King Fahd University of Petroleum & Minerals
CIVIL ENGINEERING DEPARTMENT

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.)

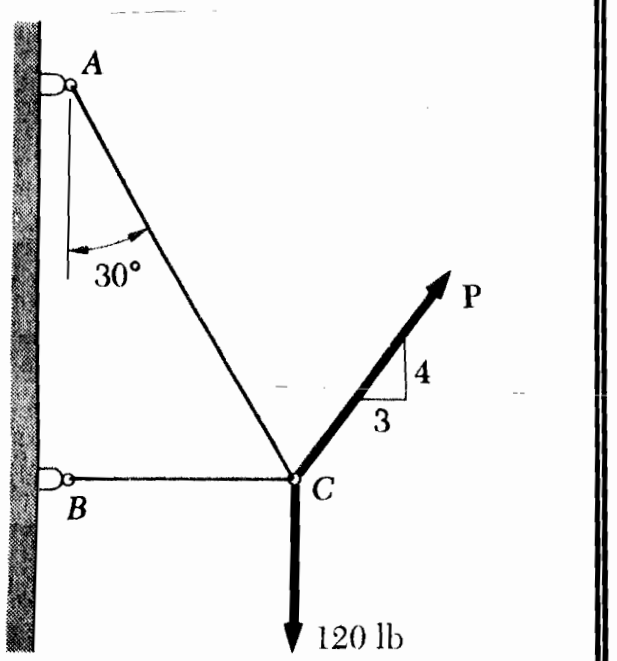

Fig. P1

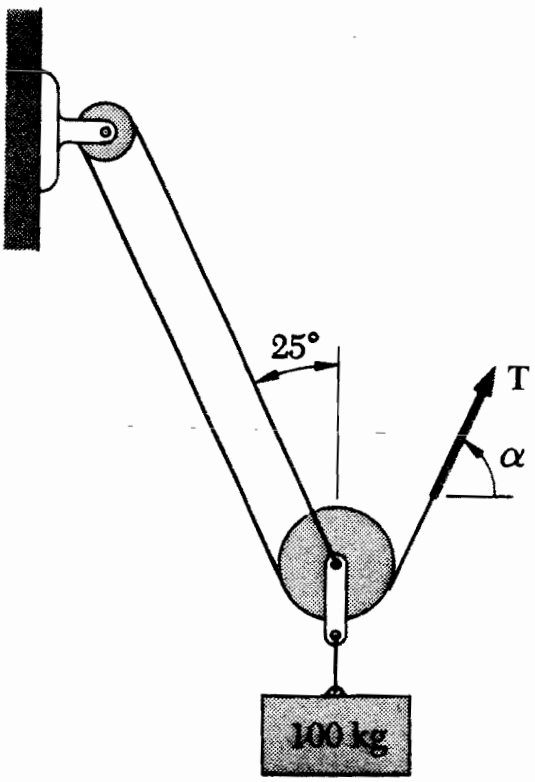

Fig. P2

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 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

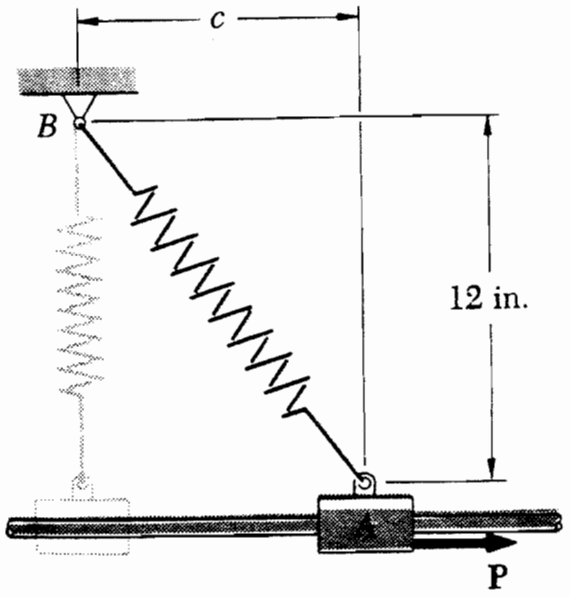

Fig. P4

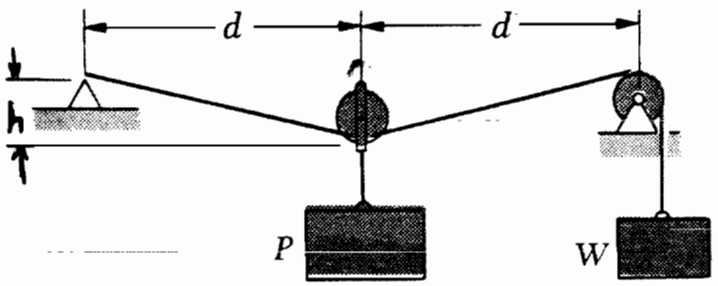

Fig. P5