

Chapters/ Sections will be Covered

Book: Fundamentals of Physics by David Halliday, Jearl Walker, and Robert Resnick

Chapter Title: Motion in Two and Three Dimensions

Sections:

- Position and Displacement

- Average Velocity and Instantaneous Velocity

- Average Acceleration and Instantaneous Acceleration

- Uniform Circular Motion

Sample Quiz Question

What is the motion of a particle in two dimensions?

- a) Change in position along a straight line
- b) Change in distance along three directions
- c) Change in position in two dimensions
- d) Change in displacement along a straight line

What is the position vector of a particle?

- a) A vector for locating the position of a particle
- b) A vector for determining the distance of a particle
- c) A vector only representing an axis that the particle moves
- d) None of the above

Sample Quiz Question

What is the instantaneous acceleration of a moving car just a few moments before it stops?

- a) Velocity change is positive, and acceleration is positive
- b) Velocity change is negative, and acceleration is positive
- c) Velocity change is negative, and acceleration is negative
- d) Velocity change is positive, and acceleration is negative

When does centripetal acceleration work for a moving particle?

- a) Particle with uniform speed
- b) Particle with uniform acceleration
- c) Particle moving a circular path
- d) Particle has uniform velocity and acceleration

Sample Quiz Question

What is the direction of the centripetal acceleration?

- a) Tangent to the moving path
- b) Tangent to the circular path
- c) Towards the center
- d) Outward to the center

What is the magnitude of the velocity of a particle moving in a circular path?

- a) Same magnitude at different locations
- b) Different magnitude at different locations
- c) Different magnitude and direction at different locations
- d) None of the above

Probable Mid-term Questions: Lecture 6

Prepare an expression for instantaneous acceleration for a moving particle with its position \vec{r} at any instant in the 3D reference frame.

Prepare an expression for instantaneous velocity for a moving particle with its position \vec{r} at any instant in the 3D reference frame.

Explain what acceleration acts towards the center of a circular path of a moving particle.

Describe the characteristics of centripetal acceleration of a moving particle.