Chapter C9: Rotational Energy Practice

Physics I

College of the Atlantic

1. A DJ spins a record. The turntable revolves at 33.3 revolutions per minute.
   (a) What is the angular velocity of the vinyl?
   (b) What is the speed of a point on the record 7 cm from the center of the record?
   (c) The record has a mass of .2 kg and a radius of 14 cm. What is its rotational kinetic energy?

2. A hollow sphere of radius 3m and mass 300 kg is rotating in deep space at 10 revolutions per second around its axis. What it its rotational kinetic energy?

3. A 0.15 kg lacrosse ball is rolling toward you at 5 m/s. The radius of the ball is 4 cm. What is the total kinetic energy of the ball?

4. A solid sphere rolls without slipping down an incline. Initially the sphere is at rest and is h meters above the ground. What is the sphere's speed at the bottom of the incline? Your answer will have an h in it.