

2.094
FINITE ELEMENT ANALYSIS OF SOLIDS AND FLUIDS
SPRING 2008

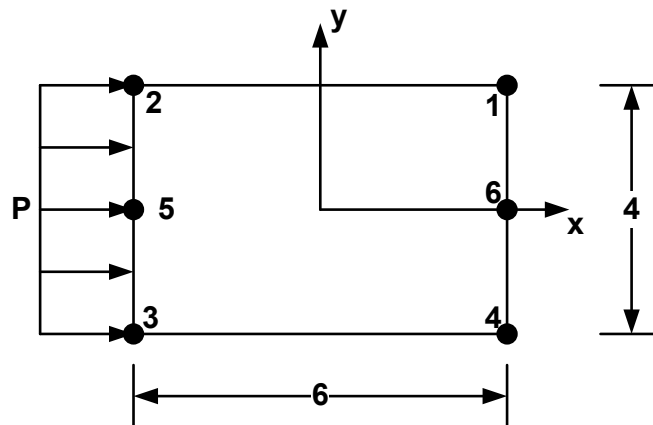
Homework 4

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Assigned: 02/28/2008
Due: 03/06/2008

Problem 1 (20 points):

Consider the 6-node finite element shown.



Rectangular plane stress finite element, thickness = 0.1

- a) Establish all finite element displacement interpolation functions, i.e. the $h_i(x, y)$ for $i = 1, \dots, 6$.
- b) Show explicitly that when your functions are used the element can displace rigidly by 2.0 in any direction and rotate rigidly by 60 degrees.
- c) Calculate the nodal loads at all nodes, corresponding to the constant pressure P .

Problem 2 (20 points):

Exercise 5.16 in the textbook, page 393.