

Physics 122: Torque Problem Assignment Name _____

Due: /30

a) Derive a formula for tension, T , as a function of beam length, r , given the beam has a mass per unit length, μ , a mass, M , hanging at the end of the beam, a gravitational acceleration, g , and the wire attaches at a point, h , above the left end of the beam.

b) If the wire in use will break at 1.50×10^4 N, determine the maximum length of the beam given the constants: $\mu = 14.0$ kg/m; $M = 4.50 \times 10^2$ kg; $h = 12.0$ m; $g = 9.81$ m/s².

