

16. Problems on Trains

- To convert speed from kmph to m/sec, multiply it with $(5/18)$.
- To convert speed from m/sec to kmph, multiply it with $(18/5)$.
- If two bodies move in the same direction, the relative speed is equal to the difference of the speeds of the two bodies. If two bodies move in opposite direction, the relative speed is equal to the sum of the speeds of the two bodies.
- If two objects travel in the same direction with speeds of s_1 and s_2 , then relative speed = $s_1 - s_2$
- If two objects travel in the opposite direction with speeds of s_1 and s_2 , then relative speed = $s_1 + s_2$

Exercise

1. Two men Ajay and Bijoy start from a point X on a scooter at a speed of 30 km/hr and 50 km/hr respectively. How many kilometers apart will they be after 4 hours if they move in the same direction?
(1) 320 (2) 80 (3) 300 (4) 100
2. Two men Akash and Prakash start from a point X on a scooter at a speed of 30 km/hr and 50 km/hr respectively. How many kilometers apart will they be after 4 hours if they move in the opposite direction?
(1) 320 (2) 80 (3) 300 (4) 100
3. At 11:00 am, Two women Sita and Gita start from two opposite points X and Y which are 32000 m apart, on a scooter at a speed of 30 km/hr and 50 km/hr respectively. When do they meet?
(1) 11:30 (2) 11:18 (3) 12:00 (4) 11:24
4. A train, 450 m long is moving at 72 kmph. How long does it take
 - to cross a pole?
 - to cross a bridge of 150 m long?
 - to cross a scooterist moving in the same direction at 36 kmph?
 - to cross a scooterist moving in opposite direction at 18 kmph?
 - to cross another train, 300 m long, moving at 36 kmph in opposite direction?
 - to cross another train, 350 m long moving at 36 kmph in same direction
5. A train traveling at a speed of 60 km/hr passes a pole in 9 seconds. What time will the train take to cross a tunnel, 300 metres long? (in seconds)
(1) 18 (2) 24 (3) 30 (4) 27
6. A train, 450 metres long, crosses a platform, 2550 metres long, in 3 minutes. Find the speed of the train in kmph. (in kmph)
(1) 50 (2) 45 (3) 54 (4) 60
7. A train, 100 metres in length, crosses an electric pole in 10 seconds. Another train of same length crosses a bridge, 125 metres long, in 15 seconds. What is the difference of distances covered by the two trains in two and half hours? (in km)
(1) 45 (2) 54 (3) 72 (4) 60
8. A train leaves Bangalore at 5:15 a.m. traveling at 60 km/hr. Another super-fast express train leaves Bangalore one hour late traveling at a speed of 75 km/hr. When and at what distance from Bangalore will they meet?
(1) 9:15 a.m.; 300 km (2) 10:15 a.m.; 375 km (3) 9:15 a.m.; 375 km (4) 10:15 a.m.; 300 km
9. Train A traveling at a speed of 30 km/hr overtakes train B in 72 seconds. If train B travels in the opposite direction it takes just 24 seconds for train A to cross train B. Find the speed of train B, if the trains are of equal length. (in kmph)
(1) 15 (2) 18 (3) 20 (4) 25

- (1) 36 seconds (2) 30 seconds (3) 60 seconds (4) None
- 25.** A train 100 meter in length in length passes a milestone in 10 seconds and another train of the same length travelling in opposite direction in 8 seconds. The speed of the second train is _____
 (1) 36 kmph (2) 48 kmph (3) 54 kmph (4) 60 kmph
- 26.** Two trains A and B start from station X and Y towards Y and X respectively. After passing each other they take 4 hours 48 minutes and 4 hours 2 minutes to reach Y and X respectively. If train A is moving at 132 km/hr, then the speed of train B is?
 (1) 121 km/hr (2) 144 km/hr (3) 156 km/hr (4) 120 km/hr
- 27.** A train P start from Mumbai at 3:30 pm reached Pune at 4:30 pm. An another train Q starts from Pune at 3:30 pm and reaches Mumbai at 5:00 pm. At what time, two trains will cross each other?
 (1) 4:06 pm (2) 3:56 pm (3) 4 pm (4) 4:15 pm
- 28.** A train travelling at 36 kmph completely crosses another train having 75% of its length and travelling in the opposite direction at 54 kmph, in 14 seconds, If it also passes a railway platform in $1\frac{1}{4}$ minutes, the length of the platform is _____
 (1) 450 m (2) 500 m (3) 400 m (4) 550 m
- 29.** A train crosses a pole and a bridge of length 280 meters in 6 seconds and 20 seconds respectively. At what speed the train is running?
 (1) 90 km/hr (2) 36 km/hr (3) 54 km/hr (4) 72 km/hr
- 30.** A man sitting in a train which is running at a speed of 100 km/hr saw a goods train which is running in opposite direction towards him. The goods train crosses the man in 8 seconds. If the length of goods train is 300 meters, find its speed.
 (1) 45 Km/hr (2) 50 km/hr (3) 35 Km/hr (4) 60 Km/hr

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1	2	6	4	11	2	16	2	21	1	26	2
2	1	7	1	12	2	17	3	22	3	27	1
3	4	8	4	13	2	18	4	23	3	28	4
4		9	1	14	1	19	3	24	1	29	4
5	4	10	3	15	3	20	2	25	3	30	3