



TIME AND DISTANCE

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TIME AND DISTANCE

- $\text{Speed}(S) = \text{Distance}(d)/\text{Time}(t)$
- $\text{Time} = \text{Distance}/\text{Speed}$
- $\text{Distance} = \text{Speed} \times \text{Time}$
- $1 \text{ Kmph} = (5/18) \text{ m/s}$
- $1 \text{ m/s} = (18/5) \text{ Kmph}$



TIME AND DISTANCE

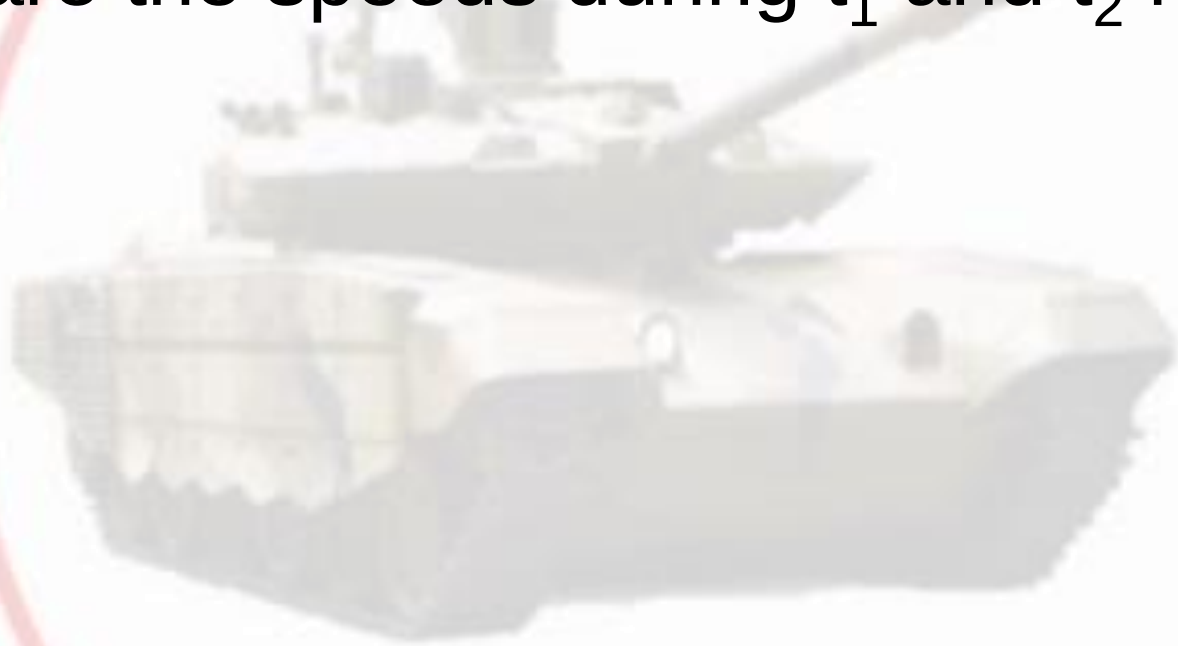
- Average Speed = Total distance/Total Time = $(d_1+d_2)/(t_1+t_2)$
- When $d_1 = d_2$ (Distance Same) Average Speed = $2xy/(x+y)$, where x and y are the speeds for covering d_1 and d_2 respectively.

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- When $t_1 = t_2$ (Time Same) Average Speed = $(x+y)/2$, where x and y are the speeds during t_1 and t_2 respectively.



