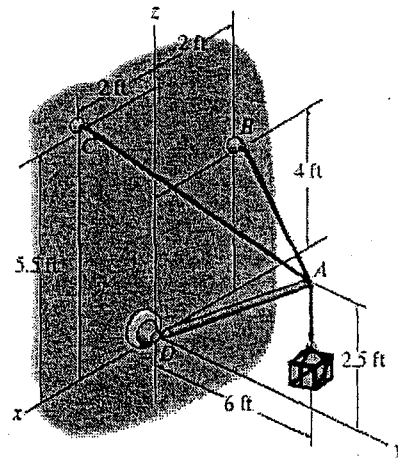


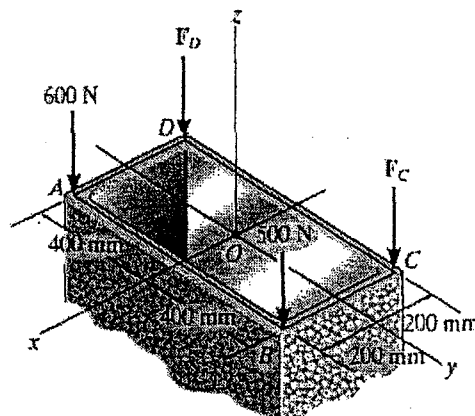


Solve the following questions:

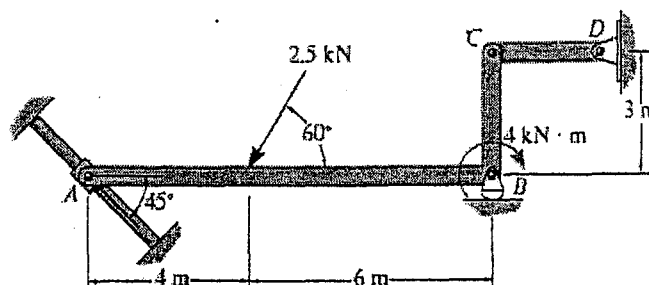
- (1) If the force developed in each of the cables and strut cannot exceed 300 lb, determine the largest weight of the crate that can be supported. Also, what is the force developed along strut AD? [10 marks]



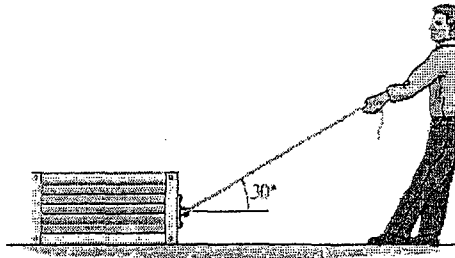
- (2) Determine the magnitudes and coordinate direction angles of the resultant force and moment so that the equivalent resultant system acts through the midpoint O of the tube. [10 marks]



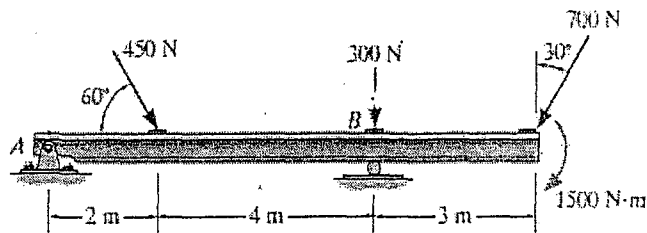
- (3) Determine the reactions at the supports ? [10 marks]



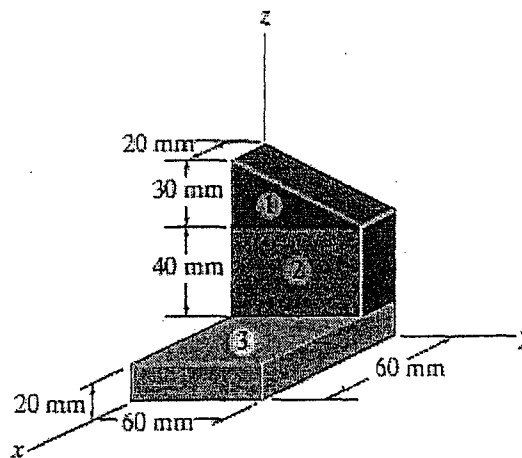
- (4) The coefficient of static friction between the 150-kg crate and the ground is $\mu_{s1} = 0.3$, while the coefficient of static friction between the 80-kg man's shoes and the ground is $\mu_{s2} = 0.4$. Determine if the man can move the crate. [10 marks]



- (5) Replace the loading acting on the beam by resultant force and moment exist at end A. [5 marks]



- (6) Locate the center of mass of the block. Materials 1, 2 and 3 have densities of 2700 kg/m^3 , 5700 kg/m^3 , and 7800 kg/m^3 , respectively. [10 marks]



انتهت الأسئلة مع تمنياتي بالتوفيق