NAME:

Text:

Chapter 5: All sections of Chapter 5. Chapter 6: All sections of Chapter 6.

Questions (p. 106-7) 1, 3, 7, 8, 10, 12

Problems (p. 108-15) #1: 3, 4, 5, 7, 10, 12 #2: 19, 31, 32, 35, 47, 48, 49, 50, 84 #3: 57, 59, 76, 82, 97, 101

Questions (p. 130) 3, 4, 5, 6, 10

Problems (p. 131-39) #4: 3, 7, 16, 17, 20, 30, 33, 34 (coefficient of friction) #5: 41, 45, 47, 55, 59, 60 (centripetal acceleration) #6: 87, 92, 97, 99, 107, 109

Vocabulary:

Inertia, mass, weight, force, net force, tension, normal force, friction, coefficient of friction, static friction, kinetic friction, terminal speed, drag coefficient, Newton (as in unit of force)

Math:

definitions:

derived formulas: w = mg $w_{\perp} = mg\cos\theta$ $w_{\parallel} = mg\sin\theta$

 $\sum \vec{F} = m\vec{a}$ $f = \mu N$

skills: no new math skills

Key Objectives:

- state, explain and give examples of each of Newton's 3 Laws of Motion.
- compare and contrast mass verses weight.
- define force, and explain its units (i.e. what is Newton?)
- draw and label an appropriate free-body diagram for any given situation/word problem.
- apply Newton's 2nd Law to a variety of situations to solve a variety of word problems. (particularly make sure you can analyze: objects on hills, objects in circular motion, systems with pulleys, and systems of more than one object.)
- identify when the net force is zero on an object or system
- be able to differentiate between internal forces on a system and external forces
- identify the "reaction force" to a given "action force" (Newton's 3rd Law)
- identify action/reaction pairs of forces in a system.
- define friction and describe its effects on objects.
- define terminal speed, explain the factors that affect it, and describe what happens to the frictional forces, weight, and net force on an object that is freely falling.
- solve a variety of word problems involving multiple applied forces, tensions, and frictional forces.