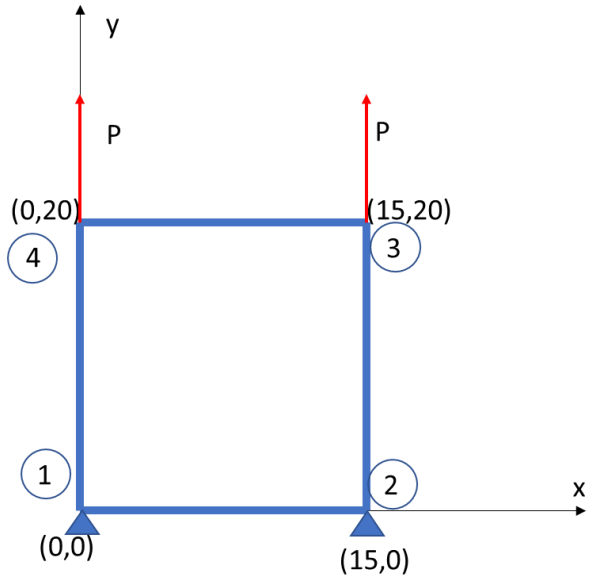
**CEE 2333**
**HW6b**
**(20 points)**
**Due November 5, 2019**

Modify the Matlab code StiffnessMethod2.zip to enable a finite element analysis with bilinear elements.

Consider the following finite element model consisting of one bilinear element (coordinates are in inches):




Nodes 1 and 2 are fixed from displacements in both directions. Load P=30,000 lb. The modulus of elasticity and Poisson's ratio are 36,000 ksi and 0.25, respectively. Assuming that the out-of-plane thickness is 1 in and the plate is in plane stress condition, compute displacements of nodes 3 and 4. Use Gauss integration with $n_x=n_y=2$.

The submission should contain:

1. A zip file with the Matlab code and input files
2. A report documenting
    a. Matrix [B] at each Gauss point
    b. Matrix [E]
    c. Global stiffness matrix at each Gauss point
    d. The stiffness matrix after the boundary conditions are applied
    e. The resulting displacements

You do not need to compute strains and stresses, so the portion of the main function that calls the function computing forces and stresses in the rod elements can be either deleted or commented out.