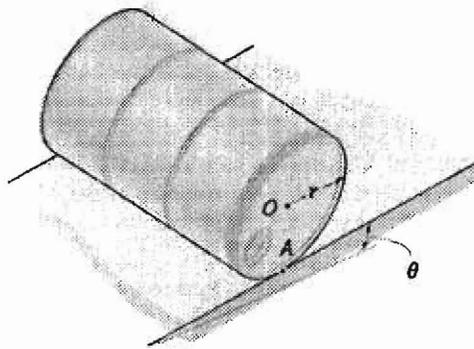


3. The drum of mass m , radius r , and radius of gyration k_o rolls along an inclined plane for which the coefficient of static friction is μ . Assume the drum is released from rest.
- What is the condition that the drum rolls without slipping? (5%)
 - Determine the maximum angle θ for the incline so that it rolls without slipping. (20%)



4. A ball having a mass of 8 kg and initial speed of $v_1=0.2\text{m/s}$ rolls over a 30-mm long depression. Assume that the ball rolls off the edges of contact, first A , then B .
- Determine the angular velocity at the instant that the ball contacts the depression at B . (15%)
 - Determine its final velocity v_2 when it reaches the other side. (10%)

