

SAINIKSCHOOLGOPALGANJ
ASSIGNMENT
CHAPTER- MOTION IN A STRAIGHT LINE

1. A ball is thrown vertically upwards with a velocity of 20 m/s from the top of a building. The height of the point from where the ball is thrown is 25 m from the ground. How much high the ball will rise and how long will it take to reach the ground?
2. Plot the graph for the Free Fall for following-
 - (a) Variation of Acceleration with time
 - (b) Variation of Velocity with time
 - (c) Variation of Displacement with time
3. The displacement x of a particle moving in one dimension is given by $x = \frac{1}{3}t^3 + 3t$. Find the value of displacement $t = 0$ to $t = 6$ sec.
4. A bullet loses $\frac{1}{20}$ of the velocity passing through a plank. Find the least number of planks required to stop the bullet to rest.
5. Derive Kinematic Equations of Motion for an accelerated body.
6. A motor car moving with a Uniform Speed of 20 m/s comes to stop when brakes are applied after moving 10 m. Find the acceleration of the car.
7. The velocity of a body depends on relation $v = 20 + 0.1t^2$. What type of Acceleration it is undergoing?
8. A particle enters a hollow tube of 4 m length with speed of 1 km/s and exits at a speed of 9 km/s after accelerated inside tube. Find the time for which it remains inside the tube.
9. The displacement of a particle is given by relation $y = a + bt + ct^2 + dt^4$. Find the initial velocity and acceleration.
10. The velocity of a bullet reduces from 200 m/s to 100 m/s while passing through a block of 10 cm. Find the retardation produced by block.
11. A car moving with speed of 50 km/hr can be stopped at least 6 m. Find the stopping distance for same car with speed 100 km/hr.
12. An object accelerates from rest to a velocity of 27.5 m/s in 10 sec. Find the distance covered by body in next 10 seconds.