} \cancel{12}$$

$$\frac{54}{18}$$

$$\frac{54}{5} \text{ m/s} \times \frac{18}{5}$$

$$194.4 = \frac{972 \times 2}{10} =$$

$$\begin{array}{r} 3 \times 18 \times 18 \\ \hline 15 \\ 3 \times 324 \\ \hline 5 \end{array}$$

$$18 \text{ m/s}$$

$$S = \frac{D}{T} \text{ m/s}$$

$$= 18 \times \frac{2}{3}$$

$$S = 12$$

$$T = \frac{D}{S}$$

$$= \frac{320 \text{ m}}{80 \text{ m/s}}$$

$$= 4 \text{ s}$$

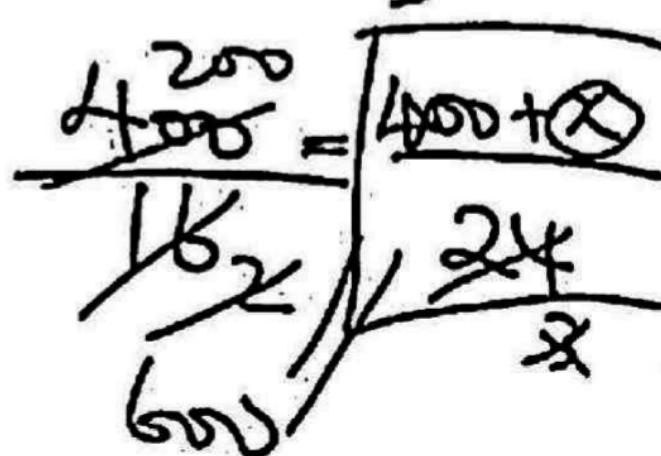
- 8) A train length 320 m crosses 400 m platform in 40 seconds. If the train running at 33.33% less than its usual speed, then find the time taken by the train to cross a pole (approximately).
- a) 29 seconds
 b) 23 seconds
 c) 35 seconds
 d) 27 seconds
 e) 30 seconds

$$\frac{1}{4} \times \frac{3}{4}$$

$$3 - 1 = \frac{3}{3}$$

$$=\frac{2}{3}$$

$$\frac{S_A}{t} = S_B \quad 9)$$



Length of train A is 400 meters
and length of train B is ' x ' meters more
than train A. If speed of both train A &
B is equal and they cross a pole in 16
sec and 24 secs respectively [then in
what time train 'B' will cross 400 m
long platform.

$$+ 600 \text{ m}$$

(a) 32 sec

(b) 40 sec

(c) 45 sec

(d) 54 sec

(e) 24 sec

$$T = \frac{D}{S}$$

