

Time, Speed, Distance

Code: G 4 Z D G X

$$\# D = S \times T$$

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

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

① $S = 45 \text{ kmph}$

$T = 8 \text{ hrs}$

$\checkmark D = ?$

$$D = S \times T$$

$$D = 45 \times 8$$

$$\boxed{D = 360 \text{ km}}$$

② $S = 30 \text{ kmph}$

$D = 1750 \text{ km}$

$T = ?$

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

$$T = \frac{1750}{30}$$

$$\boxed{T = 25 \text{ hours}}$$

③ $D = 520 \text{ km}$

$T = 8 \text{ hrs}$

$S = ?$

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

$$S = \frac{520}{8} = 65 \text{ kmph}$$

$$\boxed{S = 65 \text{ kmph}}$$

1) $D = 400 \text{ meter}$

$S = 90 \text{ kmph}$

$S = 90 \times \frac{5}{18} = 25 \text{ m/sec}$

1) $\text{kmph} \xrightarrow{\times \frac{5}{18}} \text{m/sec}$ Code: G 4 Z D G X

2) $\text{m/sec} \xrightarrow{\times \frac{18}{5}} \text{kmph}$

<u>kmph</u>	<u>m/sec</u>
18	5
36	10
54	15
72	20
90	25
108	30
126	35
144	40
162	45
180	50

D	KM	Meter
T	HR	SEC
S	Kmph	m/sec

Distance/Time unit
Unit दूरी speed के
Unit बतावे.

1) $\text{Kmph} \xrightarrow{\times \frac{5}{18}} \text{m/sec}$ Code: G 4 Z C G X

2) $\text{m/sec} \xrightarrow{\times \frac{18}{5}} \text{Kmph}$

Kmph	m/sec
18	5
36	10
54	15
72	20
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108	30
126	35
144	40
162	45
180	50

$$\begin{aligned}
 1) \quad D &= 540 \text{ km} \\
 S &= 20 \text{ m/sec} \\
 T &= 8 \\
 S &= 72 \text{ kmph} \\
 T &= \frac{540}{72} = \frac{30}{4} \\
 \boxed{T &= 7.5 \text{ hours}}
 \end{aligned}$$

$$\begin{aligned}
 2) \quad D &= 600 \text{ m} \\
 S &= 54 \text{ kmph} \\
 T &= 8
 \end{aligned}$$

$$\begin{aligned}
 S &= 54 \text{ kmph} = 15 \text{ m/sec} \\
 \boxed{T &= \frac{600}{15} = 40 \text{ sec}}
 \end{aligned}$$

$$\begin{aligned}
 3) \quad T &= 8 \text{ hours} \\
 S &= 30 \text{ m/sec} \\
 D &= ?
 \end{aligned}$$

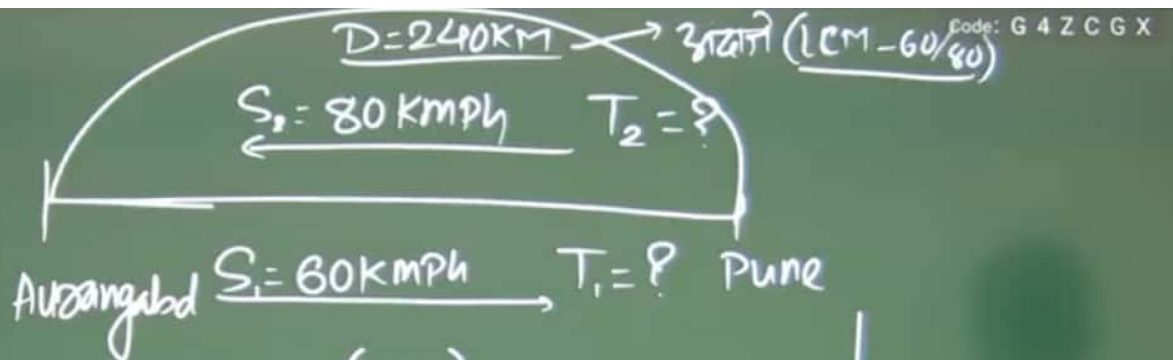
$$\begin{aligned}
 S &= 30 \text{ m/s} = 108 \text{ kmph} \\
 D &= S \times T \\
 D &= 108 \times 8 = 864 \\
 \boxed{D &= 864 \text{ km}}
 \end{aligned}$$

Code: G 4 Z C G X

$$\begin{aligned}
 4) \quad T &= 40 \text{ sec} \\
 S &= 45 \text{ kmph} \\
 D &= S \times T
 \end{aligned}$$

$$\begin{aligned}
 S &= 12.5 \text{ m/sec} \\
 D &= 12.5 \times 40 \\
 \boxed{D &= 500 \text{ m}}
 \end{aligned}$$