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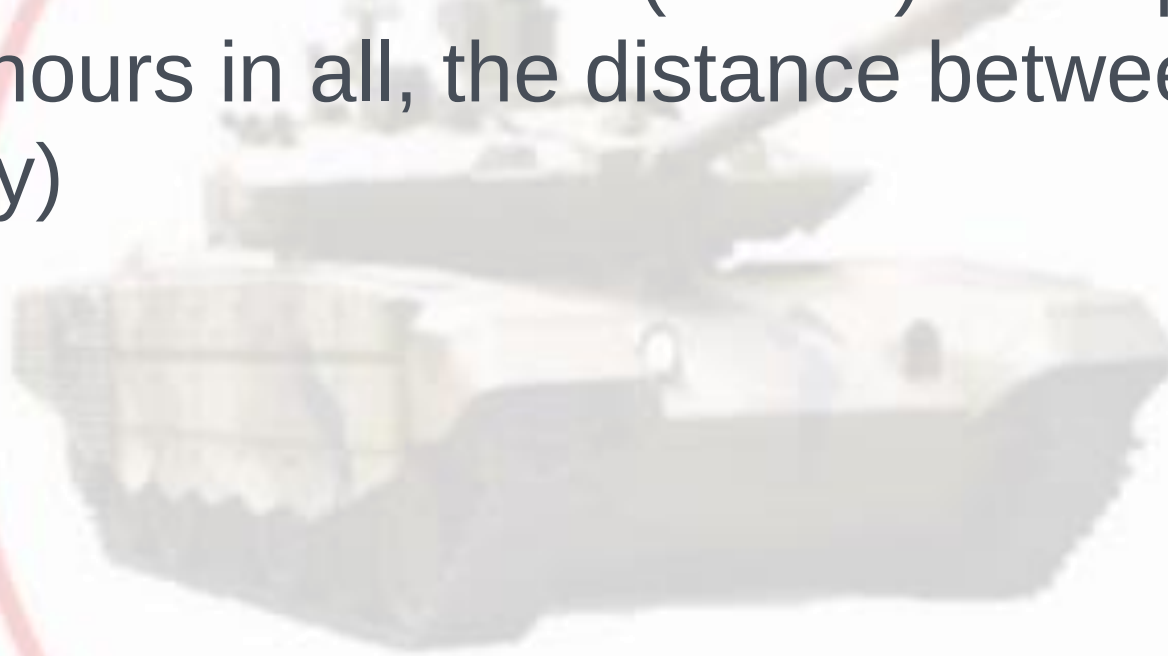
- Relative speed when moving in opposite direction is -: $x+y$
- Relative speed when moving in same direction is -: $x-y$

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- A person goes certain distance (A to B) at a speed of x kmph and returns back (B to A) at a speed of y kmph. If he takes T hours in all, the distance between A and B is $T(xy/(x+y))$



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- When two trains of lengths l_1 and l_2 respectively travelling at the speeds of x & y respectively cross each other in time t , then the equation is given as $x+y = (l_1+l_2)/t$

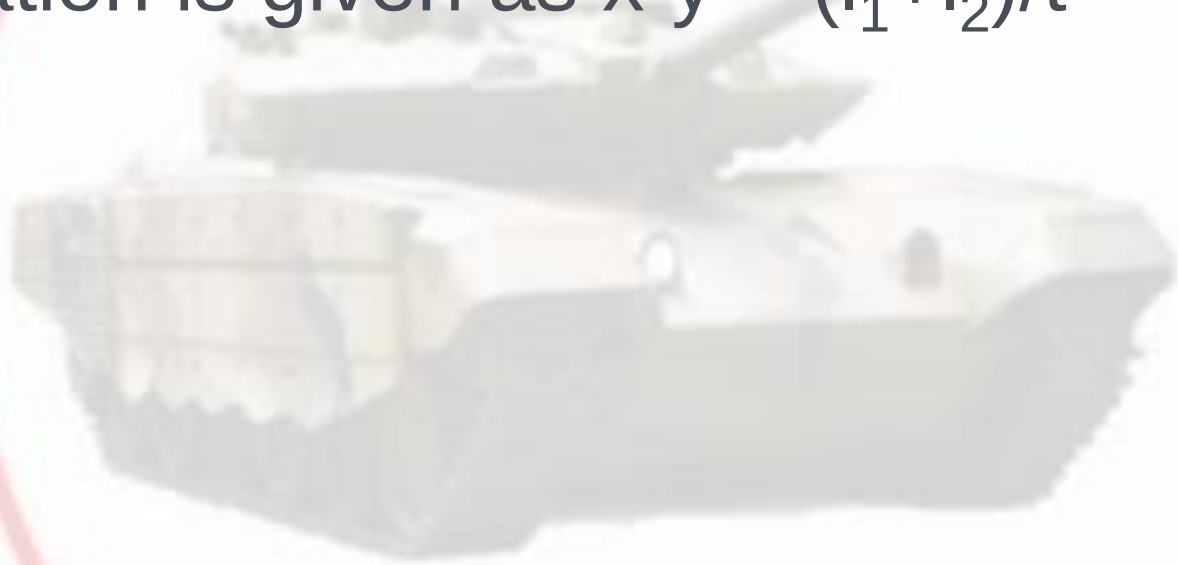


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- When a train of length l_1 travelling at a speed of x overtakes another train of length l_2 travelling at speed y in time t , then the equation is given as $x - y = (l_1 + l_2)/t$



