

1. A body is moving in a square of side 10 m. Calculate distance and displacement in the following cases:
 - (a) From A to B
 - (b) From A to C
 - (c) ABCDA
2. Calculate the distance and displacement of a body moving in a complete circle.
3. A farmer moves along the boundary of a square field of side 10 m in 40 s. What will be the magnitude of displacement of the farmer at the end of 2 minutes 20 seconds?
4. A body is moving along a straight line and covers 40 kms in first hour, 20 kms in second hour and 90 kms in third hour. Calculate the average speed of the whole journey.
5. An object is moving along a straight line and covers 500 m towards east in 10 seconds. Calculate speed and velocity of the object.
6. An object is moving along a straight road and covers 500 m in 10 seconds it returns from there and reaches the starting point in 10 seconds. Calculate speed and velocity for the whole journey.
7. Calculate the acceleration of a body which covers a distance of 50 m in every second while moving on a straight road.
8. Calculate the acceleration of a body which covers a distance of 50 m in one second and 70 m in next one second while moving on a straight road.
9. A particle is moving with a uniform acceleration. Will it surely moving in a straight line?
10. A car covers distance s_1 with a constant speed v_1 and then covers a further distance s_2 with a constant speed v_2 . Find an expression for his average speed.
11. What is the direction of acceleration acting on a particle having uniform circular motion?
12. Can a particle be accelerated (i) if its speed is constant, (ii) if its velocity is constant? Give reason.
13. A body travels a distance of 3 km towards east and the 4 km towards North & finally 9 km to wards west.
 - (i) What is the total distance travelled?
 - (ii) What is the resultant displacement?
14. A moving train is brought to rest within 20 seconds by applying brakes. Find the initial velocity, if the retardation due to breaks is 5 ms^{-2} .
15. A train has a uniform acceleration of 14 m/s^2 . What distance will it cover in 10 seconds after the start?
16. A vehicle moving at a speed of 20 m/s is stopped by applying brakes which produces a uniform acceleration of, -0.5 m/s^2 . How much distance will be covered by the vehicle before it stops?
17. Arrange the following speeds in increasing order- 10 m/s , 200 m/min , 30 km/hr
18. Joseph jogs from one end A to the other B of a straight 300 m road in 2 minutes 30 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?
19. A motorboat starting from rest on a lake accelerates in a straight line at a constant rate of 3.0 ms^{-2} for 8.0 s. How far does the boat travel this time?
20. A ball gently dropped from a height of 20 m. If its velocity increases uniformly at the rate of 10 ms^{-2} , with what velocity will it strike the ground? After what time will it strike the ground?

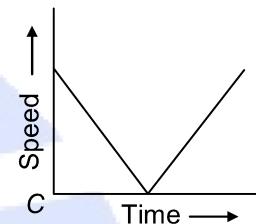
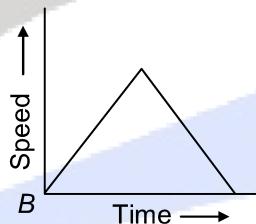
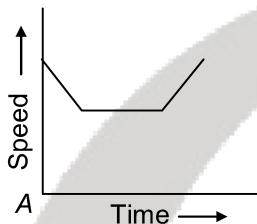
21. Abdul, while driving to school, computes the average speed for his trip to be 20 km h^{-1} . On his return trip along the same route, there is less traffic and the average speed is 30 km h^{-1} . What is the average speed for Abdul's trip?

22. The velocity acquired by a body moving with uniform acceleration is 12 ms^{-1} in 2 s and 18 ms^{-1} in 4 s . Find the initial velocity of the body.

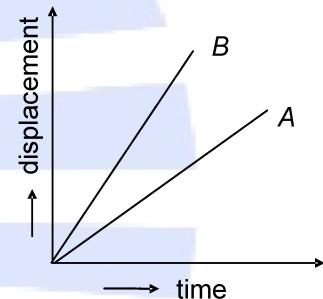
23. An object moving with uniform acceleration has the displacement of 9 m in 3 s but a displacement of 16 m in 4 s . Find the acceleration.