Properties:->



$$\frac{T_1}{T_2} = \frac{\left(\frac{240}{60}\right)}{\left(\frac{240}{80}\right)} = \frac{4}{3}$$

Distance = constant = Equal

$$\frac{S_1}{S_2} = \frac{60}{80} = \frac{3}{4} \quad \frac{T_1}{T_2} = \frac{4}{3}$$

Properties:->

1) Distance = Equal

$$\Rightarrow \frac{S_1}{S_2} = \frac{T_2}{T_1}$$

$$\Rightarrow \boxed{S_1 \times T_1 = S_2 \times T_2}$$

2) Speed = Equal

$$\boxed{\frac{D_1}{T_1} = \frac{D_2}{T_2}}$$

$$\Rightarrow \boxed{\frac{D_1}{D_2} = \frac{T_1}{T_2}}$$

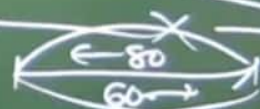
3) Time = Equal

$$\boxed{\frac{D_1}{S_1} = \frac{D_2}{S_2}}$$

$$\boxed{\frac{D_1}{D_2} = \frac{S_1}{S_2}}$$

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$$\text{Avg speed} = \frac{\text{Total Distance}}{\text{Total Time}}$$



$$\text{Avg speed} = \frac{240 + 240}{4 + 3} = \frac{480}{7} = \boxed{68\frac{4}{7}}$$

An aeroplane covers a certain distance at a speed of 240 kmph in 5 hours . To cover the same distance in 2 hours , it must travel at a speed of

- a) 300
- b) 360
- 720
- 600
- None

$$S = 240 \text{ kmph}$$

$$T = 5 \text{ hrs}$$

$$D = 240 \times 5 = 1200 \text{ km}$$

$$D = 1200 \text{ km}$$

$$T = 2 \text{ hrs}$$

$$S = \frac{1200}{2} = 600 \text{ kmph}$$

Code: G 4 Z C G X

An aeroplane covers a certain distance at a speed of $240 \frac{S}{\text{kmph}}$ in 5 hours . To cover the same distance in 2 hours, it must travel at a speed of T

- a) 300
- b) 360
- 720
- 600
- None

$$S = 240 \text{ kmph}$$

$$T = 5 \text{ hrs}$$

$$D = 240 \times 5 = 1200 \text{ km}$$

$$D = 1200 \text{ km}$$

$$T = 2 \text{ hrs}$$

$$S = \frac{1200}{2} = 600 \text{ kmph}$$

$$\frac{S_1}{S_2} = \frac{T_2}{T_1}$$

$$\frac{240}{x} = \frac{2}{5}$$

$$x = 600 \text{ kmph}$$

If Ramdas walks at 15 km/hr instead of 10 km/hr, he would have walked 20 km more. The actual distance travelled by him is:

- a) 40 km
- b) 56 km
- 60 km
- 80 km
- 75 km

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

$$\frac{D_1}{S_1} = \frac{D_2}{S_2}$$

$$\frac{x}{10} = \frac{x+20}{15}$$

$$15x = 10x + 200$$

$$5x = 200 \quad (x = 40)$$

If Ramdas walks at 15 km/hr instead of 10 km/hr, he would have walked 20 km more. The actual distance travelled by him is:

- a) 40 km
- b) 56 km
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$$T = \frac{D}{S}$$

$$\frac{D_1}{S_1} = \frac{D_2}{S_2}$$

$$\frac{x}{10} = \frac{x+20}{15}$$

$$15x = 10x + 200$$

$$5x = 200 \quad (x = 40)$$

Mentor

$$\frac{\text{original (s)}}{\text{later (s)}} = \frac{10 \frac{x}{4} 40}{15 \frac{x}{4} 60}$$

$$\frac{D}{S} = \frac{20}{5} = \boxed{4 \text{ hrs}}$$

A man complete a journey in 10 hours. He travels first half of the journey at the rate of 21 km/hr and second half at the rate of 24 km/hr. Find the total journey in km.

- a) 220 km
 224 km
 230 km
 234 km
 260 km

Diagram illustrating the journey:

$$\left(\frac{x}{21}\right) + \left(\frac{x}{24}\right) = 10$$

$$\frac{8x + 7x}{168} = 10$$

$$\frac{15x}{168} = 10$$

$$15x = 1680$$

$$x = 112$$

$$D = S \times T$$

\Rightarrow Distance \times Speed \times Time
 या गुणकार

\Rightarrow Distance को
 नेहमी Speed आणि
 Time से गुणा जातो

\Rightarrow Distance Speed आणि
 Time चा वापर करून