

Motion in One Dimension

Chapter 2: Motion in One Dimension · Topic 1

Key Concept

Displacement is the shortest distance from initial to final position, while distance is the total path length travelled, which can differ.

Velocity is the rate of change of displacement (speed with direction), while speed alone doesn't consider direction.

Acceleration is the rate of change of velocity, occurring when an object speeds up, slows down, or changes direction.

Equations of motion, like $v=u+at$, help us calculate unknown quantities when some values (initial velocity, time, acceleration) are known.

Quick Revision Notes

- Displacement is shortest distance from start to end.
- Distance is total path length travelled.
- Velocity is rate of change of displacement.
- It includes direction, unlike speed alone.
- Acceleration is rate of change of velocity.
- It occurs with speeding up, slowing down or direction change.
- $v=u+at$ is an equation of motion.
- These equations calculate unknown motion quantities.

Practice Questions

- 1 Discuss the difference between distance and displacement.
- 2 Explain velocity versus speed.
- 3 Calculate final velocity using $v=u+at$ for given values.
- 4 Research an example of acceleration in daily life.
- 5 Solve a motion problem using an equation of motion.
- 6 Explain acceleration in your own words.