King Fahd University of Petroleum & Minerals
CIVIL ENGINEERING DEPARTMENT

CE 201 STATICS (Sections 3 & 4)

First Semester 1430-31 / 2009-10 (**091**)

H.W. # 5

Due on Sunday 20-11-1430 / 8-11-2009 **(any time)**

Deadline for submission: **Monday 21-11-1430 / 9-11-2009** (**before you sit in class**)

1- Determine the moment of the 50-lb force shown in Fig. P1 about the *x* axis by using
   a) scalar analysis,
   b) vector analysis.
   Compare the two answers and comment. [Sec. 4.5] (15 pts.)

2- Determine the moment of the force F shown in Fig. P2 about the bar *BC* by using
   a) the vector *BA*,
   b) the vector *CA*.
   Compare the two answers and comment. [Sec. 4.5] (25 pts.)

3- The tension in cable *AB*, shown in Fig. P3, is 2 kN. Determine the magnitude of the moment about the shaft CD due to the force exerted by the cable at *A*. [Sec. 4.5] (20 pts.)

4- What is the sum of the moments exerted on the object shown in Fig. p4? [Sec. 4.6] (15 pts.)

5- The tension in cables *AB* and *CD*, shown in Fig. P5, is 500 N.
   a) Show that the two forces exerted by the cables on the rectangular hatch at B and C form a couple.
   b) What is the moment exerted on the plate by the cables? [Sec. 4.6] (25 pts.)

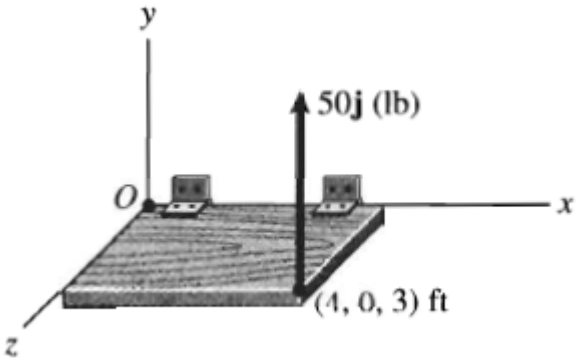

Fig. P1

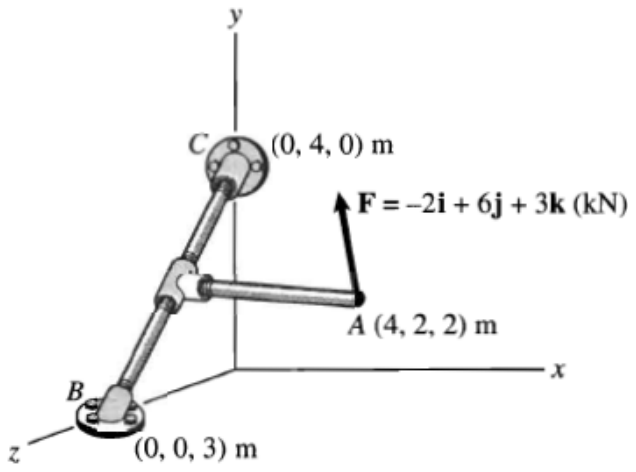

Fig. P2

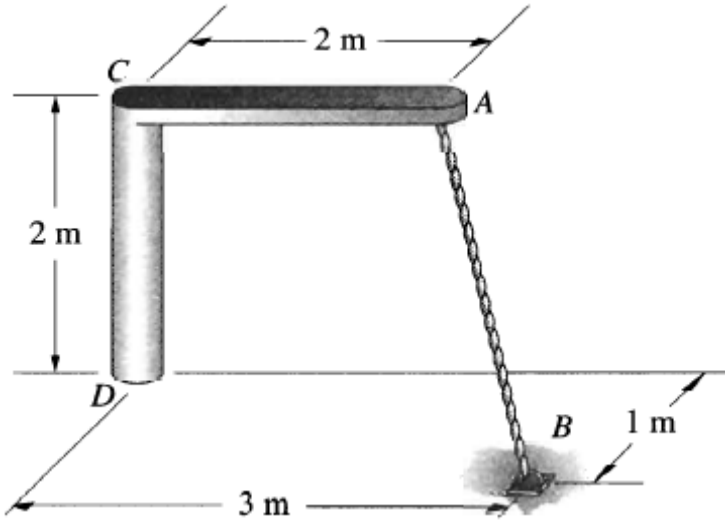

Fig. P3

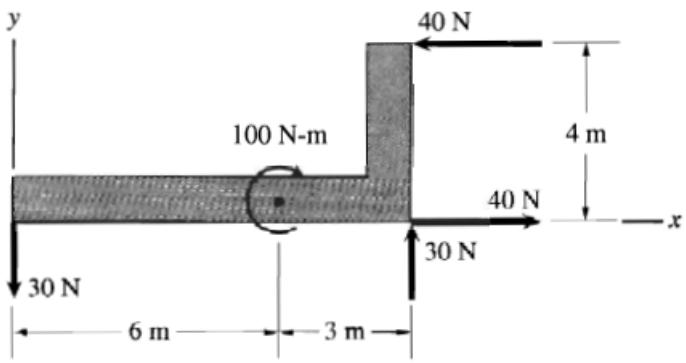

Fig. P4

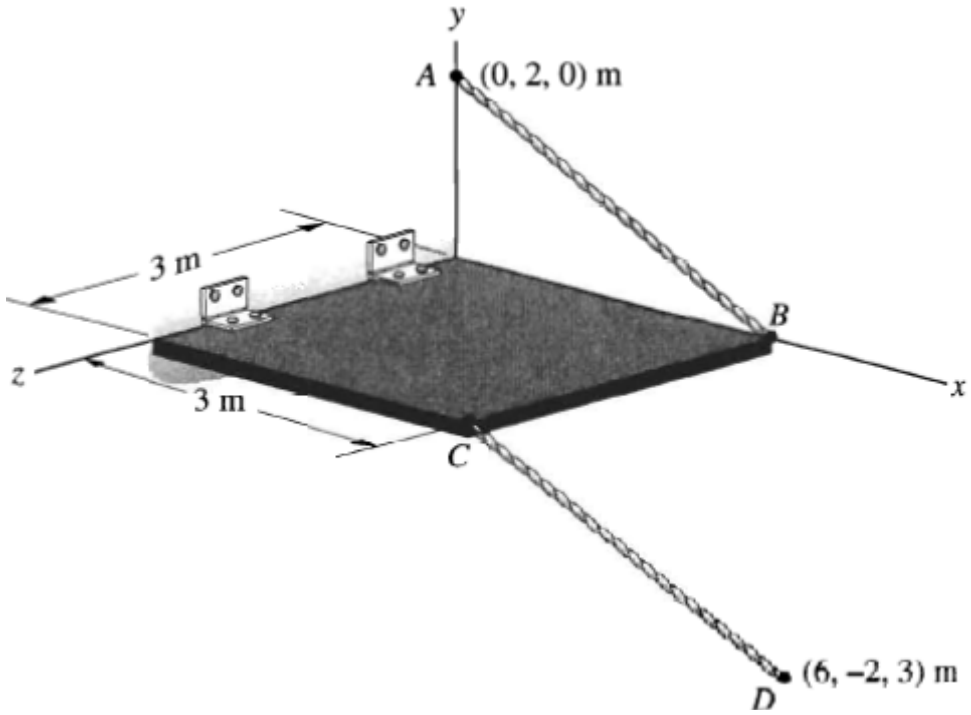

Fig. P5

Do <u>your</u> work *<u>yourself</u>*!! Remember that the homework carries more than 10% 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>**