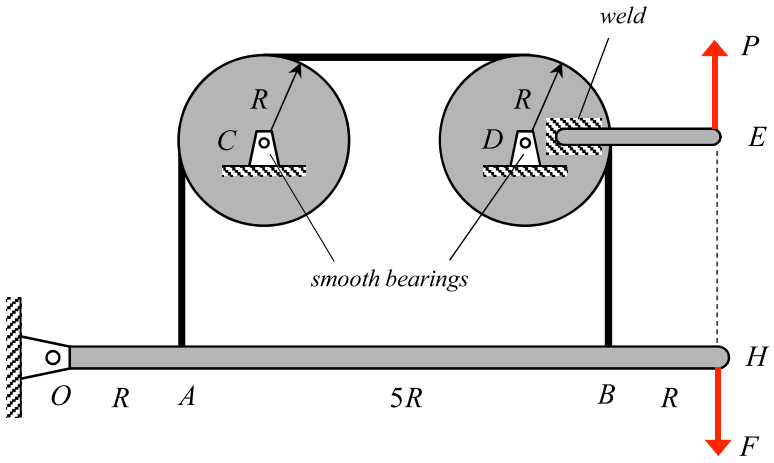
Homework H19.A

Given: A belt is wrapped around two pulleys, each of radius R. The ends of the belt are attached to rigid bar OH at points A and B, as shown.. A rigid arm is welded to the disk on the right, with a force P acting at end E of the arm. A second force F acts at end H of arm OH. Let μ_S represent the coefficient of static friction between the belt and the drums.

Find: Determine the smallest value of F that is required to prevent slipping between the belt and either drum. Express your answer in terms of the load P.

Use the following in your analysis: $\mu_S = 0.4$.



Homework H19.B

Given: Block C, having a weight of W, is supported by cable CD that is pulled over a pair of rough, fixed cylinders, where μ_s is the coefficient of static friction between the cable and cylinders.. Note that section AB is horizontal.

Find: Determine the range of values for the force F applied to end D of the cable for which block C remains in static equilibrium. Provide your answer in terms of the block's weight W.

For this problem, use the following parameter: $\mu_s = 0.3$.