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.