**Representing Motion**

**Ch 2/3**

**Objectives:**

**Draw** motion diagrams to describe motion.

**Develop** a particle model to represent a moving object.

**Define** coordinate systems for motion problems.

**Recognize** that the chosen coordinate system affects the sign of the objects’ position.

**Define** displacement

**Determine** a time interval

**Use** a motion diagram to answer questions about an objects’ position or displacement.

**Develop** position-time graphs for moving objects.

**Use** a position-time graph to interpret an objects’ position or displacement.

**Make** motion diagrams and position-time graphs that are equivalent representations describing an objects’ motion.

**Define** velocity.

**Differentiate** between speed and velocity. Create mathematical models describing motion problems.

**Create** pictorial, physical, and mathematical models of motion problems.

**Define** acceleration.

**Relate** velocity and acceleration to the motion of objects.

**Create** velocity-time graphs.

**Interpret** position-time graphs for motion with constant acceleration.

**Determin**e mathematical relationships among position, velocity, acceleration, and time.

**Apply** graphical and mathematical relationships to solve constant-acceleration problems.

**Define** acceleration due to gravity.

**Solve** problems involving objects in free fall.

**Vocabulary:**

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| --- | --- | --- | --- | --- |
| Motion Diagram | Particle Model | Coordinate System | Origin | Position |
| Distance | Magnitude | Vector | Scalar | Resultant |
| Time Interval | Displacement | Position-Time Graph | Instantaneous Position | Average Velocity |
| Average Speed | Instantaneous Velocity | Velocity-Time Graph | Acceleration | Average Acceleration |
| Instantaneous Acceleration | Free Fall | Acceleration due to gravity |  |  |

**Formulas:**

∆t = (tf – ti)

∆x = (xf – xi)

V = (xf – xi)/t

xf = vt + xi

a = (vf – vi)/t

vf = vi + at

xf = xi +vit +½at2

vf2 = vi2 + 2a(xf – xi)

**Study:**

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| Date | Topic | Book Chapter: Read & Notes | Practice Probs.  | Section Review Questions | End of Chapter Questions and Problems  | Problem Sets | Test |
|  |  | 2.1-2.3 | 2: 9-18 | 2: 19-24 | 2: 35-39 | Ch 2 Worksheets |  |
|  |  | 2.4-3.2 | 2: 25-283: 1-53: 22-33 | 2: 29-333: 12-173: 34-39 | 2: 40-533: 54-623: 66-743: 80,81, 84-86,88-93,95 | Ch 2 Worksheets Ch 3 Worksheets |  |
|  |  | 3.3 | 3: 42-46 | 3: 47-52 | 3: 63-653: 75-783: 96-102 | Ch 3 Worksheets |  |
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