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Time, Speed & Distance

1. Ratio of speeds of Rajiv to Rahul is 4 : 5. Rahul starts moving from station A to B at 1: a.m. and Rajiv starts moving from station B to A at 2: a.m. If both meet each other at 7:00 a.m. then how much time Rajiv will take to travel from station A to station B?
(A) 10 hours **(B)** 9 hours
(C) 11.5 hours **(D)** 12.5 hours
(E) 9.5 hours

2. A can give a head start of 20 meter to B in a race of 100 meters and still both finish the race at the same time. B can give a head start of 25 meter to C in a race of 100 meters and still both finish the race at the same time. How much distance a head start of A or C can give to each other in a 100 meter race if both finishes the race at the same time?
(A) C gives a head start of 40 m to A.
(B) A gives a head start of 15 m to C.
(C) A gives a head start of 40 m to C.
(D) C gives a head start of 5 m to A.
(E) A gives a head start of 35 m to C.

3. David gets on the elevator at the 22nd floor of a building and rides up at the rate of 40 floors per minute. At the same time Albert gets on an elevator at the 42nd floor of the building and rides down at the rate of 60 floors per minute. If they continue travelling at these rates, then at which floor will their elevators meet?
(A) 19 **(B)** 30
(C) 28 **(D)** 37
(E) None of the above

4. Sakshi was riding her cycle from home to the school. After covering 5 km she realized that the tyre had punctured due to which she had to walk the remaining distance with a reduced speed of 1/4th the original. As a result Sakshi reached her school 40 minutes late. Had the tyre gotten punctured after riding for 8 km, then she would have reached 10 minutes late. What is the distance between Sakshi's home and her school?
(A) 9 km **(B)** 6 km
(C) 8 km **(D)** 10 km
(E) 12 km

5. Akshay and Bobby are running on a circular track of radius 147 metres. Bobby can complete a round in 84 seconds and the speed of Akshay is half the speed of Bobby. They started simultaneously towards each other from two points 294 metres diametrically opposite on the circular path. If they first meet at a point which is between the two points from where they started their race, after how much time from the start do they meet at that point for the fifth time?
(A) 353 seconds **(B)** 331 seconds
(C) 700 seconds **(D)** 266 seconds
(E) 326 seconds

6. A criminal sees a jeep at a distance of 400m coming towards him at 54 km/hr. The criminal takes 10 seconds to realize that it's a police jeep and starts his bike, running away from the police at a speed of 72 km/hr. The police take 20 seconds from the start to realize that a criminal is running away and increase the jeep's speed to 90km/h. How long after the criminal saw the police jeep did police catch him?
(A) 50 seconds **(B)** 90 seconds
(C) 80 seconds **(D)** 70 seconds
(E) 60 seconds

7. A car is climbing up a hill at a speed of 90 km/h. A rabbit, sitting at the top of the hill, spots the car when it is 1170 km away, and

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start running down the hill towards car at a speed of 140 km/h. As soon as it meets the car, the rabbit turns back towards the top of the hill at a speed of 120 km/h. The rabbit continues this to and fro motion from the top of the hill towards the car and again back at the top of the hill till the car reaches the top of the hill. Find the total distance covered by the rabbit?

(A) 1340 km **(B)** 1840 km
(C) 2240 km **(D)** 1640 km
(E) 1680 km

8. Shobhit decides to climb a mountain. On the first day, he climbs 1/10th of the mountain. On the second day, he climbs 2/3rd of the climb he made on the first day. Next day, he covers 1/10 of the remaining distance, on the fourth day, he covers 2/3rd of the distance he already climbed. He continues climbing with the same pattern of day 3rd day for fifth day and for sixth day as of fourth day, for a total of six days. At the end of the sixth day, he finds that 5 km more would see the end of his journey, find the total distance that needs to be covered to reach the top of the mountain.

(A) 10 **(B)** 12
(C) 15 **(D)** 20
(E) 24

9. A club owner drives his car from his club to his airport at an average speed of 30 mph (miles per hour). At the airport a chopper was waiting for him. He flew from the airport to Dubai at an average speed of 40mph. It took 4 hours for the entire trip .The entire distance he covered was 150 miles. Find the distance from the airport to the club.

(A) 130 miles **(B)** 50 miles
(C) 100 miles **(D)** 64 miles
(E) 30 miles

10. Bob, Damon and Charlie decided to race on a circular race track. All of them start from the same point at different times. Damon started 3 minutes after Charlie and both Bob and Damon goes ahead of Charlie's car at 8 pm on the same day. The speed of Bob, Damon and Charlie's cars are 120, 80, 70 metre per minute respectively. Find the time at which Bob started?

