

King Fahd University of Petroleum & Minerals
CIVIL ENGINEERING DEPARTMENT

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

H.W. # 10

Due on Sunday 12-11-1427 / 3-12-2006 (any time)

Deadline for submission: Monday 13-11-1427 / 4-12-2006 (before you sit in class)

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- 1) In Fig. P1 shown, determine the force in each of the four links AF , BG , DG , and EH . [Sec. 6.6] (15 pts.)
 - 2) The action of a roll clamp is controlled by two hydraulic cylinders as shown in Fig. P2. In order to hold firmly the 2000-kg paper roll, a vertical 6-kN force is applied at the top of the roll by arm CAF . Determine
 - (a) the force exerted by each cylinder
 - (b) the force exerted at C on arm $BCEH$. [Sec. 6.6] (20 pts.)
 - 3) A hand-operated hydraulic cylinder, shown in Fig. P3, has been designed for use where space is severely limited. Determine the magnitude of the force exerted on the piston at D when two 450-N forces are applied as shown. [Sec. 6.6] (20 pts.)
 - 4) A 500-kg concrete slab is supported by a chain and sling attached to the bucket of the front-end loader shown in Fig. P4. The action of the bucket is controlled by two identical mechanisms, only one of which is shown. Knowing that the mechanism shown supports one-half of the 500-kg slab, determine the force exerted
 - (a) by cylinder CD
 - (b) by cylinder FH . [Sec. 6.6] (25 pts.)
 - 5) In Fig. P5 shown, determine the internal forces at A , B , and C . [Sec. 7.1] (20 pts.)
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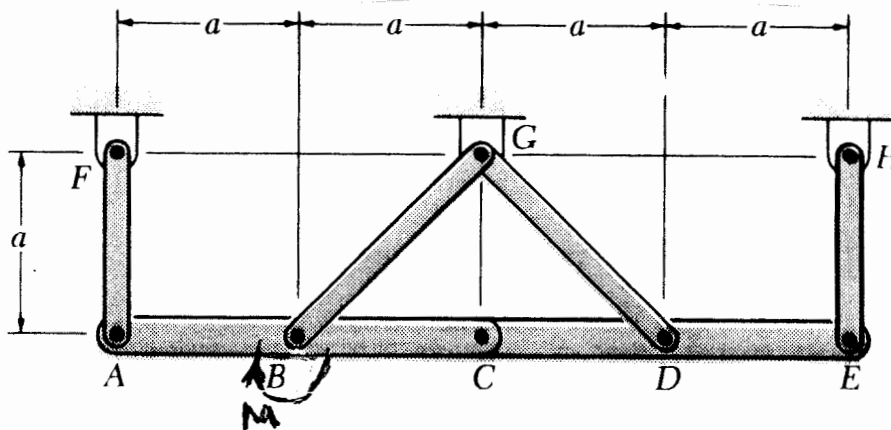


Fig. P1

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**!!!!!!

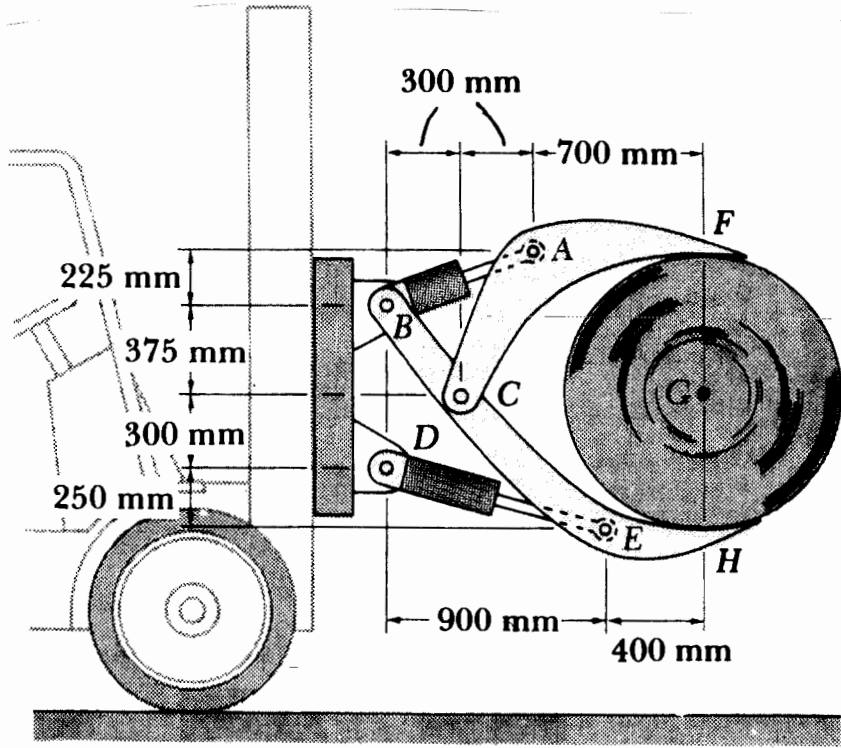


Fig P2

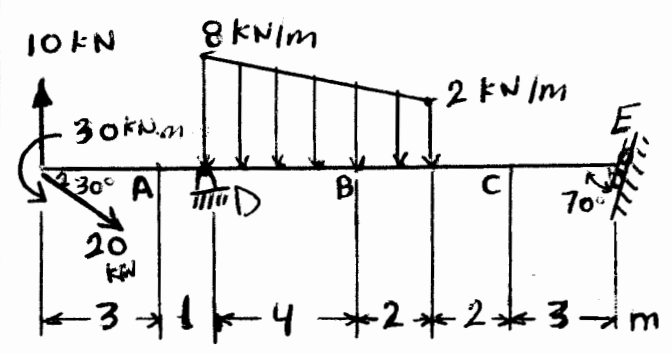


Fig P5

Fig P3

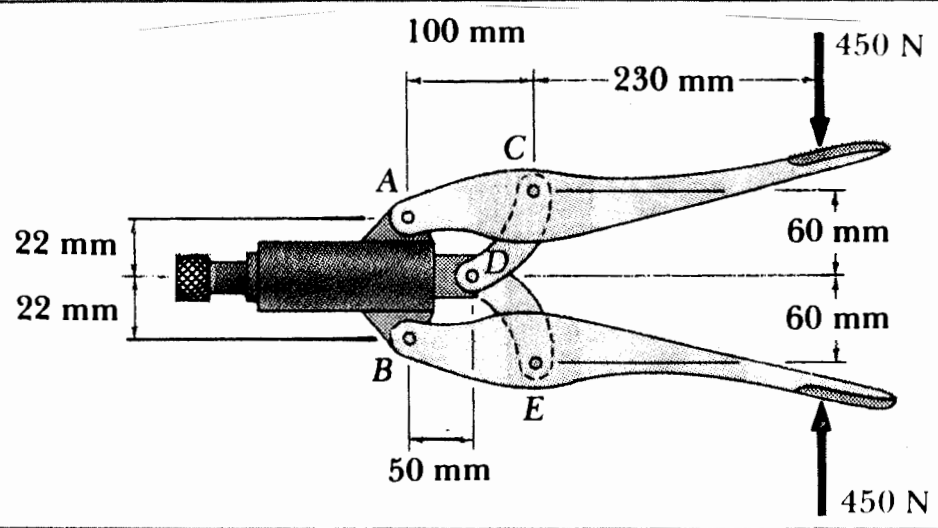


Fig P4