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- When a train of length l_1 travelling at a speed of x crosses a platform/bridge/tunnel of length l_2 in time t , then the equation is given as $x = (l_1 + l_2)/t$



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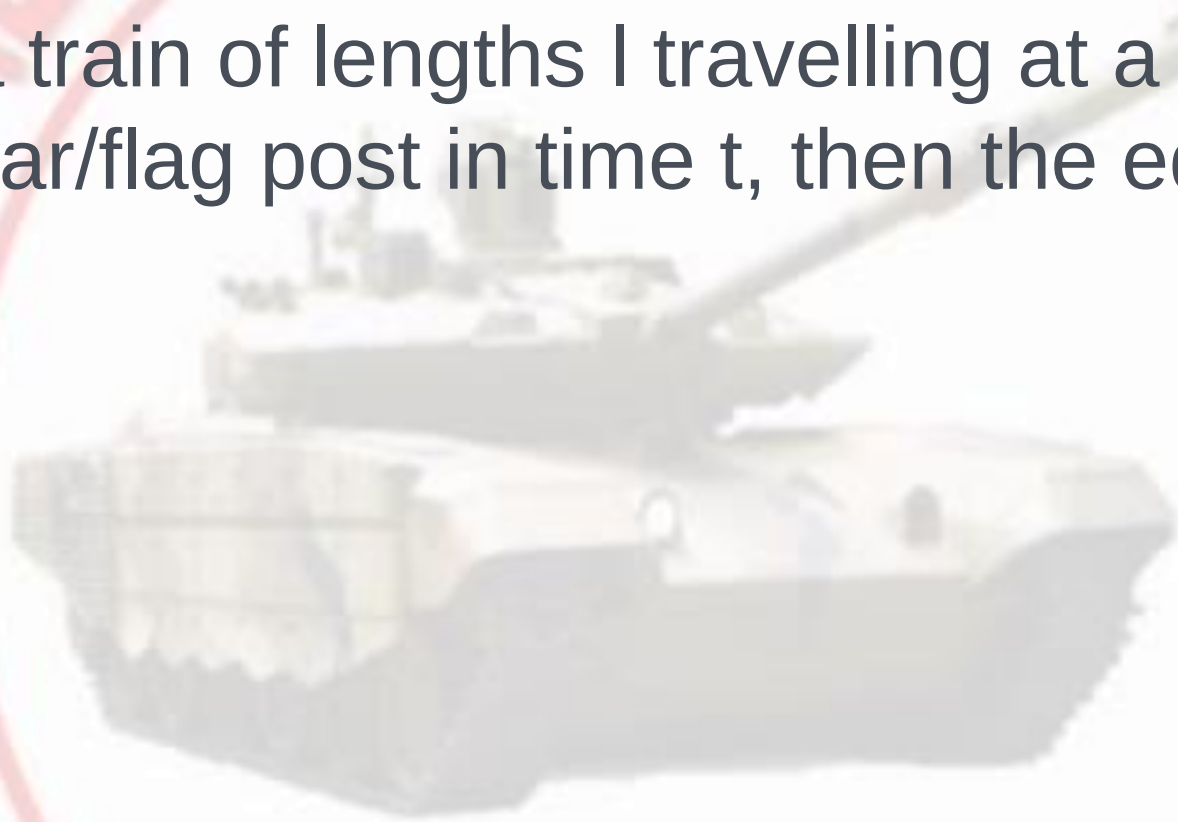
- If two persons A and B start at the same time from two points P and Q towards each other and after crossing they take T_1 and T_2 hours in reaching Q and P respectively, then $(A's \text{ speed}) / (B's \text{ speed}) = \sqrt{T_2} / \sqrt{T_1}$

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- When a train of lengths l travelling at a speed s crosses a pole/pillar/flag post in time t , then the equation is given as $s = l/t$



