Problem Set #2   1.050 Solid Mechanics
# Fall 2004
(Due Friday, 24 September)

Problem 2.1

Find the reactions acting at A and B in terms of P and the dimensions shown (x_p/L).

Isolate member BC and draw a free body diagram which will enable you to determine the forces acting on this member.

Find those forces, again in terms of P and the dimensions shown.

Find the force in the horizontal member of the structure. (Prob. 3.13 text).
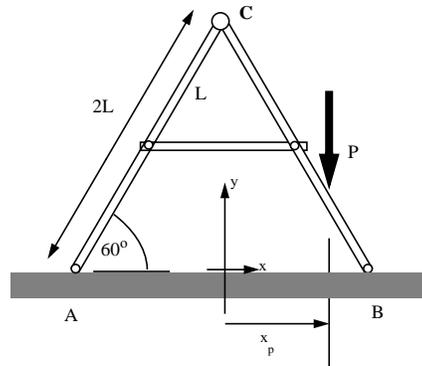
Problem 2.2

For the truss shown below,

i) Isolate the full truss structure and replace the applied loads with an equivalent load (no moment) acting at some distance, b, from the left end. What is b?

ii) Determine the reactions at **f** and **l**.

iii) Find the force in member **ch** with but a single additional free body diagram. (Prob. 3.28 text).
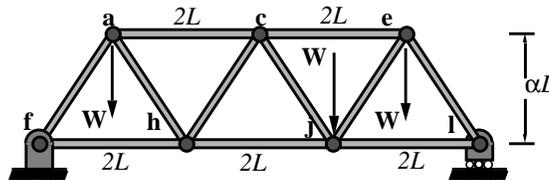
Problem 2.3

Find the force in the member CD of the structure shown in terms of P. All members, save CF are of equal length. In this, use method of joints starting from node B. Note: You must determine the reaction at B to get started. (Prof. 3.11 text).
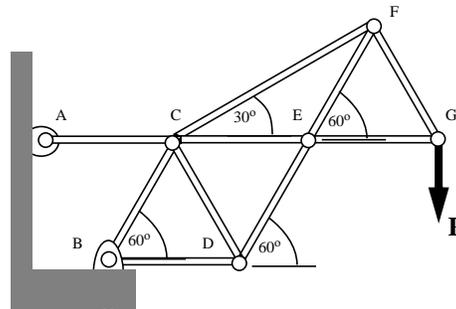
Problem 2.4

The rigid, weight-less, beam carries a load P at its right end and is supported at the left end by two (frictionless pins). What can you say about the reactions acting at A and B? E.g., "they are equivalent to..."