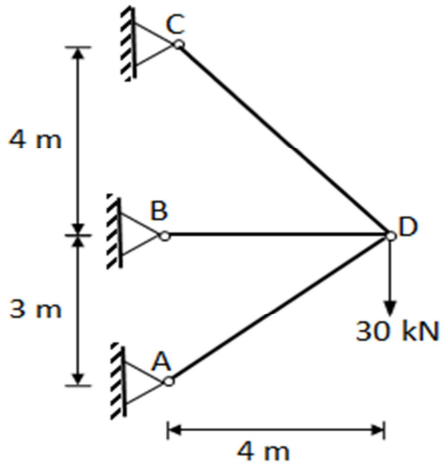
CE 383 STRUCTURAL ANALYSIS
Fall Term, 2011
Homework #5

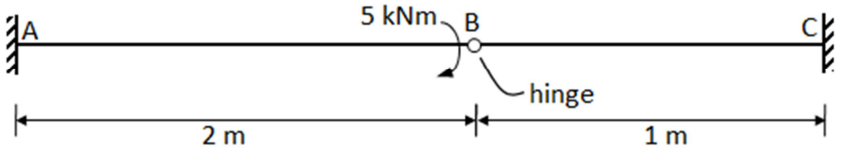
Due: 11.01.2012
(Final Exam Date)

Note: For "element stiffness assembly method" based questions, use internal member force recovery to obtain internal force members, i.e., use (member stiffness matrix) x (deformations). Use slope deflection equations for finding member forces in general stiffness method.

1- Using general stiffness method, determine the joint displacements and member forces for the truss system shown below. E=200 GPa, A= 450 mm^2 for all members.



2- Using general stiffness **or** element stiffness assembly method, determine the reactions at the supports and draw shear & moment diagrams. EI is constant. While recovering the member internal forces, first use slope deflection equations and then repeat the solution by using element stiffness matrices (i.e. recover the member forces in two different ways).



3- Using general stiffness **or** element stiffness assembly method, determine the reactions at the supports. Draw shear & moment diagrams. Members are axially rigid. While recovering the member internal forces, first use slope deflection equations and then repeat the solution by using element stiffness matrices (i.e. recover the member forces in two different ways).
E= 200 GPa, I= 420(10^6) mm^4 for both members.