

King Fahd University of Petroleum & Minerals
CIVIL ENGINEERING DEPARTMENT

CE 201 STATICS (Sections 4 & 5)

First Semester 1428-29 / 2007-08 (071)

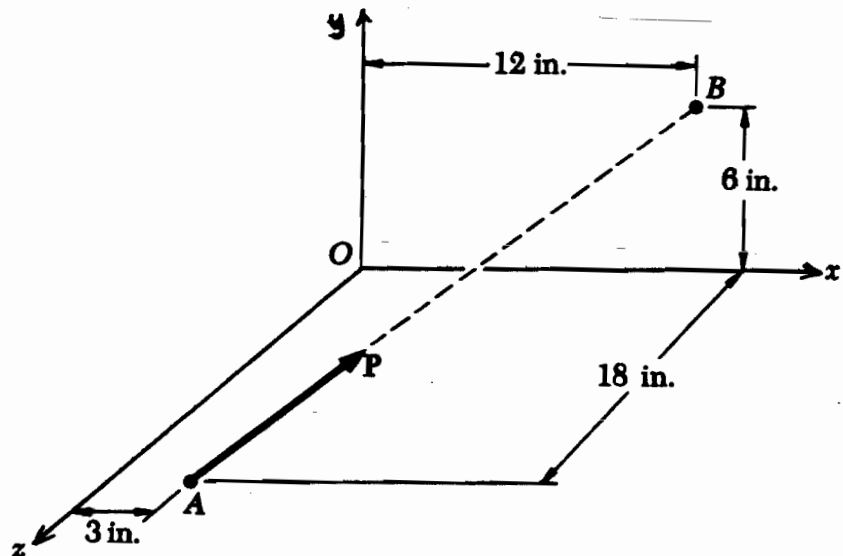
H.W. # 4

Due on Tuesday 11-10-1428 / 23-10-2007 (any time)

Deadline for submission: **Wednesday 12-10-1428 / 24-10-2007 (before you sit in class)**

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- 1- In addition to the 15.60-kN force shown in Fig. P1, a force P is applied at D in a direction parallel to the y axis. Determine the required magnitude and sense of P if the tension in cable CD is to be zero. [Sec. 3.4] (20 pts.)
- 2- In Fig. P2 shown, compute the moment of the 100-lb force about A ,
a- by using the definition of the moment of a force,
b- by resolving the force into horizontal and vertical components,
c- by resolving the force into components along AB and in the direction perpendicular to AB . [Sec. 4.1] (20 pts.)
- 3- The line of action of the force P of magnitude 420 lb passes through the two points A and B as shown in Fig. P3.
a- Compute the moment of P about O using the position vector
i) of point A
ii) of point B
b- Determine the perpendicular distance from the line of action of P to the origin O . [Secs. 4.2 - 4.4] (20 pts.)
- 4- A force Q of magnitude 450 N is applied at point C as shown in Fig. P4. Determine the moment of Q about
a- the origin of coordinates
b- point D . [Secs. 4.2 - 4.4] (20 pts.)
- 5- The rectangular plate $ABCD$ shown in Fig. P5 is held by hinges along its edge AD and by the wire BE . Knowing that the tension in the wire is 546 N, determine the moment about AD of the force exerted by the wire at point B . [Sec. 4.5] (20 pts.)

