CE 201   STATICS (Sections 4 & 5)

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

H.W. # 3

Due on Sunday 18-9-1428 / 30-9-2007 **(any time)**

Deadline for submission: **Monday 19-9-1428 / 1-10-2007 (before you sit in class)**

1- Knowing that $P = 100$ lb in Fig. P1, determine the tension in cables AC and BC.   [Secs. 3.1 - 3.3] (15 pts.)

2- A 100-kg crate is to be supported by the rope-and-pulley arrangement shown in Fig. P2. Determine the required magnitude and direction of the force **T**.   [Secs. 3.1 - 3.3] (15 pts.)

3- The collar A shown in Fig. P3 may slide freely on the horizontal smooth rod. The spring attached to the collar has a constant of 10 lb/in. and is undeformed when the collar is directly below support B. Determine the magnitude of the force **P** required to maintain equilibrium when
   $a) c = 9$ in., $b) c = 16$ in.   [Secs. 3.1 - 3.3] (20 pts.)

4- In Fig. P4 shown,
   $a)$ express the weight W required to maintain equilibrium in terms of P, d, and h.
   $b)$ If $W = 80$ lb, $P = 10$ lb, and $d = 20$ in., determine the value of h consistent with equilibrium.
          [Secs. 3.1 - 3.3] (20 pts.)

5- Three cables, shown in Fig. P5, are joined at D where two forces **P** $= (700$ lb$)$**i** and **Q** $= (300)$**k** are applied. Determine the tension in each cable.   [Sec. 3.4] (30 pts.)

Fig. P1

Fig. P2

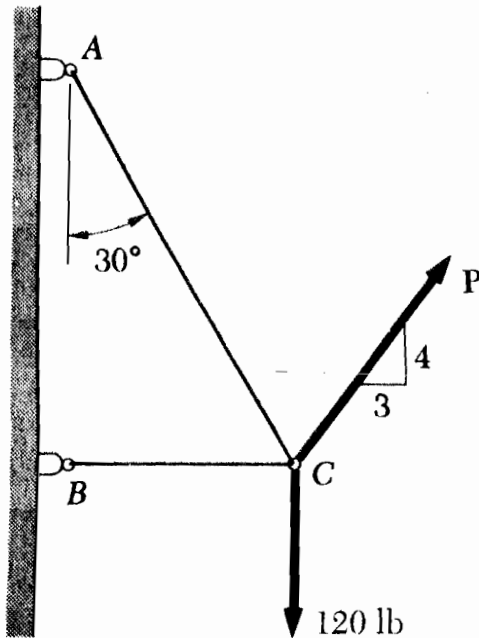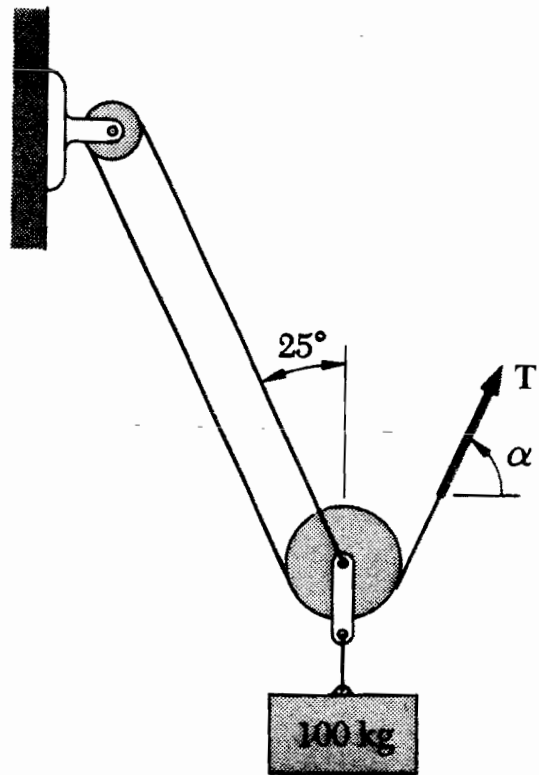**Do your work yourself!!** Remember that the homework carries 20% of the course grade; in addition, *solving it is the best way to understand the subject.* *Of course, you can seek my help anytime in the homework as well as in anything else.*

As an engineer, review the underlined 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 ....!!!!!!*
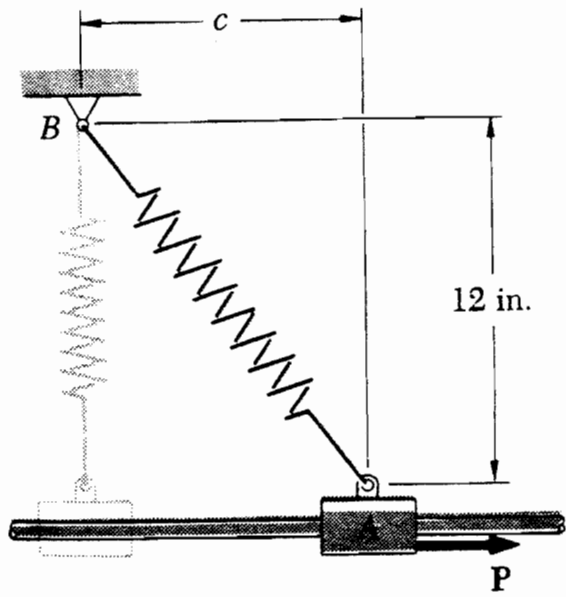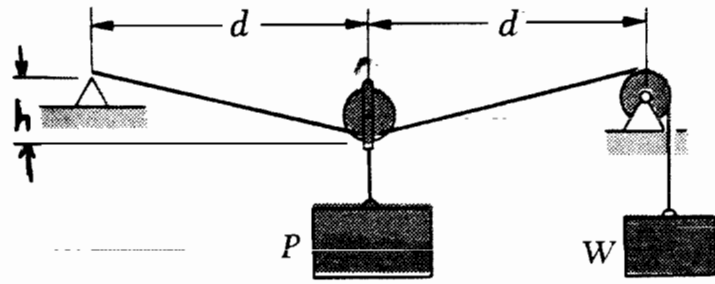
Fig. P3

c

B

12 in.

A

P

Fig P4

d

d

h

P

W

Fig P5

y

6 ft

2 ft

C

B

D

P

Q

2 ft

5 ft

O

A

x

6 ft