

CLASS 7

MOTION AND TIME

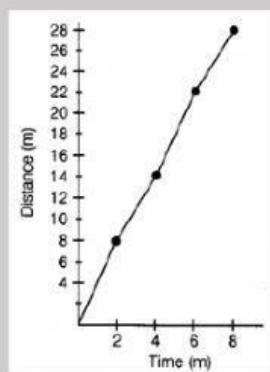
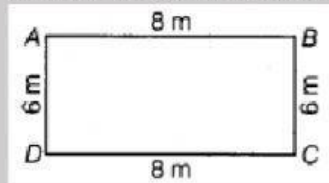
I. PASSAGE BASED QUESTIONS:

One of the most well-known periodic motions is that of a simple pendulum. A simple pendulum consists of a small metallic ball or a piece of stone suspended from a rigid stand by a thread. The metallic ball is called the bob of the pendulum. The to and fro motion of a simple pendulum is an example of a periodic or an oscillatory motion. The pendulum is said to have completed one oscillation when its bob, starting from its mean position move to its extremes and back to mean position. The pendulum also completes one oscillation when the bob moves from one extreme position to the other extreme and come back to the first extreme position. The time taken by the pendulum to complete one oscillation is called its time period. The two factors on which time period of a pendulum depends are- the length of a string and the resistance offered by air.

- i) Which among the following is an incorrect statement?
 - a) Increase or decrease in the length of the string will increase or decrease the time period respectively.
 - b) The metallic bob is free to swing on the rigid stand.
 - c) The pendulum is at rest in its extreme positions.
 - d) The pendulum of a given length takes always the same time to complete one oscillation.
- ii) The simple pendulum is an example of
 - a) Periodic motion
 - b) Oscillatory motion
 - c) Circular
 - d) Both a and b
- iii) Time period is
 - a) Total time taken/No. of oscillations
 - b) No: of oscillations/Time taken
 - c) Distance/Time
 - d) Distance/No. of oscillations
- iv) One oscillation is completed when the bob of the pendulum moves from
 - a) One extreme to the other
 - b) One extreme to the other and back to first extreme position
 - c) The mean position to one extreme and to the other extreme.
 - d) The extreme to its mean position

II. CASE STUDY BASED QUESTIONS:

1. Starting from A, Paheli moves along a rectangular path ABCD as shown in figure. She takes 2 min to travel each side. Study the distance-time graph and explain whether the motion is uniform or non-uniform.

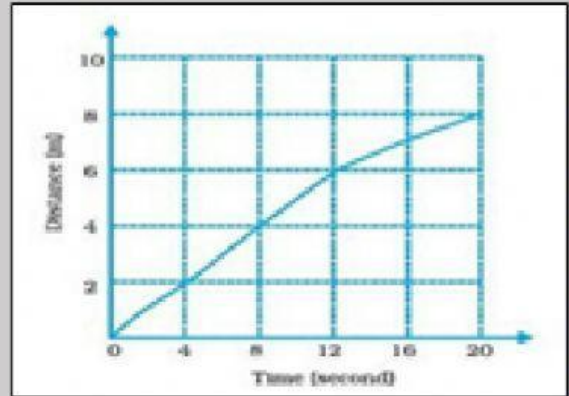


III. SOLVE THE PROBLEMS

1. A rocket travels at a speed of 15,000 m/s. Express this speed in km/h.
2. At 7.00 am, the odometer of a car reads 25777. What is the distance covered by the car and its speed when the clock reads 9.15 am and the odometer reads 25867?

3. Given alongside is the distance-time graph of the motion of an object.

- i) What will be the position of the object at 20s?
- ii) What will be the distance travelled by the object in 12s?
- iii) What is the average speed of the object?



4. Boojho goes to the football ground to play football. The distance time graph of his journey from his home to the ground is given below-

- i) What does the graph between point B and C indicate about the motion of Boojho?
- ii) Is the motion between 0 to 4 minutes uniform or non-uniform?
- iii) What is his speed between 8 and 12 minutes of his journey?

