

**QUANTS-TIME, DISTANCE & SPEED****SOLUTION**

360

1. If a car runs at a speed of 60 km/h and takes 180 minutes to cover a certain distance, then what time will it take to cover the same distance at a speed of 40 km/h? ssc CPO 29/06/2024 Tier I (Shift 3)

A. 3 hr

B. 4 hr 30 mins

C. 3 hrs 45 mins

D. 3 hours 15 mins

x 5 hr

$$D = 180 \text{ km}$$

$$T = \frac{D}{S} = \frac{180 \text{ km}}{40 \text{ km/hr}} = 4.5 \text{ hr}$$

$$1 \text{ hr} = 60 \text{ min}$$

$$1 \text{ min} = \frac{1}{60} \text{ hr}$$

$$\frac{180 \text{ min}}{60} = 3 \text{ hr}$$

2. The distance between two stations A and B is 800 km. A train covers the journey from A to B at a speed of 90 km/h and returns to A with a uniform speed of 65 km/h. Find the average speed of train during the whole journey (in km/h)? ssc CPO 29/06/2024 Tier 1 (Shift 3)

A. 82.36

B. 80.50

C. 70.45

D. 75.48

2 same distance but diff. speed

$$\boxed{AS = \frac{2xy}{x+y}}$$

13

$$= \frac{2 \times 90 \times 65}{155}$$

31.30+

$$= 78.4$$

= 78.4



3. A travels for 8 hours at the rate of 4 km/h and for 4 hours at the rate of 8 km/h. The average speed of the journey (in km/h) is.

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A.  $5\frac{2}{3}$

B.  $4\frac{2}{3}$

C.  $5\frac{1}{3}$

D.  $4\frac{1}{3}$

$T \times S = D$



$$AS = \frac{TD}{TT}$$

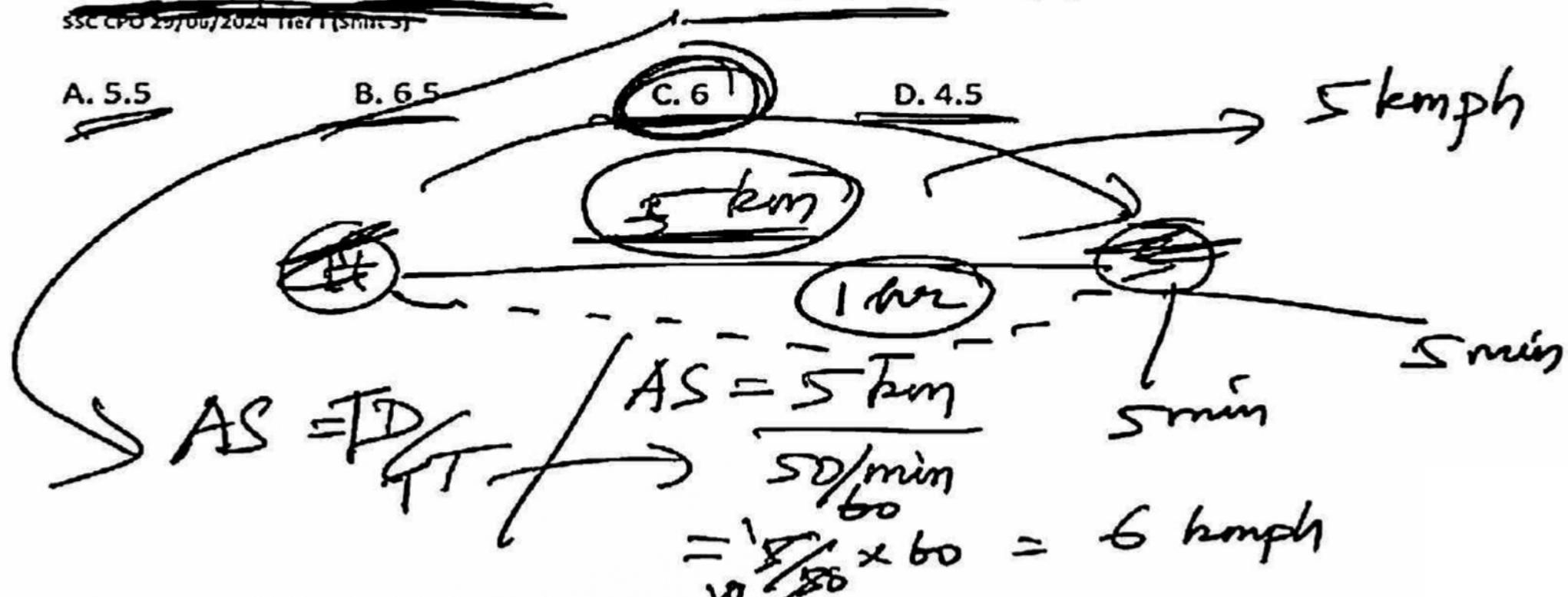
$$= \frac{64 + 16}{12 \times 3} = \frac{16}{3}$$

