

One Dimensional Motion Study Guide

Speed and Velocity

___ Calculate speed or velocity when given distance and time.

___ Calculate distance when given speed or velocity and time.

Vectors

___ Add two vectors that go in the same direction.

___ Add two vectors that go in opposite directions.

___ Add two vectors that are perpendicular.

___ Add more than two vectors and resolve the resultant vector.

___ Understand the difference between distance and displacement.

___ Understand the difference between speed and velocity.

Motion Graphs

___ Interpret an object moving at constant positive velocity off of a position time graph.

___ Interpret an object moving at constant negative velocity off of a position time graph.

___ Interpret an object at rest off of a position time graph.

___ Interpret an object speeding up (accelerating) off of a position time graph.

___ Interpret an object slowing down (accelerating) off of a position time graph.

___ Interpret an object at rest off of a velocity time graph.

___ Interpret an object moving at constant positive velocity off of a velocity time graph.

___ Interpret an object moving at constant negative velocity off of a velocity time graph.

___ Interpret an object with positive acceleration off of a velocity time graph.

___ Interpret an object with negative acceleration off of a velocity time graph.

___ Draw and identify the distance time graph of an object experiencing free-fall.

___ Draw and identify the speed time graph of an object experiencing free-fall.

Horizontal Acceleration

___ Identify hidden variables such as from rest or to a stop.

___ Identify the variables of distance, time, initial speed/velocity, final speed/velocity and acceleration in word problems.

___ Recognize acceleration when given data tables of time and displacement.

___ Solve for final speed/velocity when given initial speed/velocity, time and acceleration.

___ Solve for distance when given acceleration, initial and final speed/velocity.

___ Solve for distance when given acceleration, initial and final speed/velocity.

___ Solve for acceleration when give distance, initial and final speed/velocity.

___ Solve for acceleration when give time, initial and final speed/velocity.

___ Solve for distance when give time, initial speed/velocity and acceleration.

Vertical Acceleration

___ Identify hidden variables such as initial velocity when dropped, velocity at the apex, and acceleration due to gravity.

___ Identify the variables of distance, time, initial speed/velocity, final speed/velocity and acceleration in word problems.

___ Understand why acceleration due to gravity is negative.

___ Understand why displacement of a falling object is negative.

___ Solve for acceleration due to gravity when given displacement, initial and final speed/velocity.

___ Solve for the height of a dropped object when given time.

___ Solve for final velocity of a dropped object when given time.