

where u is initial velocity of the object, which moves with uniform acceleration a for time t , v is its final velocity and s is the distance it travelled in time t .

- If an object moves in a circular path with uniform speed, its motion is called uniform circular motion.

Exercises



1. An athlete completes one round of a circular track of diameter 200 m in 40 s. What will be the distance covered and the displacement at the end of 2 minutes 20 s?
2. Joseph jogs from one end A to the other end B of a straight 300 m road in 2 minutes 50 seconds and then turns around and jogs 100 m back to point C in another 1 minute. What are Joseph's average speeds and velocities in jogging (a) from A to B and (b) from A to C?
3. Abdul, while driving to school, computes the average speed for his trip to be 20 km h^{-1} . On his return trip along the same route, there is less traffic and the average speed is 40 km h^{-1} . What is the average speed for Abdul's trip?
4. A motorboat starting from rest on a lake accelerates in a straight line at a constant rate of 3.0 m s^{-2} for 8.0 s. How far does the boat travel during this time?
5. A driver of a car travelling at 52 km h^{-1} applies the brakes and accelerates uniformly in the opposite direction. The car stops in 5 s. Another driver going at 3 km h^{-1} in another car applies his brakes slowly and stops in 10 s. On the same graph paper, plot the speed versus time graphs for the two cars. Which of the two cars travelled farther after the brakes were applied?
6. Fig 8.11 shows the distance-time graph of three objects A, B and C. Study the graph and answer the following questions:

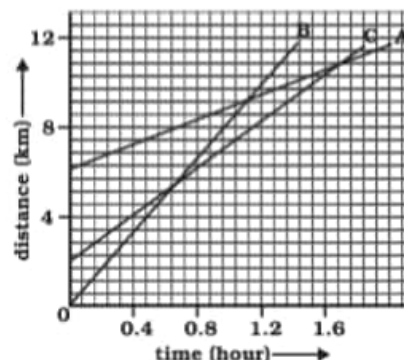


Fig. 8.11

- (a) Which of the three is travelling the fastest?
 - (b) Are all three ever at the same point on the road?
 - (c) How far has C travelled when B passes A?
 - (d) How far has B travelled by the time it passes C?
7. A ball is gently dropped from a height of 20 m. If its velocity increases uniformly at the rate of 10 m s^{-2} , with what velocity will it strike the ground? After what time will it strike the ground?
8. The speed-time graph for a car is shown in Fig. 8.12.

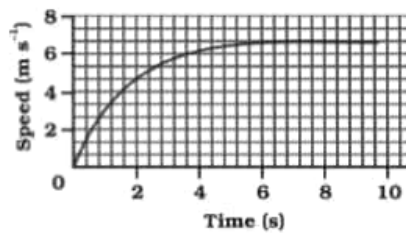


Fig. 8.12

- (a) Find how far does the car travel in the first 4 seconds. Shade the area on the graph that represents the distance travelled by the car during the period.
 - (b) Which part of the graph represents uniform motion of the car?
9. State which of the following situations are possible and give an example for each of these:
- (a) an object with a constant acceleration but with zero velocity
 - (b) an object moving in a certain direction with an acceleration in the perpendicular direction.
10. An artificial satellite is moving in a circular orbit of radius 42250 km. Calculate its speed if it takes 24 hours to revolve around the earth.



Dear students (IXB)
Science(Physics))
Teacher : BIPLAB DAS

Good morning .

Study materials for today (08th
May, 2020) :

We have finished the chapter
Motion .

Now do the full Exercises
questions from 01 to 10 in your
homework copy .

Tomorrow (2nd Sat) and day after
tomorrow are holidays .

According to the Delhi government
circular summer vacation will start
from 11th May (Monday) .

But due to this emergency
lockdown situation I want to
continue this online classes for
another few days .

Please bear with me for another
few days .

Home work will be uploaded by 6
pm (Sunday, 10th May) .

