Physics 1A
Spring 2015

Challenge Problem 24

A pivoted beam has mass m_1 suspended from one end and an Atwood's machine suspended from the other with masses m_2 and m_3 suspended on either side. The frictionless pulley has negligible mass and size. Find the relation between.

(a) Find the relation between m_1, m_2, m_3, ℓ_1, and ℓ_2 which will ensure that the beam has no tendency to rotate just after the masses are released.

(b) What would you predict the relation would be in the case that all three masses are equal? Does your answer from part (a) agree with that prediction?