$$AS = \frac{2 \times 4 \times 8}{x+y} = \frac{2 \times 4 \times 8}{12+3}$$

$$= \frac{16}{3} = 5\frac{1}{3}$$

4. A student goes to his school by cycle. The distance from his house to school is 5 km, and he covers this distance in 1 hour. While going he stops twice for 5 minutes each. Find his average speed (in km/h).

~~SSC CPO 29/06/2024 11871 (Smart)~~



5. Two cars run to a place at the speeds of 45 km/h and 55 km/h, respectively. If the second car takes 40 minutes less than the first for the journey, then what is the length of the journey (in km)?

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A. 145

B. 165

C. 180

D. 99

Traditional equate

$$D = \frac{45 \times 220}{3600} \text{ hr} = \frac{45}{3} = 165 \text{ km}$$

$$t = 220 \text{ min}$$

$$165 = 55 \times 40$$

$$45t = 55t - 55 \times 40$$

$D_1 = D_2$

$$S_1 T_1 = S_2 T_2$$

$$= 55 \left( t - \frac{40}{60} \right)$$

6. A thief running at 7 km/h is chased by a policeman whose speed is 12 km/h. If the thief is 280 m ahead of the policeman, then the time required for the policeman to catch the thief will be:

SSC CPO 27/06/2024 Tier I (Shift 1)

~~Q6~~ A. 145

B. 165

C. 180

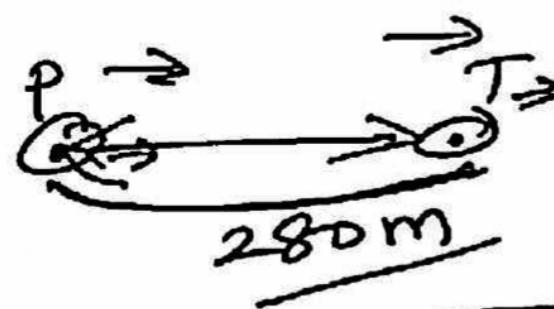
D. 99

Chasing

~~T~~ =  $\frac{D}{R_S}$

$$= \frac{280 \text{ m}}{5 \text{ kmph}}$$

$$= \frac{280}{5 \times 5/18} = \frac{280}{5 \times 5} \times 18 \text{ sec}$$



1.  $3\frac{1}{25}$  minutes

2.  $3\frac{9}{25}$  minutes

3.  $4\frac{9}{25}$  minutes

4.  $3\frac{2}{25}$  minutes



$$\begin{array}{r}
 \textcircled{2} \textcircled{8} \\
 \times 18 \\
 \hline
 5 \times 5 \quad \textcircled{3} \\
 \hline
 50 \ 10
 \end{array}$$

$1 \text{ min} = 60 \text{ sec}$   
 $\frac{1}{60} \text{ min} = 1 \text{ sec}$

$$\frac{84}{25} = 3 \frac{9}{25}$$

7. Suppose A starts walking at a speed of 8 km/h. After 8 hours, B started travelling on a bicycle at a speed of 24 km/h. The distance from the starting B can catch A is: ssc CGL 25/09/2024 Tier I (Shift 1)

