

2.092/2.093
COMPUTER METHODS IN DYNAMICS
FALL 2006

Homework 2

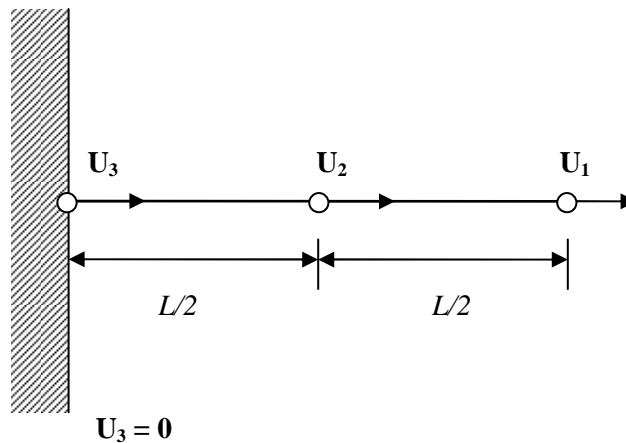
Instructor: Prof. K. J. Bathe
TA: Samar Malek

Assigned: Thurs., Sept 21
Due: Thurs., Sept 28

Problem 1 (20 points):

- a) Solve the mathematical model of Homework #1 using two equal-size 2-node finite elements.

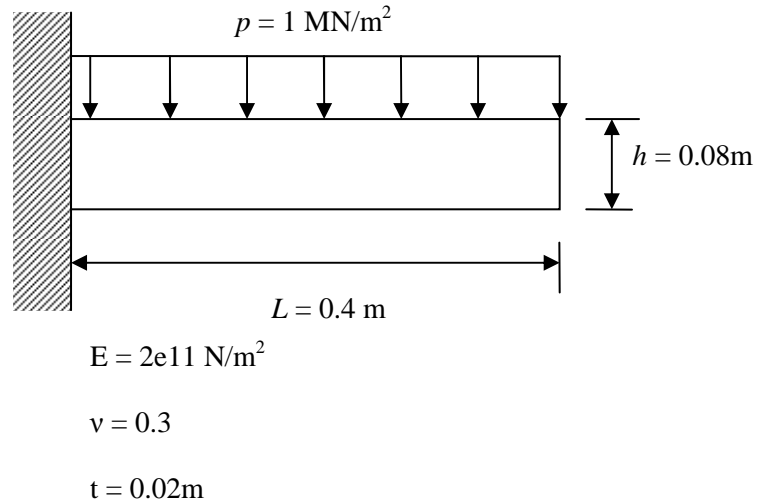
Hence the finite element idealization is this:



- b) Compare your solution with the exact solution of the mathematical model.

Problem 2 (20 points):

Consider the problem shown below.



- Solve this problem analytically, using beam theory, for the maximum stress and maximum displacement.
- Solve this problem with ADINA, using plane stress assumptions, for the maximum stress and maximum displacement. Use a 4x20 mesh of 4-node elements and a 1x6 mesh of 9-node elements.
- Discuss and compare your results obtained in (a) and (b).