

Study Guide

AP Physics 1

Mr. Butler

Rectilinear Kinematics II

The student should know or be able to do the following:

1. Describe the significant and important aspects and results of Galileo's inclined plane and free-fall experiments with particular focus given to how he measured time intervals and determined distances from synchronized sound clicks of the stop.
2. Describe the significant and important results of Galileo's inclined plane experiments and how he reasoned why these results could be extended to free-fall motion.
3. Apply Galileo's laws: odd numbers, squares, velocity and acceleration correctly in cases involving uniformly accelerated motion.
4. Describe the effect of air on the motion of a freely falling body and compare it to an object falling in a vacuum with particular focus on describing differences in the body's velocity, net acceleration, forces acting and *terminal velocity* as it falls.
5. Describe the drag coefficient and the particular quantities which determine it for a body falling through a fluid like air.
6. Interpret and describe rectilinear motion of uniform acceleration from analyzing motion diagrams and x , v and a graphs and apply the skills of graphical analysis to draw motion diagrams and x , v and a graphs for any rectilinear motion.
7. Apply the correct use of the quadratic solution in kinematic equations for cases involving motion problems for which this application is required.
8. Correctly apply the physics problem solving method to all kinematic motion problems which involve algebraic derivations or numerical calculations.

NOTE: Review diagrams, graphs, worksheets, applets/films, and handout materials.