Fig. P3



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. P1

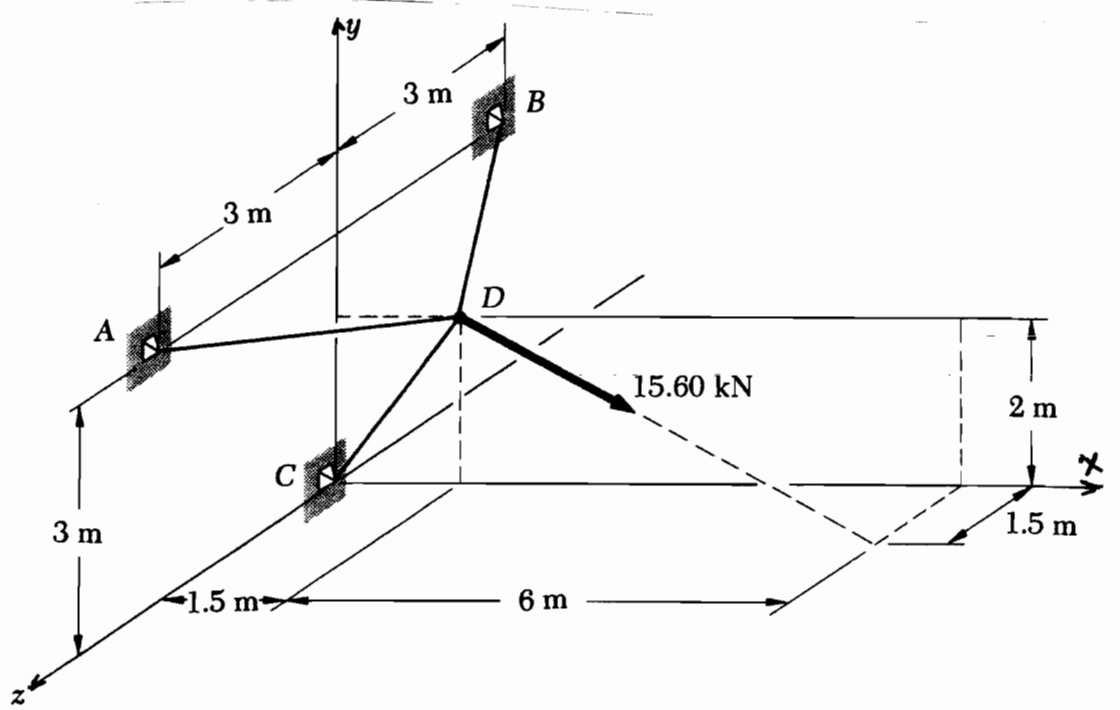


Fig. P2

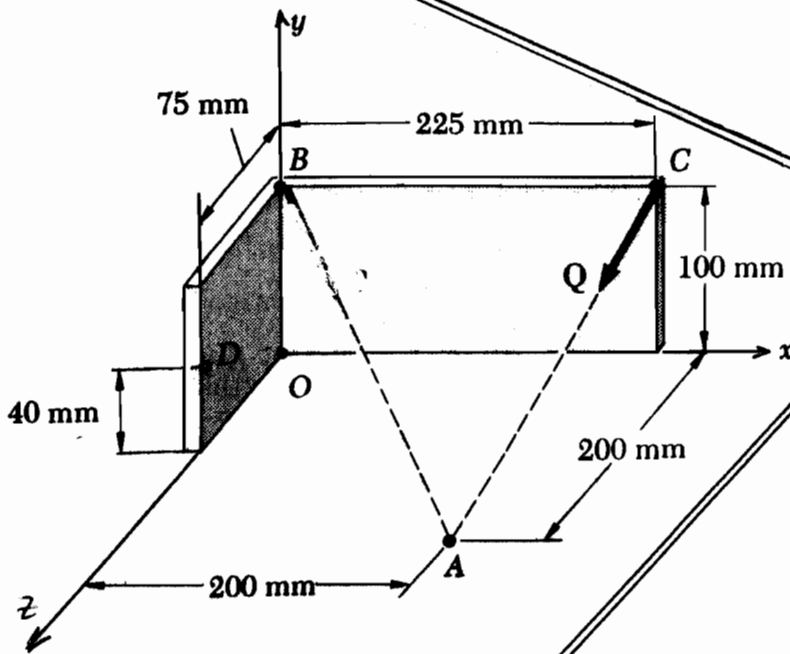
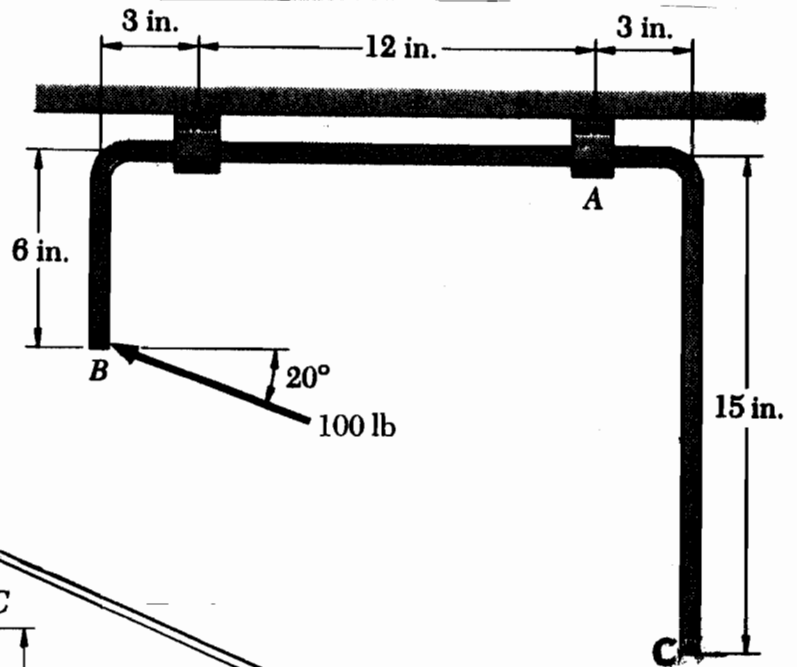


Fig. P4

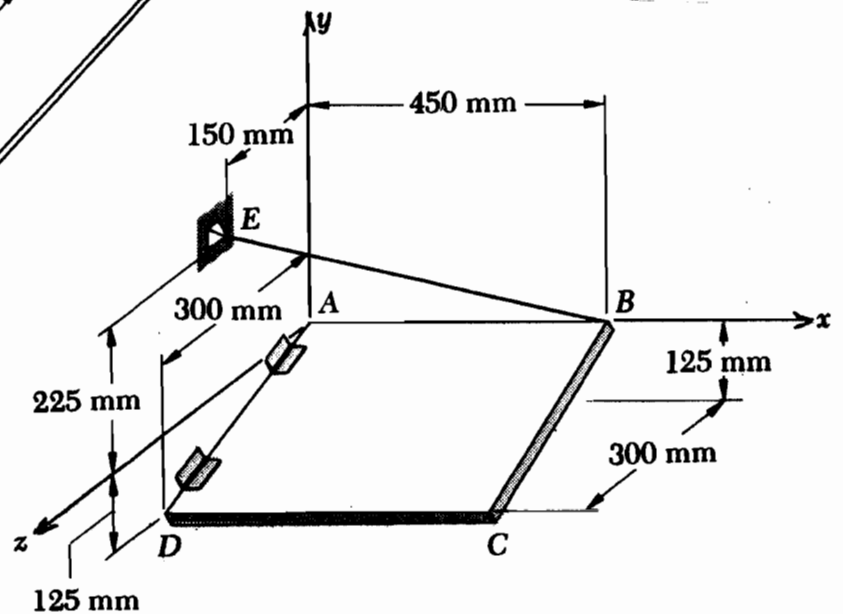


Fig. P5