Solving Circular Motion Problems in the Horizontal Plane

1. David winds up with a 150 g pebble in his slingshot. The slingshot thongs are 43 cm long and are revolving 5 times per second. What is the tension in the thongs?

2. David knows from past experience that if he swings the sling shot too fast the tension becomes too great and the thongs snap. If the thongs can withstand a maximum tension of 120 N, what is the maximum rpm's allowed?

3. A 210 g potato is sitting 21 cm from the center of a microwave oven tray slides off the rotating tray if its linear speed exceeds 11 cm/s. Determine the coefficient of static friction between the potato and the tray.

4. Suppose that the drum in your washer spins with a frequency of 6.2 Hz. The diameter of the drum is 58.0 cm and your wet woolen sweater has a mass of 3.2 kg early in the spin. Determine the linear speed of you sweater and the centripetal force exerted by the wall of the drum on the sweater.

5. What is the maximum speed at which a 1200 kg car can round a curve on a flat road if the radius of curvature is 75 m and the coefficient of static friction is 0.20?

6. What is the purpose of the spin cycle on an automatic washer? How does it work?

Homework: p. 214 - #1, p. 224 - #1, 2, p.226 - 15, 16, 18