King Fahd University of Petroleum & Minerals
CIVIL ENGINEERING DEPARTMENT

CE 203 STRUCTURAL MECHANICS I (Section 3)

Second Semester 1429 / 2008 (**072**)

H.W. # 11

Due on Wednesday 16-5-1429 / 21-5-2008 **(any time)**

Deadline for submission: **Saturday 19-5-1429 / 24-5-2008 (before you sit in class)**

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1) A thin aluminum box beam is required to resist the axial force and twisting moment shown in Fig. P1. Determine the normal and shear stresses at point A near the wall. [Sec. 8.2 + Handout] (10 pts.)

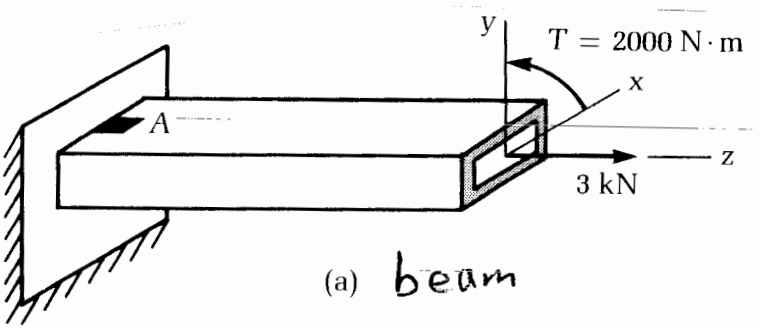
2) A steel C clamp has the dimensions shown in Fig. P2. Determine the maximum permissible clamping force if the normal stress is not to exceed 12 ksi (T or C). [Sec. 8.2 + Handout] (15 pts.)

3) Determine the values and locations of the maximum normal and shear stresses in the beam (shaft) shown in Fig. P3. [Sec. 8.2 + Handout] (20 pts.)

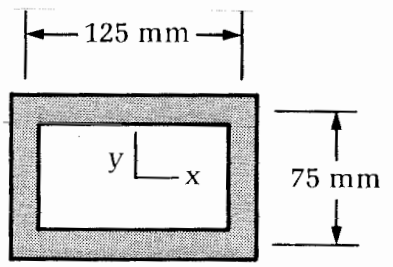
4) In the figure shown in Fig. P4, determine the values and locations of the maximum tensile and compressive (normal) stresses at the fixed end. [Sec. 8.2 + Handout] (25 pts.)

5) In the member shown in Fig. P5, determine the normal and shear stresses at points A, B, C, D, and E. Note that points D and E are at the end of a horizontal diameter. [Sec. 8.2 + Handout] (30 pts.)

Fig. P1

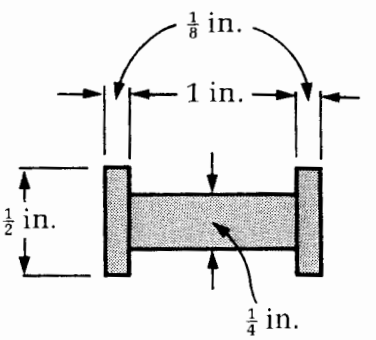


(a) beam



(b) x-sec.

Fig. P2



Section aa

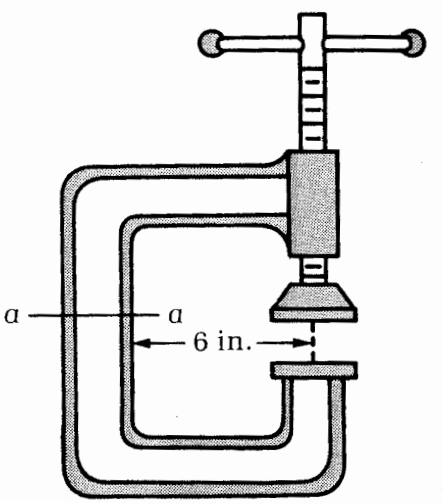
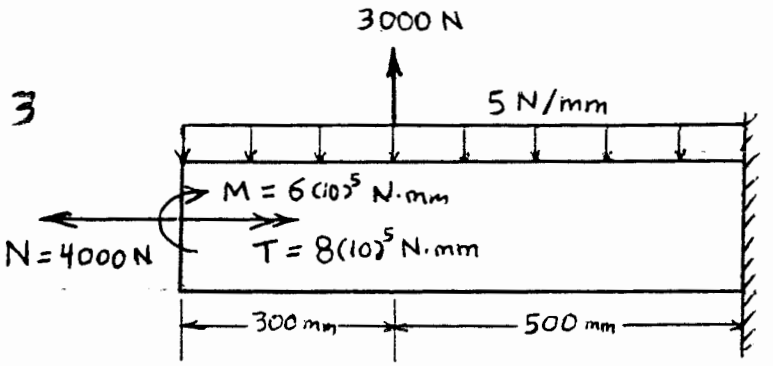