(A) 7:46 pm **(B)** 7:50 pm
(C) 7:00 pm **(D)** 7:36 pm
(E) 6:45 pm

11. Adam starts walking at 9:00 hrs towards a certain destination point at a speed of 6kmph. Ben starts cycling towards the same destination point at 11:30 hrs at a speed of 8kmph. If they continue to walk and cycle at the same pace, at what time will the distance covered by both of them be same?

(A) 16:00 hrs **(B)** 19:00 hrs
(C) 18:00 hrs **(D)** 20:00 hrs
(E) 18:30 hrs

12. X started from a point A towards point B. After 2 hours. Y started from B towards A. By the time X travelled one – fifth of the total distance, Y had also travelled the same. If Y's speed is thrice that of X's speed, find the difference in the times (in hours) taken by X and Y to reach their destinations.

(A) 10 **(B)** 20
(C) 15 **(D)** 25
(E) none of these

13. Abhishek can cover a certain distance in time 'T'. If he increases his speed by 'X' km/hr then the same distance is covered in 5 hours and if he decreases his speed by 'X' then the same distance is covered in 8 hours. Find the value of T?

(A) $4\frac{2}{13}$ hr **(B)** $5\frac{1}{7}$ hr
(C) $6\frac{2}{13}$ hr **(D)** $12\frac{1}{2}$ hr
(E) $8\frac{3}{11}$ hr

14. Ritesh travels at 1 kmph to reach station 500m far from his house to catch a train. He

started but after 4 minutes, he realized that he forgot a document at home so he returned with same speed. What should be his speed (in kmph) so that he catches the train?

(A) 0.36 **(B)** 0.27
(C) 1.27 **(D)** 1.36
(E) 1.5

15. Sheetal and Priya starts running from point A with different speeds. Sheetal reaches point B and turns back to reach starting point A and meet Priya 15 km away from B. If A and B are 75 km apart and difference between their speed is 12 km/hr. Find difference in time taken by Priya and Sheetal to reach point B from A.

(A) 62.5 min **(B)** 71 min
(C) 57.5 min **(D)** 65 min
(E) None of these

16. Vijay can cover 'D' distance with 'S' speed in 'T' time. He can cover same distance with 'S + 10' speed in '(T – 2)' time. He can cover same distance 'D' with 'S – 15' speed in (T + 6)' time. What can be found from the given data.

(i) time to cover 200 km with speed 'S + 10'
(ii) distance covered in (T + 6) time with (S + 10) speed
(iii) speed by which a tunnel can be crossed in T/2 hour
(iv) Ratio between time to cover distance 'D' with speed 'S' to time to cover distance (D – 5) with speed (S + 10)

(A) only (ii) **(B)** only (ii) and (iii)
(C) only (i) and (iii) **(D)** all of the above
(E) only (i), (ii) and (iv)

17. A man started his journey at 8:00 AM by covering 186 km by bus at a speed of 45 km/hr. After that, he travelled 256 km by train at a speed of 96 km/hr. and covered his remaining journey by taxi at a speed of 40 km/hr. Hence, he completed his journey of ___ km at ___ PM.

Which of the following options satisfies the two blanks in the question?

A. 490, 4:00 B. 500, 4:15
C. 530, 5:00 D. 554, 5:15

(A) A, B & C **(B)** A, B & D
(C) A, C & D **(D)** B, C & D
(E) All four

18. Raju, a labourer decides to go to a week - long adult literacy camp set up by the government. At what time will Raju reach the camp on the fourth day if he starts cycling at 10:15 A.M from his home and given the fact that the camp keeps shifting 2 Km farther away from Raju's house each day. Raju's cycling speed is 12Km/hr and the time taken by Raju to reach the camp on the 2nd day was 3hrs.

(A) 1:35 P.M. **(B)** 1:33 A.M.
(C) 1:35 A.M.
(D) Cannot be determined
(E) None of these

19. Abhi and Bunny travels from P to Q via R. Abhi travels from P to R in 4 hours and from R to Q in 5 hours. Bunny travels from P to R then R to P and then P to R in 7 hours and from R to Q in 5 hours. If the average speed of Abhi and Bunny for the whole journey is same, find the ratio of the distance between P to R to the distance between R to Q.

(A) 2 **(B)** 5
(C) 1/2 **(D)** 1/5
(E) 4

20. Mohit travels daily to his office situated 100 km away. On one particular day, he travels the first half of his way at his usual speed. After that, he had to stop for exactly 10/3 minutes due to a minor accident on the road. To make up for the lost time, he increased his speed by 10 kmph. Find the usual speed (in km per hour) with which Mohit travels to his office.

(A) 50 **(B)** 60
(C) 70 **(D)** 80
(E) 90