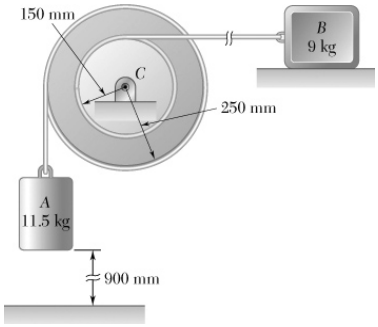
Chapter 17, Problem 1.

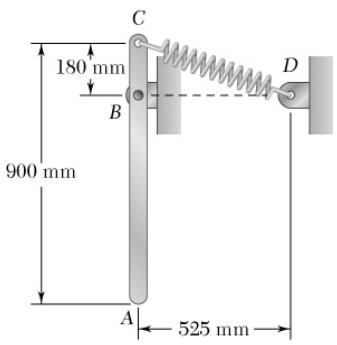
It is known that 1500 revolutions are required for the 2720-kg flywheel to coast to rest from an angular velocity of 300 rpm. Knowing that the radius of gyration of the flywheel is 914 mm, determine the average magnitude of the couple due to kinetic friction in the bearings.

Chapter 17, Problem 11.



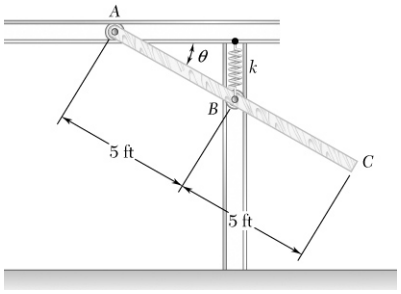
The double pulley shown has a mass of 14 kg and a centroidal radius of gyration of 165 mm. Cylinder *A* and block *B* are attached to cords that are wrapped on the pulleys as shown. The coefficient of kinetic friction between block *B* and the surface is 0.25. Knowing that the system is released from rest in the position shown, determine (*a*) the velocity of cylinder *A* as it strikes the ground, (*b*) the total distance that block *B* moves before coming to rest.

Chapter 17, Problem 15.



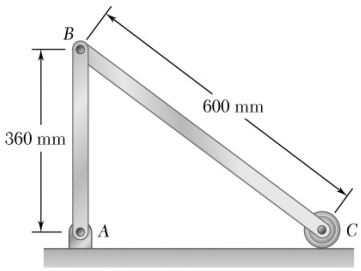
A slender 6-kg rod can rotate in a vertical plane about a pivot at *B*. A spring of constant $K = 600$ N/m and an unstretched length of 225 mm is attached to the rod as shown. Knowing that the rod is released from rest in the position shown, determine its angular velocity after it has rotated through 90°.

Chapter 17, Problem 30.



The mechanism shown is one of two identical mechanisms attached to the two sides of a 200-lb uniform rectangular door. Edge *ABC* of the door is guided by wheels of negligible mass that roll in horizontal and vertical tracks. A spring of constant *k* is attached to wheel *B* in such a way that its tension is zero when $\theta = 30°$. Knowing that the door is released from rest in the position $\theta = 45°$ and reaches the vertical position with an angular velocity of 0.6 rad/s, determine the spring constant *k*.

Chapter 17, Problem 35.



The uniform rods *AB* and *BC* are of mass 2.4 kg and 4 kg, respectively, and the small wheel at *C* is of negligible mass. If the wheel is moved slightly to the right and then released, determine the velocity of pin *B* after rod *AB* has rotated through 90°.

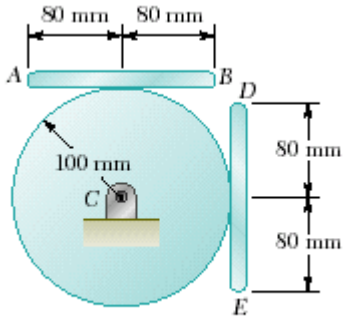


Fig. P17.C2

PROBLEM 17.C2

Two 3-kg slender rods are welded to the edge of a 4-kg uniform disk as shown. The assembly is released from rest in the position shown and swings freely about the pivot *C*. Calculate and plot the angular velocity of the assembly after it has rotated through an angle θ, for values of θ from 0 to θ_m, the angle of maximum rotation. Determine the maximum angular velocity of the assembly and the corresponding value of θ.