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TIME AND DISTANCE QUESTIONS

1. Find speed when, distance is 142 km and time is 2 hours.

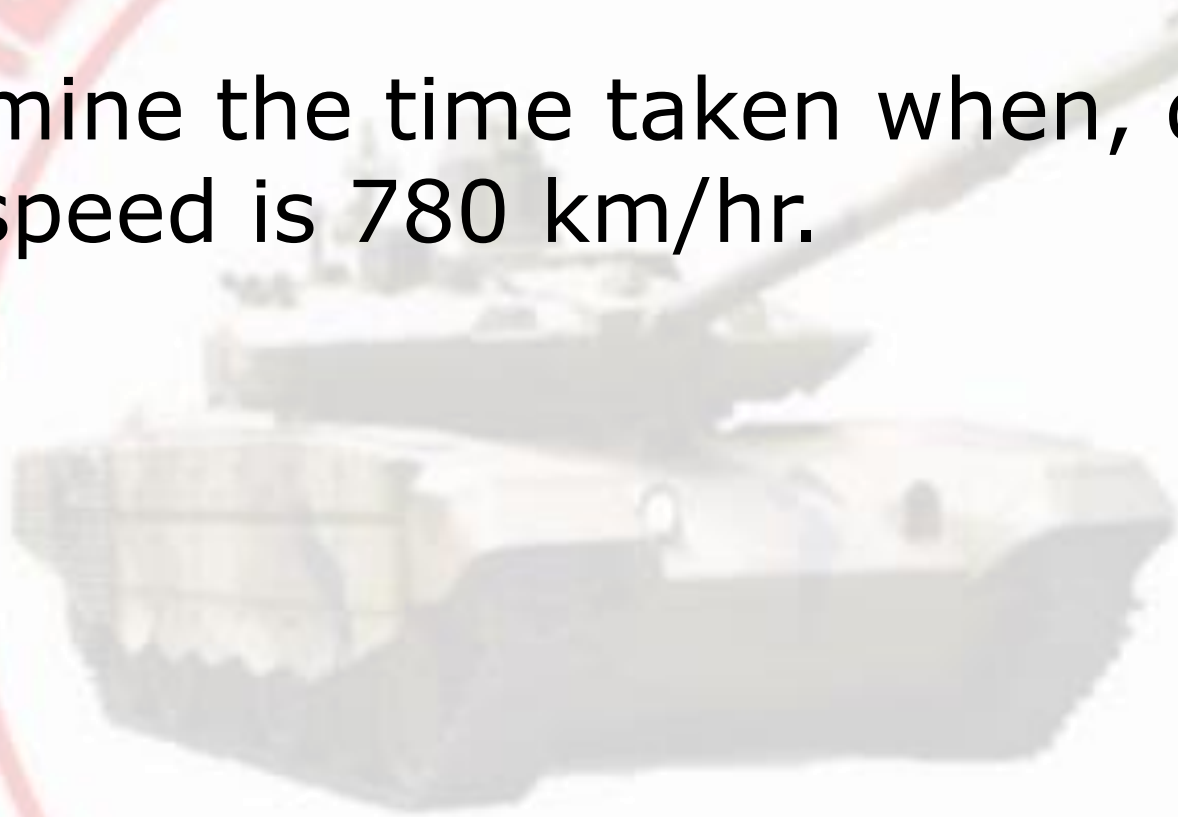
2. Find out the distance covered when, speed is 960 km/hour and time is 1 hour 50 minutes.

