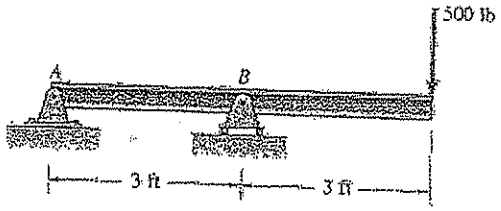
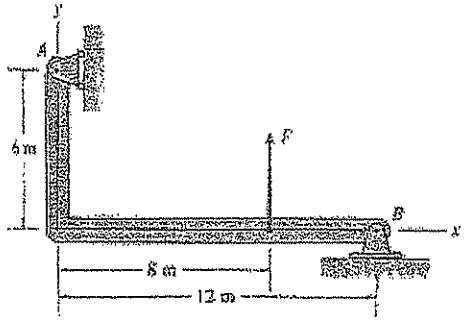
10.2.1
What are the reactions at the supports A and B for the beam supported and loaded as shown?



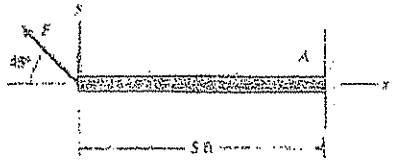
Ans: Ax = 0, Ay = -500lb, B = 1000lb

10.2.2
What are the reactions at the supports A and B for the beam supported and loaded as shown give that F = 40 kN?



Ans:Ax = -26.7 kN, Bx = 26.7 kN, By= -40.0 kN

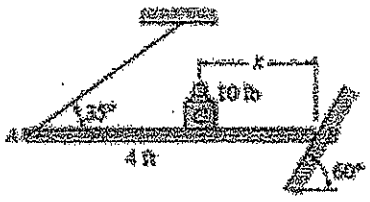
10.2.3
For the cantilever beam shown is embedded in a concrete wall as shown. What is the maximum F that can be applied if it has been determined that the beam will pull out of the concrete at 1000 lbs, the concrete will fail if the vertical load exceeds 2000 lbs or the moment exceeds 3000 ft-lb?



Ans: 849 lb

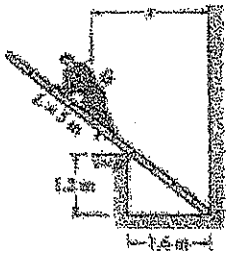
Assigned 10/4/13

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?



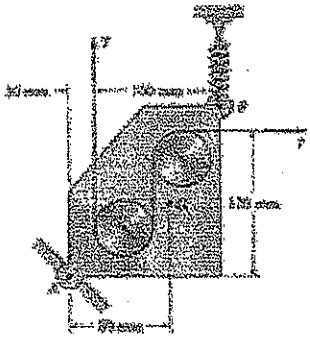
Ans: 3.35 ft

10.4.2
A 90 kg man is climbing a 5 m ladder that has a mass of 20kg. what are a) the reactions on the ladder when x = 1.5m 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