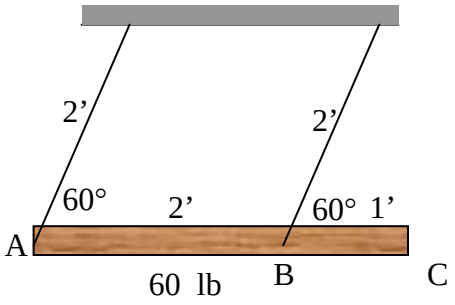
Homework (LE 7)

Problem 7.1

The uniform 60 lb log is supported by two cables and used as a battering ram. If the log is released from rest in the position shown, determine

a) the tension in each cable immediately after release
b) the corresponding angular acceleration of the cables.
c) the tension in each cable when the cables are vertical.



Problem 7.2

Two blocks A and C are welded together and they rest on top of wedge B. Incline B has a weight, W_B, block A has a weight, W_A and block C has a weight, W_C. The parameters, w, h_1, h_2, and θ are all known.

a) Assuming the friction between A and B is large enough to prevent sliding, determine the equations necessary to find the force, F, so that block A does not tip in a counterclockwise direction.
b) Using w = 0.8", h_1 = 0.8", h_2 = 0.4", W_A = 1 lbf, W_B = 2 lbf, W_C = 0.4 lbf, and θ=20°, determine a numerical value for F.
c) Assuming F = 0 and the friction between block A and B is magically reduced to zero and block A does not tip, determine the velocity of block A and block B after A has moved a distance d=3" down the incline.