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TIME AND DISTANCE QUESTIONS

3. Determine the time taken when, distance is 7150 km and speed is 780 km/hr.



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TIME AND DISTANCE QUESTIONS

4. If distance travelled by a train is 495 km in 4 hours 30 minutes, what is its speed?



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TIME AND DISTANCE QUESTIONS

5. A cyclist covers 950 m in 5 minutes. Find his speed in km/ hour.



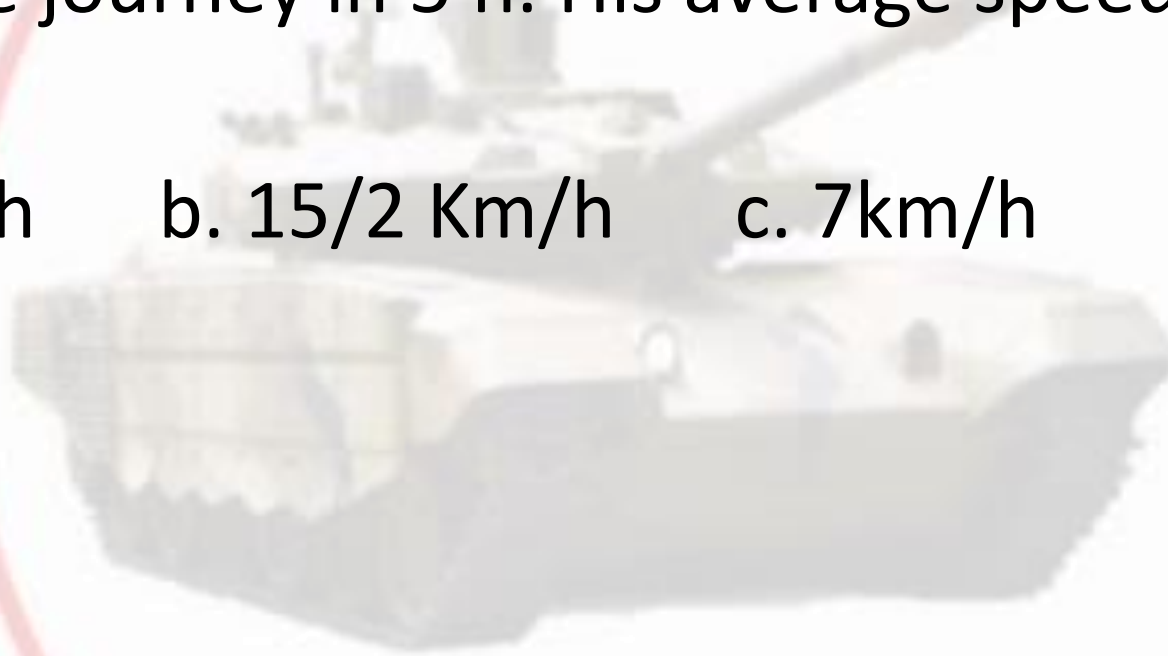
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6. A man completes 30 km of a journey at 6 km/h and the remaining 40 km of the journey in 5 h. His average speed for the whole journey is..

- a. $6\frac{4}{5}$ km/h b. $15\frac{1}{2}$ Km/h c. 7km/h d. 8 km/hr



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7. Two cyclists start from the same place in opposite directions. One goes towards north at 18 km/h and the other goes towards south at 20 km/h. What time will they take to be 47.5 km apart?

- (a) $9/4$ hrs (b) 2h (c) 3 h (d) None of these



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8. Two trains of length of 120 m and 80 m are running in the same direction with velocities of 40 km/h and 50 km/h respectively. The time taken by them to cross each other is

- (a) 60 s (b) 75 s (c) 72 s (d) 80 s



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9. A police car is ordered to chase a speeding car that is 5 km ahead. The car is travelling at an average speed of 80 km/h and the police car pursues it at an average speed of 100 km/h. How long does it take for the police car to overtake the other car?

(a) 13 min (b) 15 min (c) 17 min (d) 19 min

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10. A car driver, driving in a fog passes a pedestrian who was walking at the rate of 2 km/h in the same direction. The pedestrian could see the car for 6 min and it was visible to him up to a distance of 0.6 km, What was the speed of the car?

- (a) 30 km/h (b) 15 km/h (c) 20 km/h (d) 8 km/h

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11. A train 700 m long is running at the speed of 72 km/h. If it crosses a tunnel in 1 min, then the length of the tunnel is

