

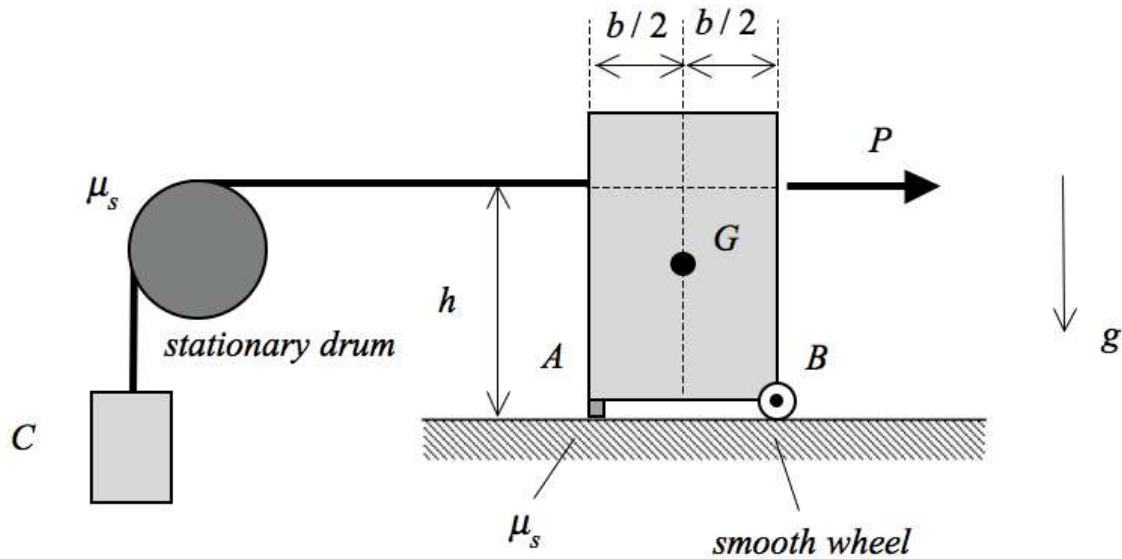
Homework Problem H19.A

Given: A block having a weight of W is supported by a peg at corner A and a smooth wheel at corner B. A cable is attached to the left side of the block, with the cable being pulled over a fixed, rough drum as it supports block C (with C having a weight of W_C). A horizontal force P pulls on the right side of the block. The coefficient of static friction between A and the surface supported the block, and between the drum and the cable is known to be μ_s .

Find: For this problem:

- a) Determine the maximum value for the weight W_C for which the system is in equilibrium.
- b) For this value of weight, is the impending motion of the block tipping or slipping?

For this problem, use the following parameters: $b = 2$ ft, $h = 3$ ft, $\mu_s = 0.5$, $W = 100$ lb and $P = 200$ lb.



Homework Problem H19.B

Given: The bandbrake system shown below has a band wrapped around a drum, with a counter-clockwise torque M being applied to the drum and the drum rotating at a constant rate. The band is tensioned by arm AC, with the load P acting at end C of the arm. The coefficient of kinetic friction between the band and the drum is μ_K . Consider the weight of arm AC to be negligible compared to P .

Find: Determine the couple M acting on the drum. Write your answer in terms of P , R and μ_K .

