

King Fahd University of Petroleum & Minerals
CIVIL ENGINEERING DEPARTMENT

CE 201 STATICS (Section 9)
 First Semester 1427-28 / 2006-07 (061)

H.W. # 8

Due on Sunday 28-10-1427 / 19-11-2006 (**any time**)

Deadline for submission: Monday 29-10-1427 / 20-11-2006 (**before you sit in class**)

- 1) A 4×8 ft sheet of plywood weighing 50 lb has been temporarily propped against column CD, as shown in Fig. P1. It rests at A and B on small wooden blocks and against protruding nails. Neglecting friction at all surfaces of contact, determine the reactions at A, B, and C. [Secs. 5.5-5.7] (20 pts.)

- 2) The rigid L-shaped member ABC shown in Fig. P2 is supported by a ball-and-socket at A and by three cables. Determine the tension in each cable and the reaction at A caused by the 2.5 kN load applied at G. [Secs. 5.5-5.7] (20 pts.)

- 3) The lid of a roof scuttle shown in Fig. P3 has a mass of 30 kg. It is hinged at corners A and B and maintained in the desired position by a rod CD pivoted at C; a pin at end D of the rod fits into one of several holes drilled in the edge of the lid. For $\alpha = 30^\circ$, determine
 - (a) the magnitude of the force exerted by rod CD,
 - (b) the reactions at the hinges.
 [Secs. 5.5-5.7] (20 pts.)
Assume that the hinges at A and B are properly aligned, and the hinge at B does not exert any axial thrust.

- 4) Using the **method of joints**, determine the force in each member of the truss shown in Fig. P4. State whether each member is in tension or compression. [Secs. 6.1-6.3] (20 pts.)

- 5) In the truss shown in Fig. P5, determine
 - (a) all zero-force members **by inspection**,
 - (b) the forces in all of the other members using the **method of joints**.
 [Secs. 6.1-6.3] (20 pts.)

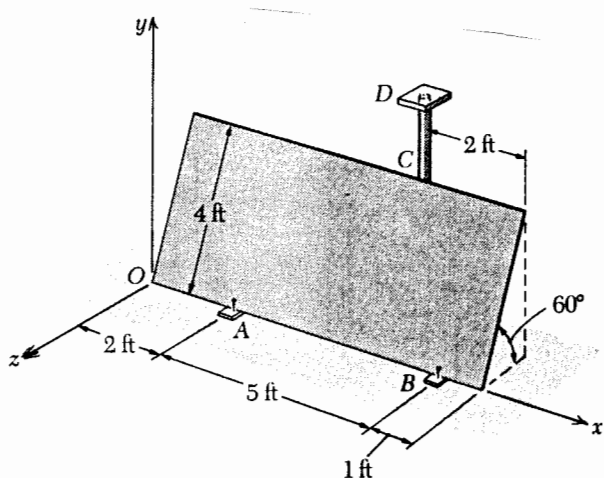


Fig. P1

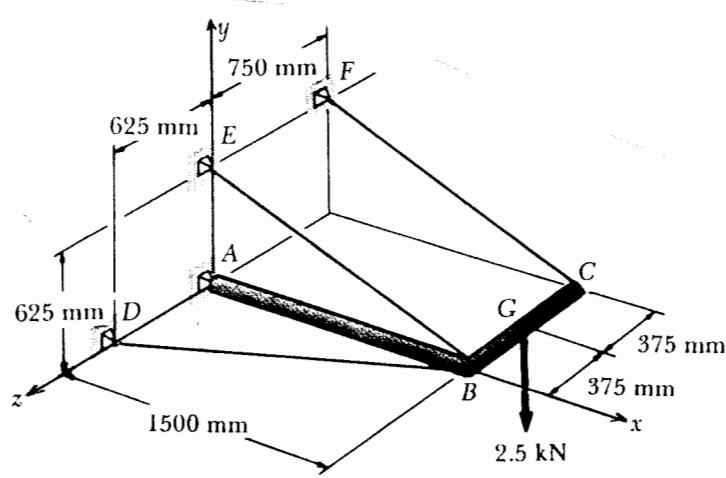


Fig. P2

Do your work yourself!! Remember that the homework carries 20% of the course grade; in addition, solving it is the best way to understand the subject. Of course, you can seek my help anytime in the homework as well as in anything else.

As an engineer, review the guidelines for submitting homework assignments given to you in class BEFORE you start solving and writing the homework. DO NOT SUBMIT THE HOMEWORK IF YOU DO NOT FOLLOW THESE GUIDELINES. Cheating, copying, etc. is

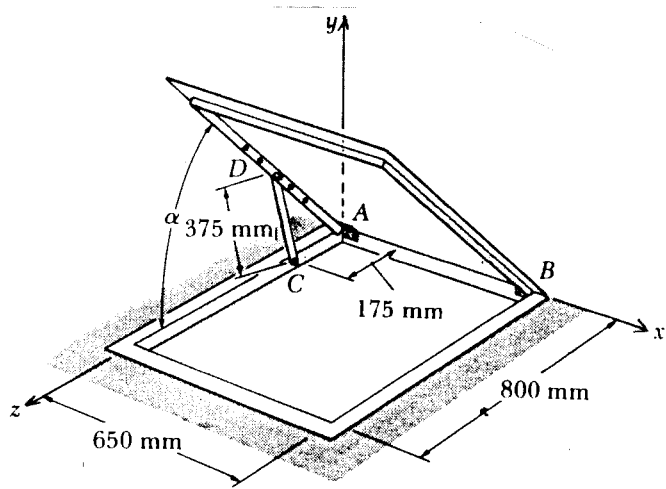


Fig. P3

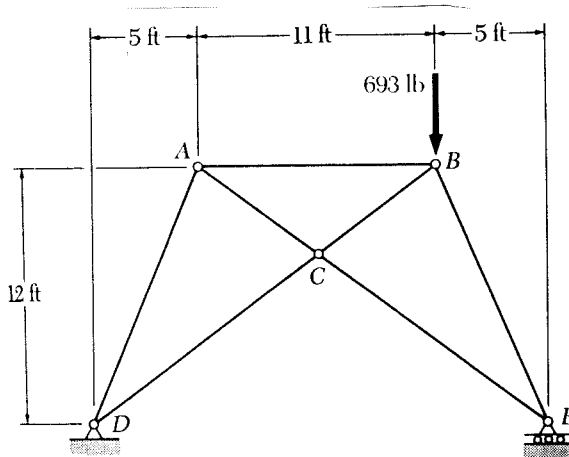


Fig. P4

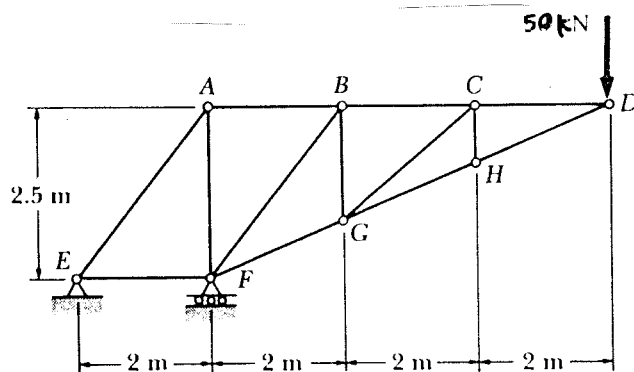


Fig. P5