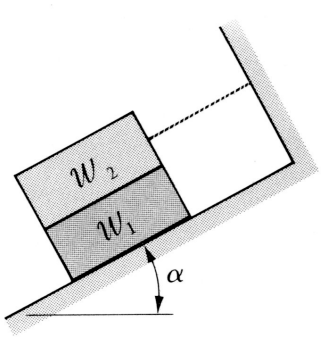
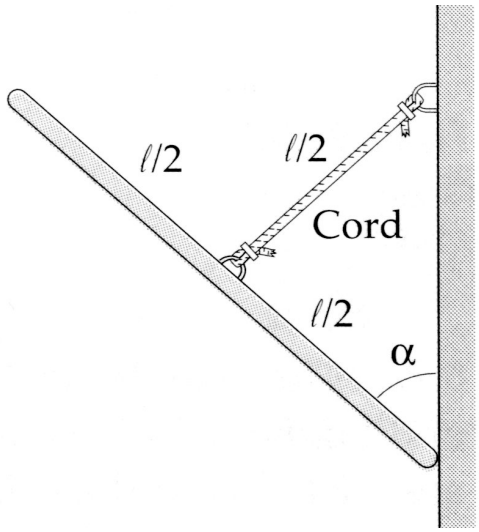
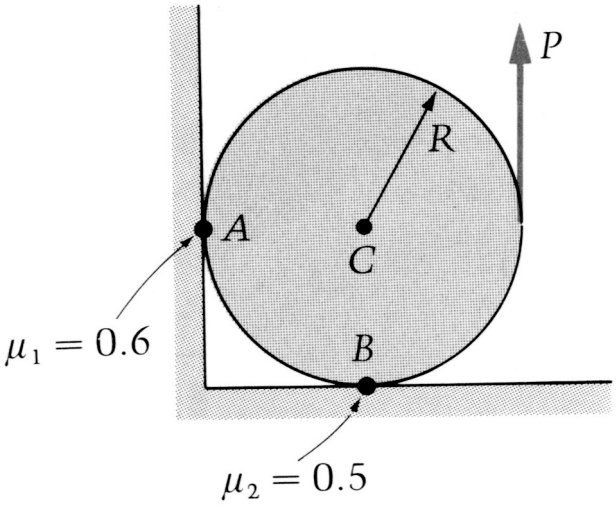
PHY 211 Statics HW 9



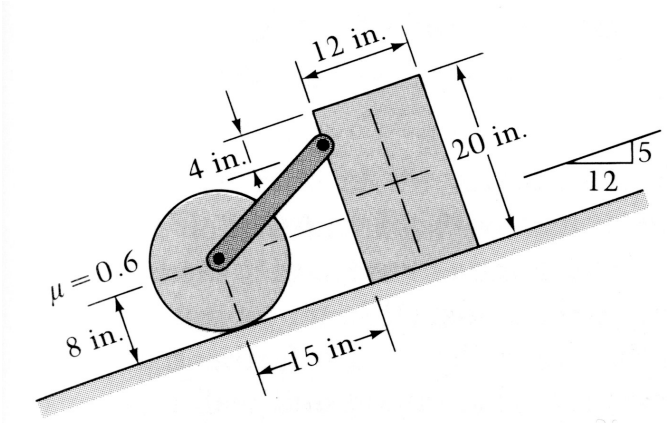
1. If each box in the figure to the left weighs 100 lbs, and if the coefficient of static friction for all surfaces of contact is 0.2, for what angle α will the lower box begin to slide downward?



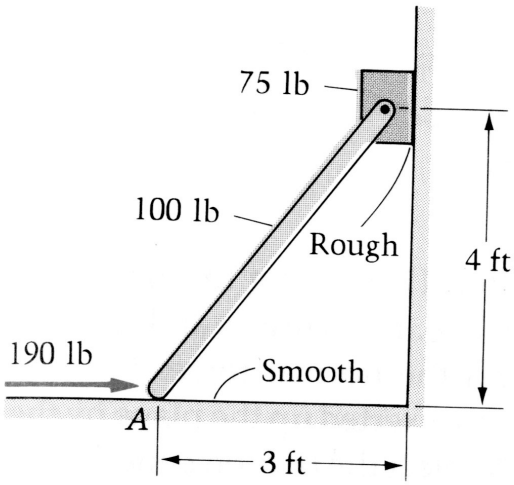
2. The uniform rod of mass *m* and length *l* rests against the wall as shown. Find the minimum coefficient of friction μ_s for which equilibrium can occur, as a function of the angle α.



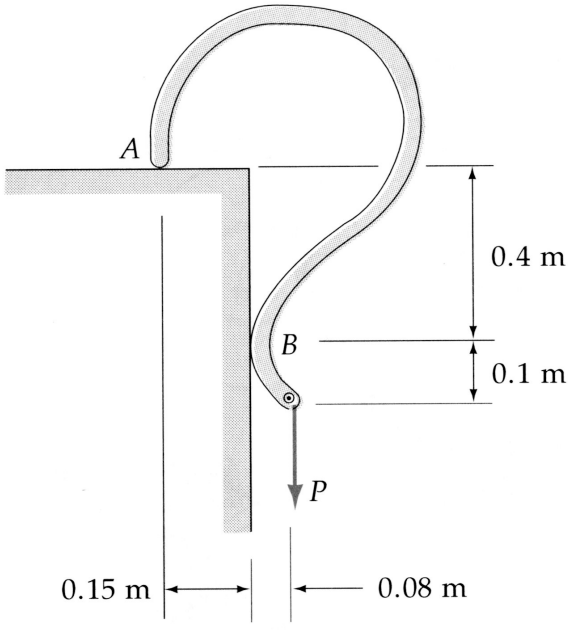
3. What minimum force *P* will cause impending motion?



4. In the figure at left, the block weighs 26 lbs and is connected to the roller by a light rod. If the coefficient of static friction between all surfaces of contact is 0.6, what is the maximum allowed weight of the roller for equilibrium?



5. What is the minimum coefficient of static friction between the block and the wall for equilibrium?



6. The hook shown rests against a rough surface at *A* and a smooth wall at *B*. What is the minimum coefficient of static friction at *A* that will prevent the hook from slipping, regardless of the size of the load *P*? How would you change the 0.4 m dimension to require a smaller friction coefficient of 0.2?