Chasing

A. 64 km

B. 96 km

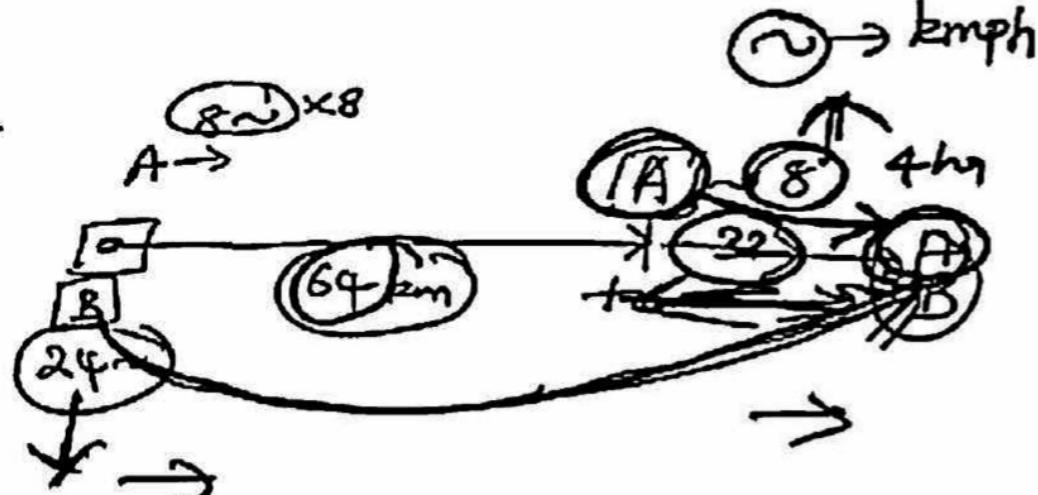
C. 72 km

D. 88 km

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

$$= \frac{64}{(24-8)} = 4 \text{ hr}$$

$$D = 96 \text{ km}$$



8. Akshara and Siddharth travel from point P to Q, a distance of 72 km at a rate of 8 km/h and 10 km/h, respectively. Siddharth reaches Q first and returns immediately, and meets Akshara at R. Find the distance from P to R! SSC CGL 25/09/2024 Tier I (Shift 1)

A. 65 km

B. 63 km

C. 64 km

D. 66 km

$$T = \frac{D}{S} = \frac{72}{10} = 7.2 \text{ hr}$$

$$D = ST = 8 \times 7.2 = 57.6$$

$$T = \frac{D}{S} = \frac{14.4}{8} = 1.8 \text{ hr}$$

$$2 \text{ hr} = 0.8 \text{ hr}$$

$$0.8 \text{ hr}$$

&lt;math

9. Two towns P and Q are 275 km apart. A motorcycle rider starts from P towards Q at 10:00 a.m. at the speed of 25 km/h. Another rider starts from Q towards P at 12 noon on the same day at the speed of 20 km/h. At what time will they cross each other?

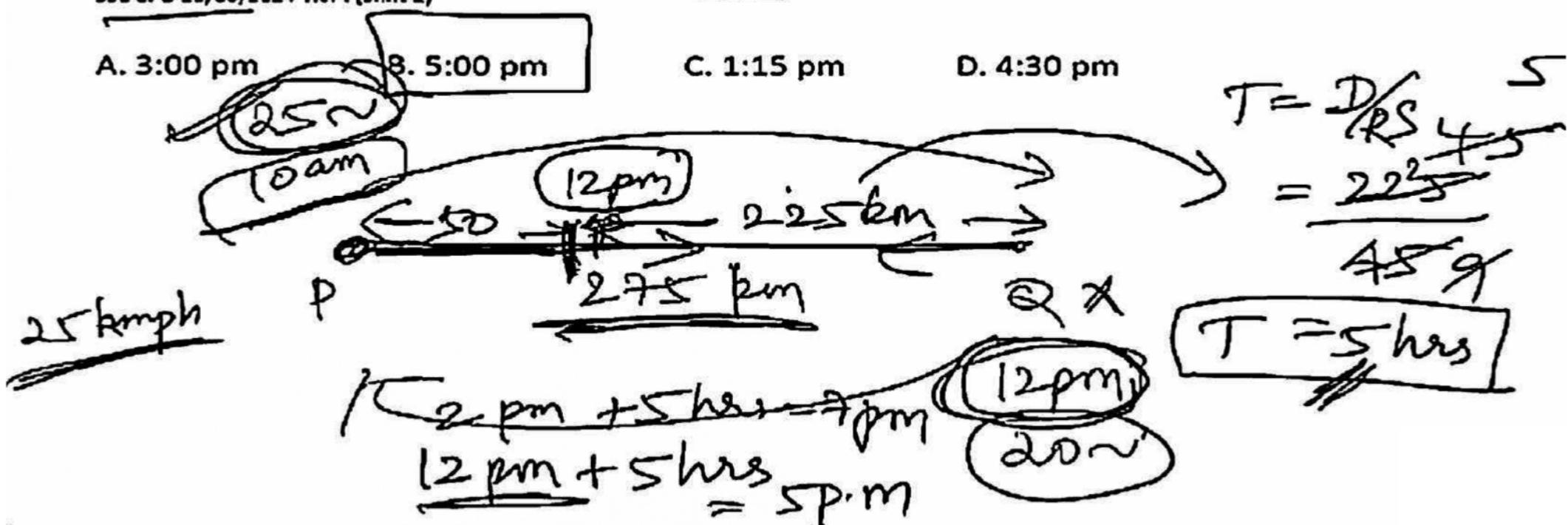
SSC CPO 28/06/2024 Tier I (Shift 2)

