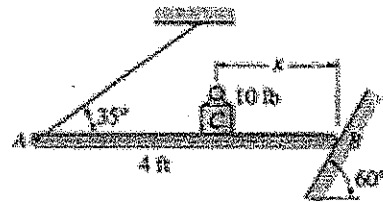


Assigned 10/4/13

10.4.1

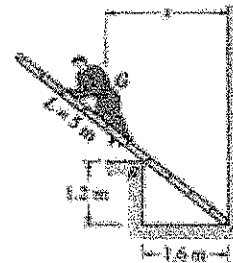
The 60 lb bar is supported as shown. Surface B is frictionless. Where must the 10 lb weight be placed to maintain equilibrium?



Ans: 3.35 ft

10.4.2

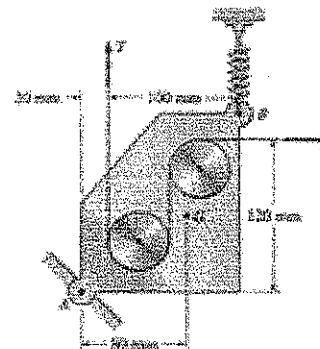
A 90 kg man is climbing a 5 m ladder that has a mass of 20 kg. what are a) the reactions on the ladder when  $x = 1.5$  m and b) the smallest value for  $x$  that will make the ladder fall?



Ans (a)  $R_A = 647$  N,  $R_B = 858$  N, (b) 2.61 m

10.4.3

The mechanism shown is designed to maintain tension on the wire shown during processing. If the device has a mass of 0.4 kg that can be idealized as being at point G and the spring force is 14 N, what is the tension in the wire and the magnitude of the force at A?



Ans:  $T = 13.7$  N,  $R_A = 27.4$  N