

CLASS IX PHYSICS

MOTION

NUMERICALS FOR PRACTICE

1. A particle is moving up an inclined plane. Its velocity changes from 25m/s to 10m/s in 5 seconds. What is its acceleration?
2. The velocity changes from 35m/s to 60m/s in 3 seconds. What is its acceleration?
3. A body covered a distance of 4 metre along a semicircular path. Calculate the magnitude of displacement of the body, and the ratio of distance to displacement?
4. A particle moving with an initial velocity of 8m/s is subjected to a uniform acceleration of 2.5m/s^2 . Find the displacement in the next 4 sec.
5. A train is travelling at a speed of 40 km/ h. Brakes are applied so as to produce a uniform acceleration of -0.5 m/s^2 . Find how far the train will go before it is brought to rest.
6. A Truck covers 90km at a uniform speed of 30km/hr. what should be its speed for the next 120km if the average speed for the entire journey is 60km/h?
7. A stone is thrown in a vertically upward direction with a velocity of 15 m/s. If the acceleration of the stone during its motion is 8m/s^2 in the downward direction, what will be the height attained by the stone and how much time will it take to reach there?
8. A person goes to market, makes purchases and comes back at a constant slower speed. Draw displacement- time and velocity time graphs of the person?
9. Rahul runs for 8 min. at a uniform speed 5 km/h. At what speed should he run for the next 10 min. so that the average speed comes 15km/hr?

- 10.** A particle was at rest from 1 a.m. It moved at a uniform speed 40km/hr from 1.30 a.m. to 2:00 a.m. Find the average speed between
- (a) 1.00 a.m. and 2.00 a.m.
 - (b) 1.15 a.m. and 2.00 a.m.
 - (c) 1.30 a.m. and 2.00 a.m
- 11.** An object moves along a circular path of diameter 16cm with constant speed. If it takes 4 min. to move from a point on the path to the diametrically opposite point. Find
- (a) The distance covered by the object
 - (b) The speed
 - (c) The displacement
 - (d) average velocity.
- 12.** A particle with a velocity of 5m/s at $t=0$ moves along a straight line with a constant acceleration of 0.2m/s^2 . Find the displacement of the particle in 15s?
- 13.** A particle is pushed along a horizontal surface in such a way that it starts with a velocity of 15m/s. Its velocity decreases at a uniform rate of 0.5m/s^2 . (a) Find the time it will take to come to rest.
- (b) Find the distance covered by it before coming to rest?
- 14.** A train accelerated from 30km/hr to 80km/hr in 5 minutes. How much distance does it cover in this period? Assume that the tracks are straight?
- 15.** A cyclist moving on a circular track of radius 100m completes one revolution in 8 minutes. What is his
- (a) average speed
 - (b) average velocity in one full revolution?