A. 3:00 pm

B. 5:00 pm

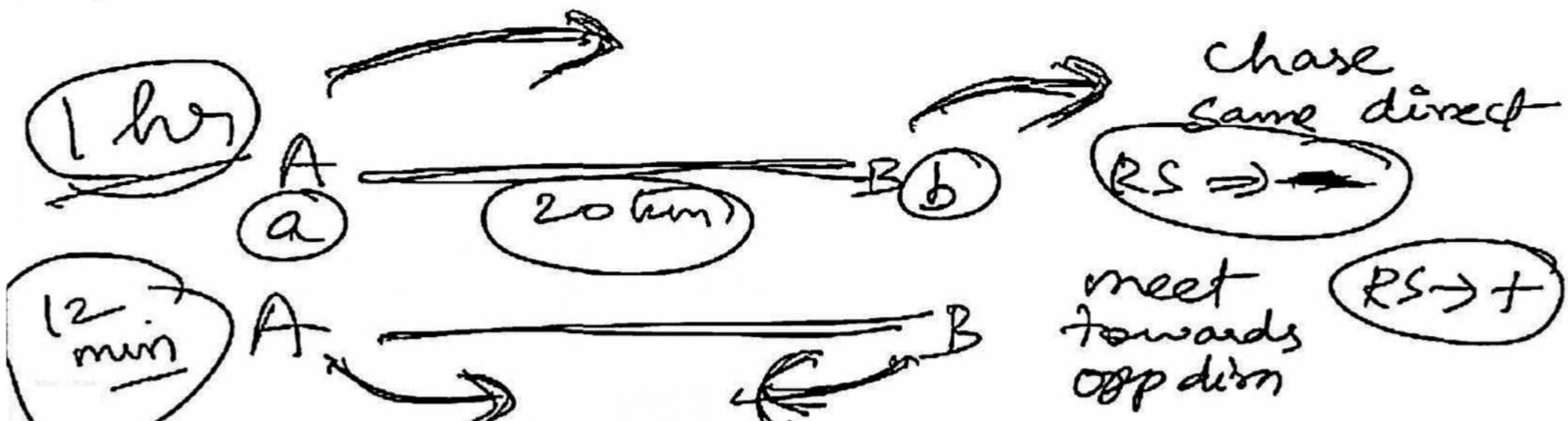
C. 1:15 pm

D. 4:30 pm



**10. Places A and B are 20 km apart on the highway. A car starts from A and another from B at the same time. If the cars travel in the same direction at different speeds, they meet in one hour. If they travelled towards each other, they met in 12 minutes. What are the speeds (in km/h) of two cars?** SSC CPO 23/06/2024 Tier 3 (Shift 2)

- A. 60, 40      B. 52, 48      C. 51, 49      D. 55, 45



$$D_1 = D_2 \longrightarrow$$

$$\downarrow \quad D = ST$$

$$20 = (a-b) \text{ min } \quad \left. \right\}$$

$$20 \text{ km} = (a+b) \frac{12 \text{ min}}{\text{60 min}}$$

$$\begin{aligned} a - b &= 20 \quad \left. \right\} \Rightarrow \begin{aligned} 60 - 40 \\ a - b = 20 \end{aligned} \\ a + b &= 100 \end{aligned}$$
$$\begin{aligned} a &= 60 \\ b &= 40 \end{aligned}$$