

PHYSICS
Holiday Homework
Class IXth
Session 2025-2026

Holiday Homework Instructions

1. All students are required to complete their holiday homework in a fair notebook, clearly labeled 'Holiday Homework'.
2. Upon school reopening, each student will submit their homework to their respective subject teachers for evaluation.
3. Please note that this work is to be done independently, as the questions are aligned with your upcoming exam syllabus. The more practice you do, the better prepared you will be."

Numericals

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 8 m/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/hr. 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?