ARJUNA (NEET)

Kinematics

DPP-09

1. A train of 150 m length is going towards north direction at a speed of 10 ms^{-1}. A parrot flies at a speed of 5 ms^{-1} towards south direction parallel to the railway track. The time taken by the parrot to cross the train is equal to :-

(A) 12 s (B) 8 s

(C) 15 s (D) 10 s

2. Two trains, each 50 m long, are travelling in opposite directions with velocity 10 m/s and 15 m/s. The time of crossing is :-

(A) 2 s (B) 4 s

(C) $2\sqrt{3}$ s (D) $4\sqrt{3}$s

3. A train moves in north direction with a speed of 54 km/hr. and a monkey running on the roof of the train, against its motion with a velocity of 18 km/hr. with respect to the train, then the velocity of monkey as observed by a man standing on the ground:-

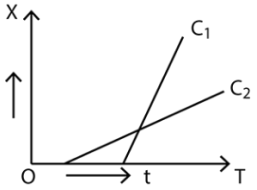
(A) 5 ms^{-1} due south

(B) 25 ms^{-1} due south

(C) 10 ms^{-1} due south

(D) 10 ms^{-1} due north

4. Shown in the figure are the displacement time graph for two children going home from the school. Which of the following statements about their relative motion is true after both of them started moving ?



Their relative velocity:

(A) first increases and then decreases

(B) first decreases and then increases

(C) is zero

(D) is non zero constant.

5. Two cars A and B at rest at same point initially. If A starts with uniform velocity of 40 m/sec and B starts in the same direction with constant acceleration of 4 m/s^2, then B will catch A after how much time :

(A) 10 sec (B) 20 sec

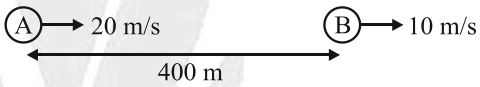
(C) 30 sec (D) 35 sec

6. A student is standing at a distance of 50 metres from the bus. As soon as the bus begins its motion with an acceleration of 1 ms^{-2}, the student starts running towards the bus with a uniform velocity *u*. Assuming the motion to be along a straight road, the minimum value of *u*, so that the student is able to catch the bus is :

(A) 5 ms^{-1} (B) 8 ms^{-1}

(C) 10 ms^{-1} (D) 12 ms^{-1}

7. Find time, when they will meet.



(A) 40 sec (B) 20 sec

(C) 10 sec (D) 25 sec

8. Object A is project from ground with speed 100 m/s and B is dropped from height 50 m then time when they will collide

(A) 2 sec (B) 4 sec

(C) $\frac{1}{2}$ sec (D) $\frac{1}{4}$ sec

9. Find relative velocity of B w.r.t. A

(A) 30 m/s (B) 40 m/s

(C) 60 m/s (D) 10 m/s

10. Ball A is projected downward with speed 10 m/s and ball B is dropped from same height then separation between them after 2 sec

(A) 20 m (B) 5 m
(C) 15 m (D) 8 m

ANSWERS KEY

1. (D)
2. (B)
3. (D)
4. (D)
5. (B)
6. (C)
7. (A)
8. (C)
9. (A)
10. (A)

Note - If you have any query/issue

Mail us at support@physicswallah.org