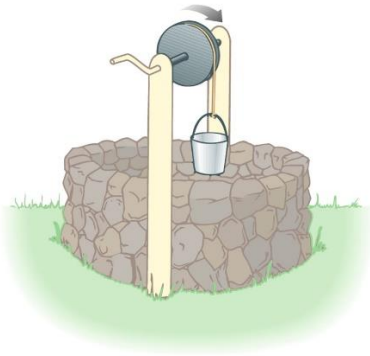Name_____

Date_____Period_____

AP Physics Unit 9 – Worksheet 3

Draw force diagrams and show all steps needed to solve the following problem.

A solid, uniform, frictionless cylindrical reel of mass M = 3.00 kg and radius R = 0.400 m is used to draw water from a well. A bucket of mass m = 2.00 kg is attached to a cord that is wrapped around the cylinder.

a) Find the tension F_T in the cord and acceleration **a** of the bucket.

b) If the bucket starts from rest at the top of the well and falls for 3.00 s before hitting the water, how far does it fall?