

Class IX (Physics)

Sheet 1 (Motion)

1. Name two contact forces and two non-contact forces.
2. Name the strongest force in nature.
3. Name the weakest force in nature.
4. Name the forces having the longest and shortest range of operation.
5. A 150m long train is moving with a uniform velocity of 45 km/h. Calculate the time taken by the train to cross a bridge of length 850m.
6. A body starts from rest. What is the ratio of the distance travelled by the body during the 4th and 3rd second?
7. A flowerpot dropped from a window and fell for 3.3 seconds to the ground. How high was the window?
8. A person throws a ball vertically upward with an initial velocity of 15 m/s. How high it goes?
9. A car is travelling with a speed of 36 km/hr. The driver applies the brakes and retard the car uniformly. The car is stopped in 5 seconds. Calculate the distance travelled before it is stopped after applying the brakes.
10. A particle is moving along a straight line. The magnitudes of the velocity at t=0, t=10 s and t=20 s are 0 m/s, 10 m/s and 30 m/s respectively. Find its average acceleration over the second interval of 10 s and its average acceleration over the first interval of 10 s.
11. Taking $g = 10\text{ms}^{-2}$, we can express the relation between the vertical displacement 'y' and time 't' for a ball, starting from rest, as $y = 5t^2$. A ball rolls of the top of a stairway with horizontal velocity of 2m/s. neglecting air resistance and taking the steps to be 25 cm wide and 31.25cm high, the step, first hit by the ball, would be the.....
12. The displacement-time graph for two particles A and B are straight lines inclined at angles 30° and 60° with the time axis. Find the ratio of velocities of $V_A:V_B$.
13. A man walks on a straight road from his home to market 2.5km away with a speed of 5 km/h. finding the market closed, he instantly turns and walks back home with a speed of 7.5 km/h. find the average speed of the man over the interval of time 0 to 40 min.
14. The position of a particle moving along the x-axis at certain times is given below:

t (s)	0	1	2	3
x (m)	-2	0	6	16

What type of motion it is?

15. A body A starts from rest with an acceleration a_1 . After 2 seconds, another body B starts from rest with an acceleration a_2 . If they travel equal distances in the 5th second, after the start of A, then find the ratio $a_1:a_2$.