(a) 650 m (b) 500 m (c) 550 m (d) 700 m



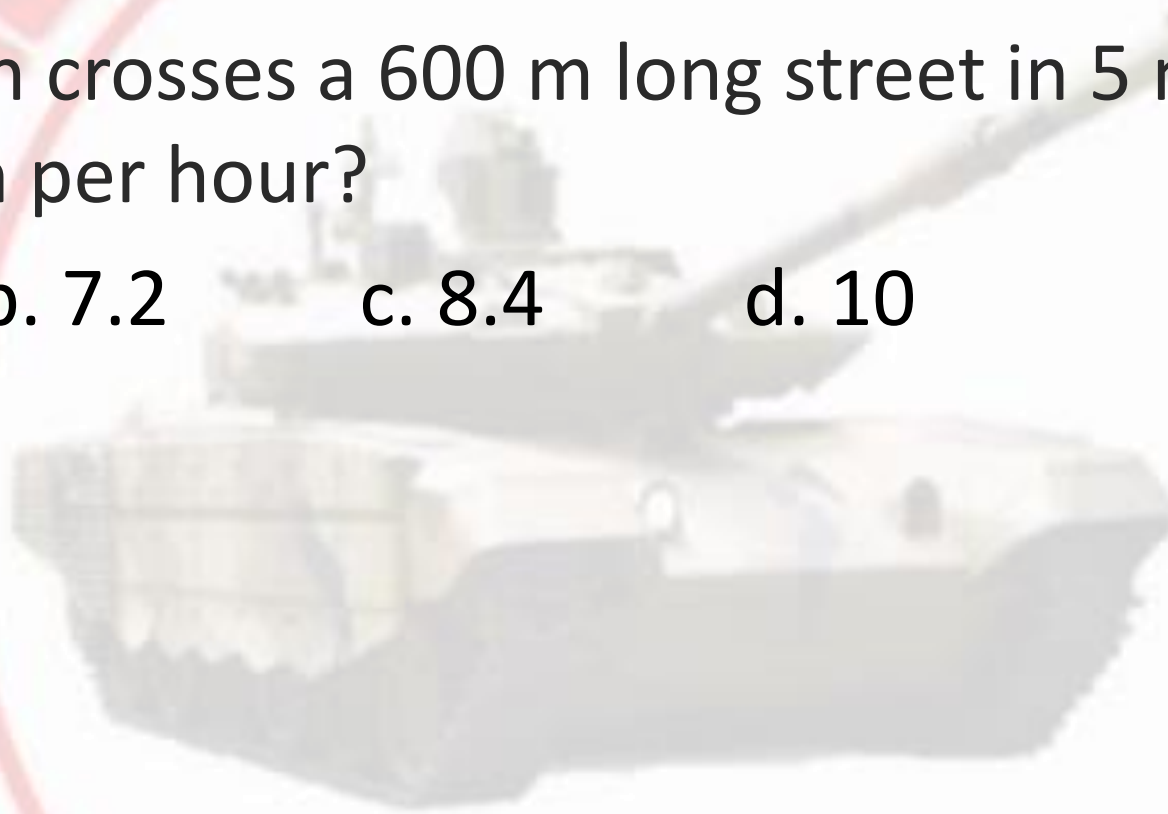
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12. A person crosses a 600 m long street in 5 minutes, What is his speed in km per hour?

