

Chapter 6

- 1) What is the work done by a constant force? What are the units for work? Is work a scalar or a vector quantity?
- 2) What is the angle θ in the work equation?
- 3) What is the work-energy theorem? What are the units for energy?
- 4) What is kinetic energy? Is it a scalar or a vector? What are the implications?
- 5) What is potential energy? Is it a scalar or a vector? What are the implications?
- 6) What are conservative forces?
- 7) What are non-conservative forces?
- 8) What is the work done by non-conservative forces equal to?
- 9) What is conservation of energy?
- 10) What is power? What are its units?
- 11) How do we find the work done by a variable force?

Chapter 7

- 1) What is impulse? What are its units? Is it a scalar or a vector?
- 2) What is momentum? What are its units? Is it a scalar or a vector?
- 3) What is the impulse-momentum theorem?
- 4) What is conservation of momentum?
- 5) When is momentum conserved? (What problems do we apply conservation of momentum to?)
- 6) What are elastic collisions?
- 7) What are inelastic collisions?
- 8) What is the center of mass?
- 9) What are the expressions for the position and velocity of the center of mass?

Chapter 8

- 1) What are the rotational variables?
- 2) How do they relate to the translational variables?

- 3) What are the equations of rotational kinematics?
- 4) How many kinds of **linear** acceleration can we talk about in rotational kinematics? What are their directions?
- 5) Are the rotational variables also vectors? What are their directions?

Chapter 9

- 1) What is torque? What does it correspond to in linear variables?
- 2) How do the force and torque arm have to be oriented with respect to each other in order to maximize torque?
- 3) What is the convention for positive/negative torque?
- 4) Where does the weight of a macroscopic object act?
- 5) What is Newton's Second Law in terms of angular (rotational) variables? When do we apply it? How do we apply it?
- 6) What are the conditions for equilibrium of a rigid body?
- 7) What are the rotational work and energy equations?
- 8) What is the rotational kinetic energy?
- 9) What is the kinetic energy for rolling?
- 10) What is angular momentum? Is it conserved?

Chapter 10

- 1) What is the elastic force? What direction does it act in relative to the applied force when stretching/compressing a spring?
- 2) What are the equations for simple harmonic motion for displacement, velocity and acceleration?
- 3) What is period? Mark it on a sine wave. Mark it on the reference circle.
- 4) What is frequency? What is angular frequency? How are they related?
- 5) What is the frequency of vibration?
- 6) What is the potential energy stored in a stretched/compressed spring?
- 7) What is a simple pendulum?
- 8) What variables does the period of oscillations of a pendulum depend on?
- 9) What is a physical pendulum? What is its period?
- 10) What is resonance?

11) What are stress and strain? How are they related?

12) What is pressure?