

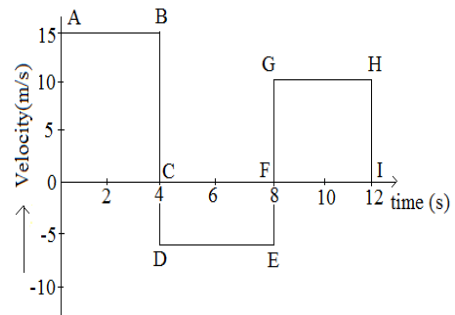
Class XI

Kinematics worksheet 1

1. Under what condition is the relation $s = vt$ correct? 1
2. Two balls of different masses are thrown vertically upward with same initial speed. Which one will rise to a greater height? 1
3. What is the relative velocity of two bodies having equal velocities? 1
4. Draw displacement time graph for uniformly accelerated motion. What is its shape? 2
5. Sameer went on his bike from Delhi to Gurgaon at a speed of 60km/hr and came back at a speed of 40km/hr. what is his average speed for entire journey. 2
6. Derive $v = u + at$ from calculus method. 2
7. A particle is moving along a straight line and its position is given by the relation $x = (t^3 - 6t^2 - 15t + 40)m$ Find (a) The time at which velocity is zero. 3
(b) Position and displacement of the particle at that point.
(c) Acceleration for the particle at that line.
8. Velocity time graph of a moving particle is shown. 3

Find the displacement

- (1) 0 – 4 s
- (2) 0 – 8
- (3) 0- 12 s from the graph.



Kinematics worksheet 2

1. A railway train 400m long is going from New Delhi railway station to Kanpur. Can we consider railway train as a point object 1
2. Shipra went from her home to school 2.5km away. On finding her home closed she returned to her home immediately. What is her net displacement? What is the total distance covered by her? 1
3. Can speed of an object be negative? Justify 1
5. Displacement of a particle is given by the expression $x = 3t^2 + 7t - 9$, where x is in meter and t is in seconds. What is acceleration? 2
6. A police jeep on a petrol duty on national highway was moving with a speed of 54km/hr. in the same direction. It finds a thief rushing up in a car at a rate of 126km/hr in the same direction. Police sub – inspector fired at the car of the thief with his service revolver with a muzzle speed of 100m/s. with what speed will the bullet hit the car of thief? 2
7. Establish the relation $S_{n^{th}} = u + \frac{a}{2}(2n - 1)$ where the letters have their usual meanings. 3
8. A stone is dropped from the top of a cliff and is found to ravel 44.1m diving the last second before it reaches the ground. What is the height of the cliff? $g = 9.8m/s^2$ 3