CIV100 – MECHANICS – SECTION 5

Assignment No. 6 – Thursday, October 24, 2013

Due: 11:10 a.m., Tuesday, October 29, 2013, stapled and on correct "engineering paper".

Topics: Trusses & Frames

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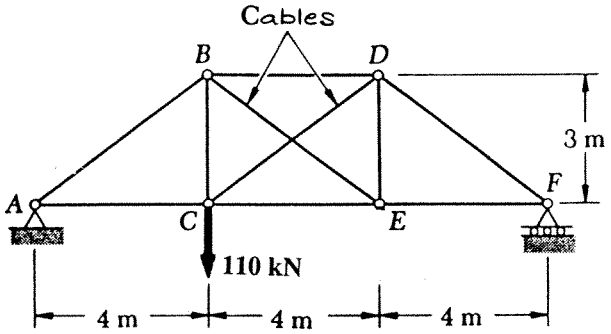
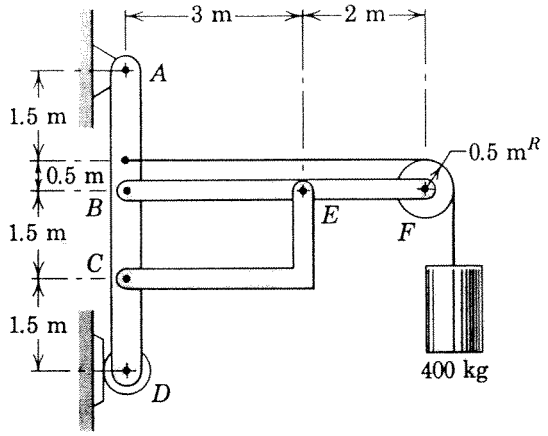
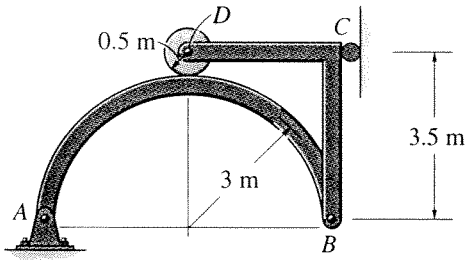
1. The diagonal members *BE* and *CD* of the pin-jointed truss shown are cables (i.e. they can only sustain tension forces and go slack in compression). Determine the forces in members *BD*, *CE*, *CD* and *BE*.



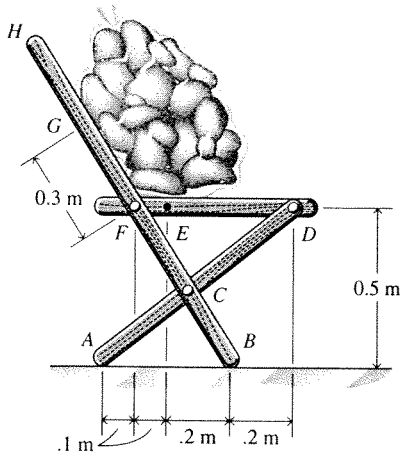
2. The frame supports the 400-kg load in the manner shown. Neglect the self-weight of the members and compute the horizontal and vertical components of all forces acting on each of the members.



3. The smooth disc shown is pinned at *D* and has a weight of 400 N. Neglecting the weights of the other members, determine the horizontal and vertical components of reaction at pins *B* and *D*.



4. A bag of potatoes is sitting on the chair as shown. The force exerted by the potatoes on the frame at one side of the chair is equivalent to horizontal and vertical forces of 24 N and 84 N, respectively, at E and a force of 28 N perpendicular to member BH at G. Find the forces acting on member BH.



5. Determine the forces on member ABC and summarise your results on a separate free body diagram of ABC. Neglect the self weight of the members. The slot connection at C allows free movement of the pin in the horizontal direction. *(From the December 1998 final examination.)*