Fig P3



Beam

Cross section

Fig P4

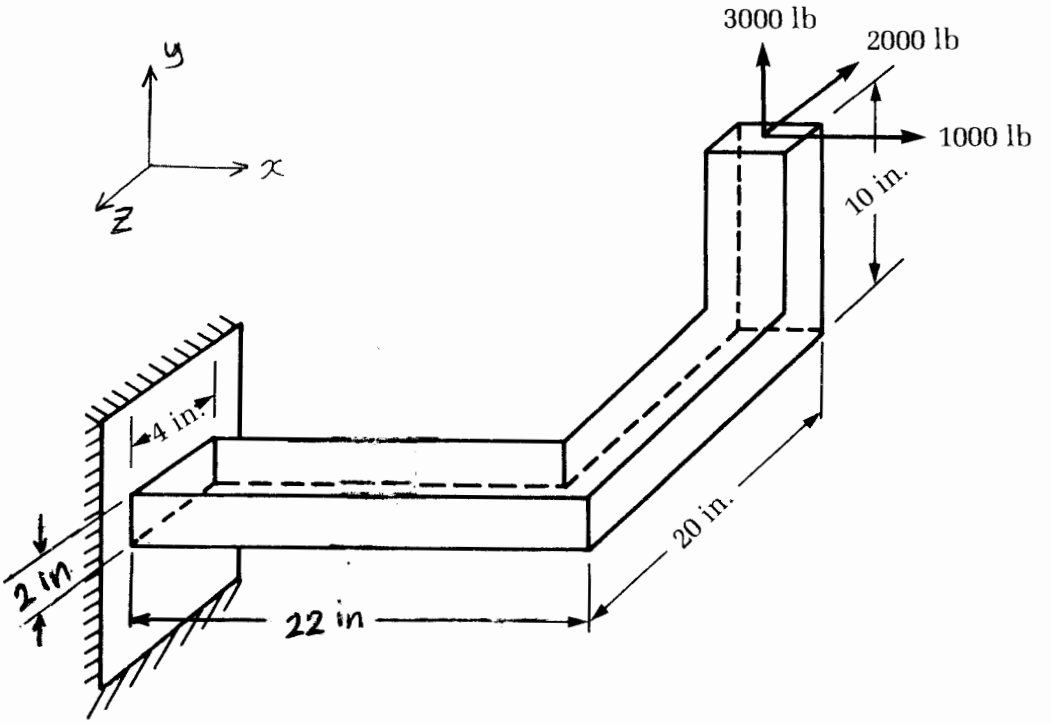
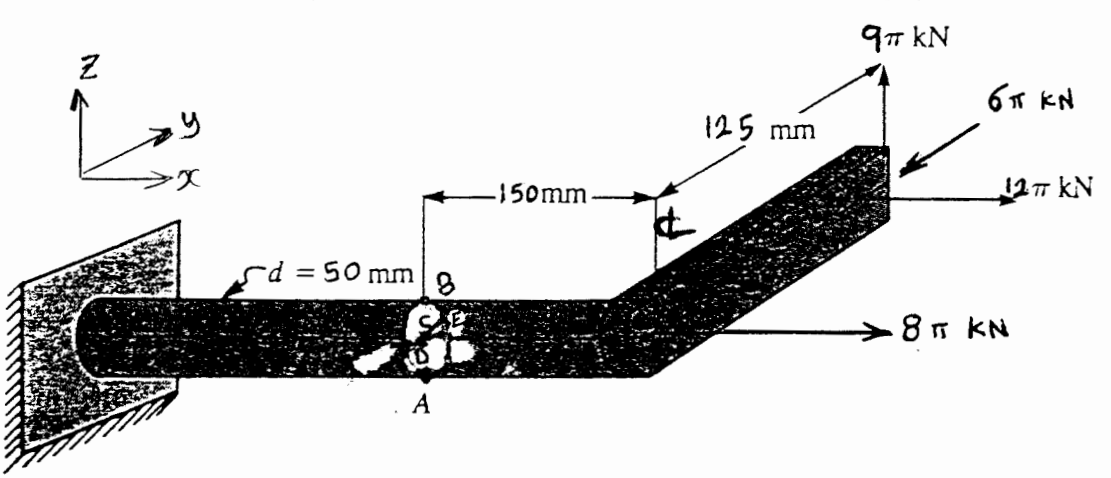


Fig P5



Do <u>your</u> work *<u>yourself</u>*!! 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 <u>engineer</u>*, review the <u>guidelines for submitting homework assignments</u> given to you in class <u>BEFORE</u> you start solving and writing the homework. FOLLOW <u>*ALL*</u> THESE GUIDELINES. *<u>Cheating, copying, etc. is ……..!!!!!!</u>