24. Which graph represents the case of:

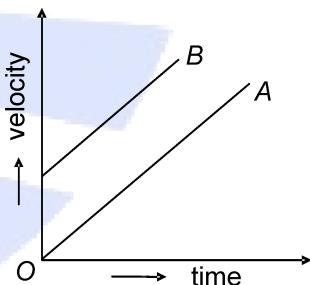
- A cricket ball thrown vertically upwards and returning to the person
- A trolley decelerating to a constant speed and then accelerating



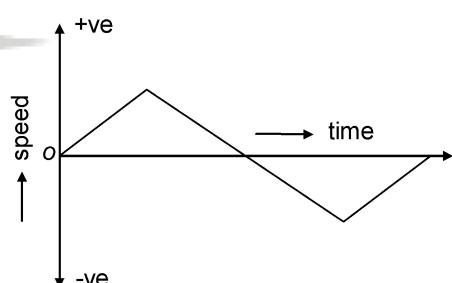
25. In the figure two displacement-time graphs have been drawn. Which represents a higher velocity and why?



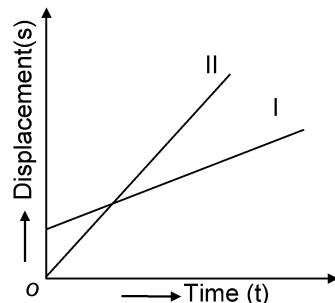
26. In figure two velocity-time graphs have been shown. Which represents higher acceleration? Why?



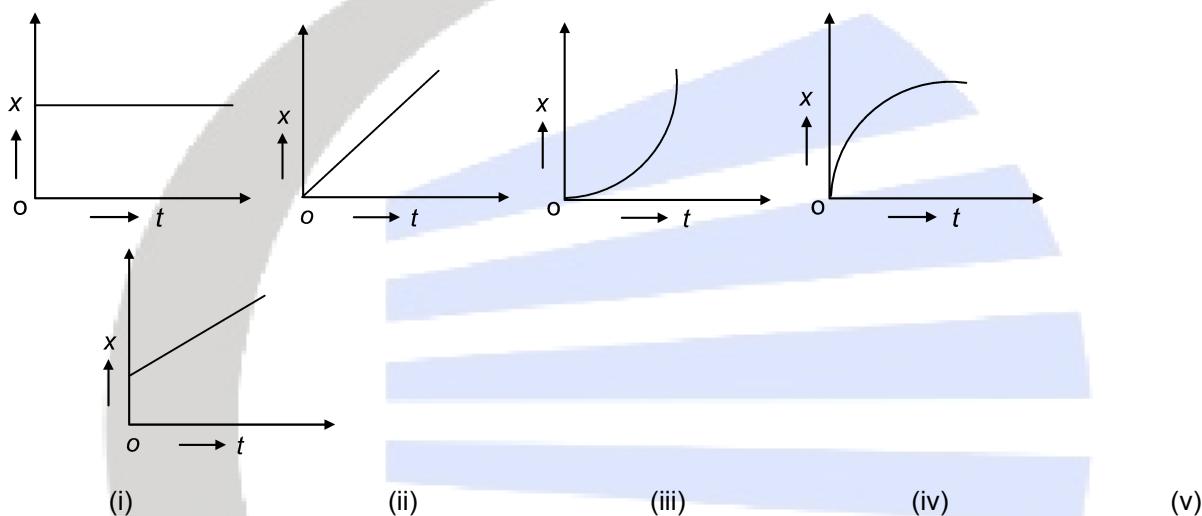
27. Is speed-time graph shown in figure possible? Why?



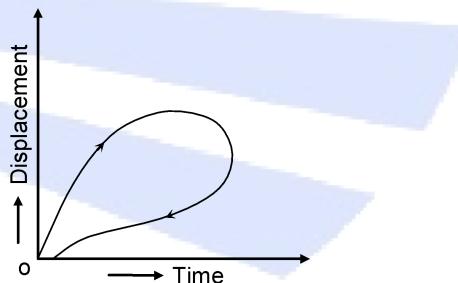
28. Figure shows displacement-time curves of two particles I and II. What conclusions do you draw from these curves?



29. In figure five distance-time graphs have been drawn. What type of motion do these graphs represent?



30. Does the graph shown in figure represent uniform motion?



31. The speed-time graph for a car is shown in figure.

(i) Find how 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.
(ii) Which part of the graph represents uniform motion of the car?

32. An artificial satellite is moving in a circular orbit of radius 42,250 km. Calculate its speed if it takes 24 hours to revolve around the earth.

33. The velocity-time graph of an object under linear motion is shown in figure. What is its acceleration? Find the total distance covered by the object in 8 s.