- a. 3.6 b. 7.2 c. 8.4 d. 10

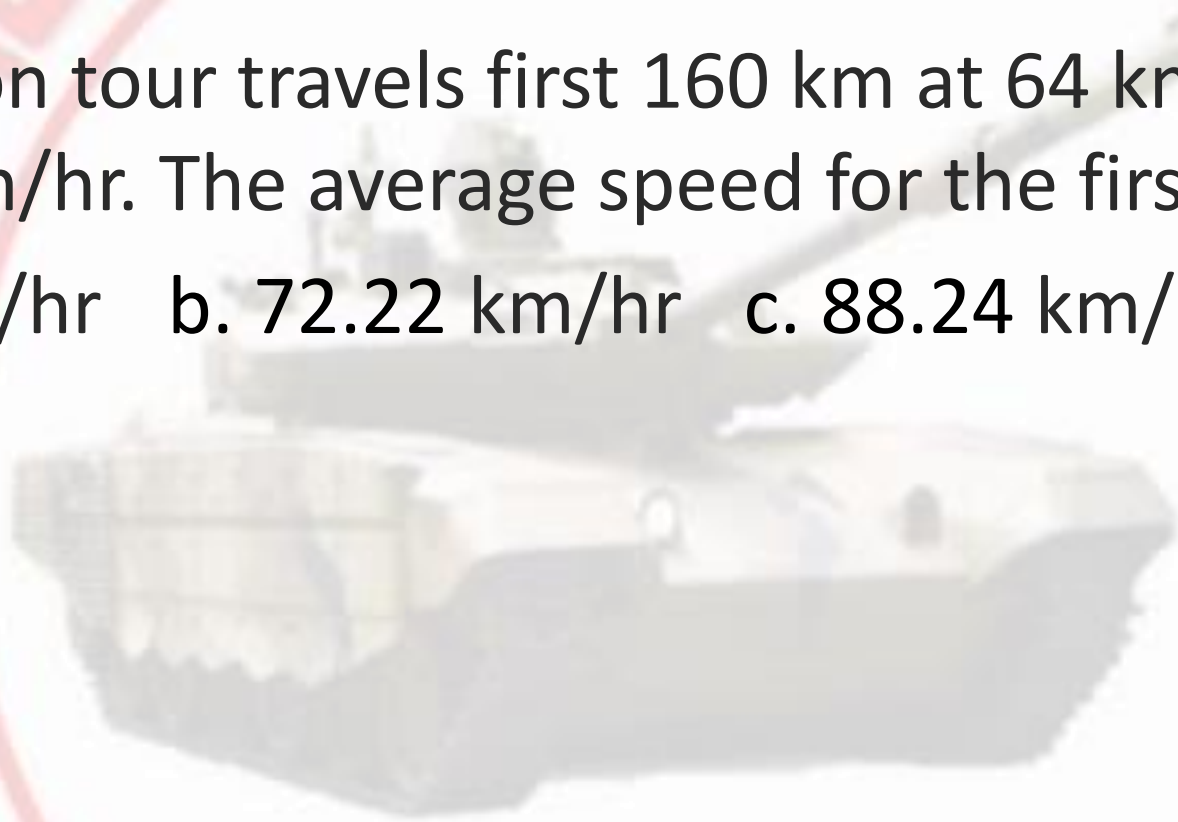


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13. A man on tour travels first 160 km at 64 km/hr and the next 160 km at 80 km/hr. The average speed for the first 320 km of the tour is
a. 71.11 km/hr b. 72.22 km/hr c. 88.24 km/hr d. 75.50 km/hr



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14. A cyclist left home at 11.15 a.m. for a market 50km away. He cycled at an average speed of 15km/h. At what time did he reach the market?

- A. 3.20 am B. 3.20 pm C. 2.35 am D. 2.35 pm



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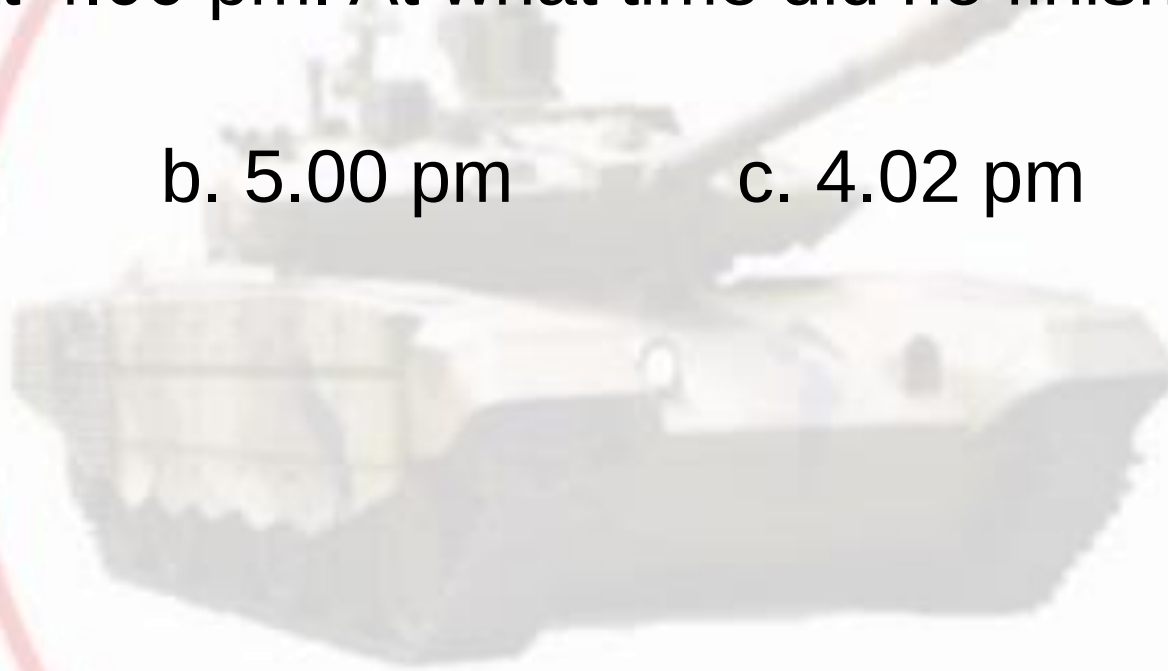
15. Shivansh can run at an average speed of 24km/h. He started the 800m race at 4.00 pm. At what time did he finish the race?

a. 4.20 pm

b. 5.00 pm

c. 4.02 pm

d. 4.24 pm



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TIME AND DISTANCE QUESTIONS

16.



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