1. A spherical bowling ball with mass $m = 4$ kg and diameter 22 cm is thrown down the lane with an initial speed of $v = 8.7$ m/s. The coefficent of kinetic friction between the sliding ball and the ground is $\mu = 0.32$. Once the ball begins to roll without slipping it moves with a constant velocity down the lane.

   (a) While slipping:
   - What is the ball's angular acceleration?
   - What is the ball's linear acceleration?
   - What is the elapsed time?
   - How far does it go?

   (b) After it stops slipping:
   - What is its speed?
   - Compare the translational and rotational kinetic energy.