CEE 2333 - Bilinear Element FEM

Group 3

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# Problem Statement

|  |  |
| --- | --- |
| Chart  Description automatically generated  \*Coordinates are in inches | P = 30,000 lb = 30 kip  E = 36,000 ksi  ν = 0.25  Out-of-plane thickness, t = 1 in  Nodes 1 and 2 are fixed in both x and y directions |

Compute displacement of node 3 and 4 using Gauss Integration with nx = ny = 2

### Local Coordinate system

### Gauss Points

## a. Matrix [B] at each gauss point

## b. Matrix [E]

Plane stress

## c. Global Stiffness Matrix at each Gauss Point

## d. Stiffness Matrix w/ boundary conditions

## e. Resulting Displacements