

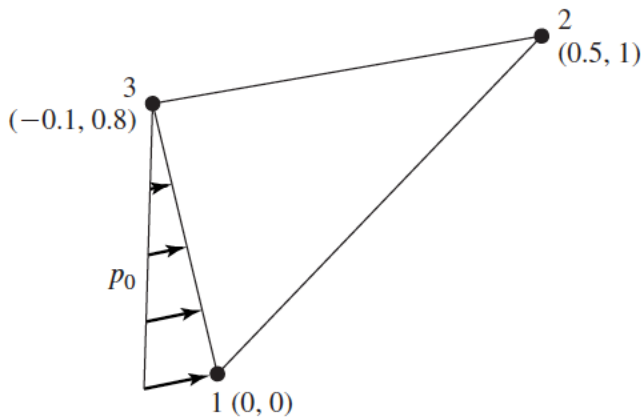
Homework 8, 05/09/2019 Due: 05/15/2019

A4 professional format, collecting at the BEGINNING of class (09:09 am)

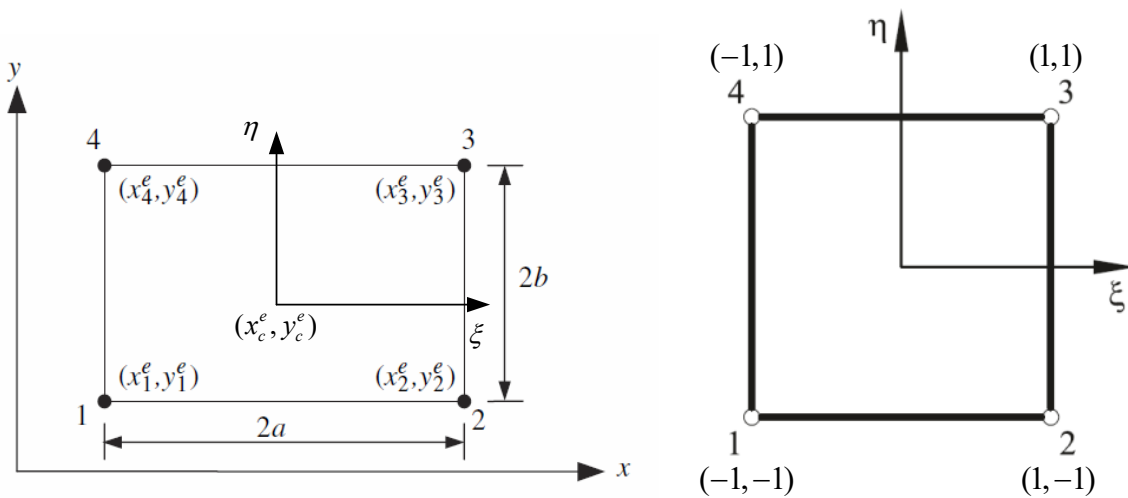
**(late submission within 24 hours: score*0.9; late submission before post of solution: score*0.8
 (the solution will be posted usually within a week))**

Total 80%

1. (30%) The T3 element shown below is subjected to the linearly varying pressure as shown below. Determine the equivalent nodal forces.



2. (30%) Consider a constant distributed body force, $\bar{\mathbf{b}} = \begin{bmatrix} \bar{b}_x \\ \bar{b}_y \end{bmatrix}$ over a rectangular element shown below in which \bar{b}_x and \bar{b}_y are constant values, derive the element body force matrix.



3. (20%) For a plane-stress rectangular element shown below, the nodal displacements are given by

e
x
e
y
e
x
e
y
e
x
e
y
e
x
e
y

Let in., in., psi, and . Determine the element strains and stresses at the centroid of the element and at the four corner nodes.