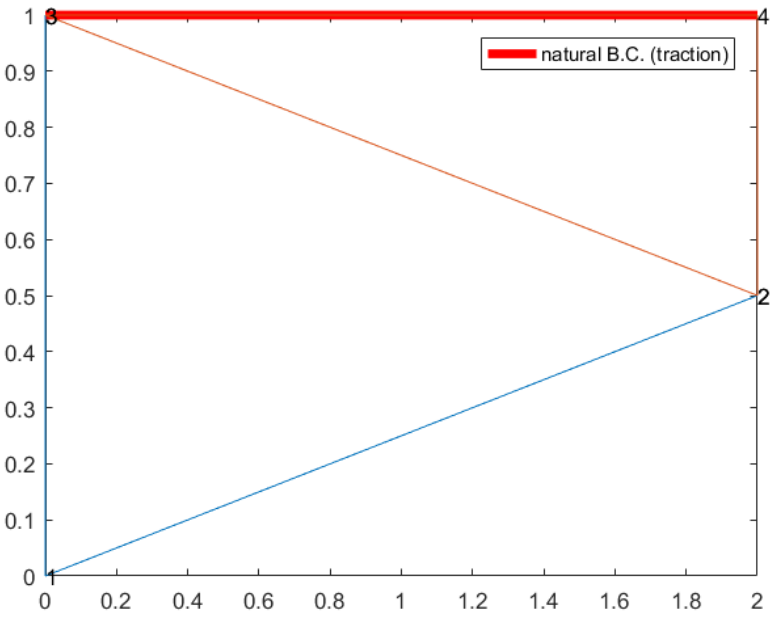
Report 3T

He Qi 2014011608

2016 年 12 月 4 日

1 Example3T



Answer in Matlab

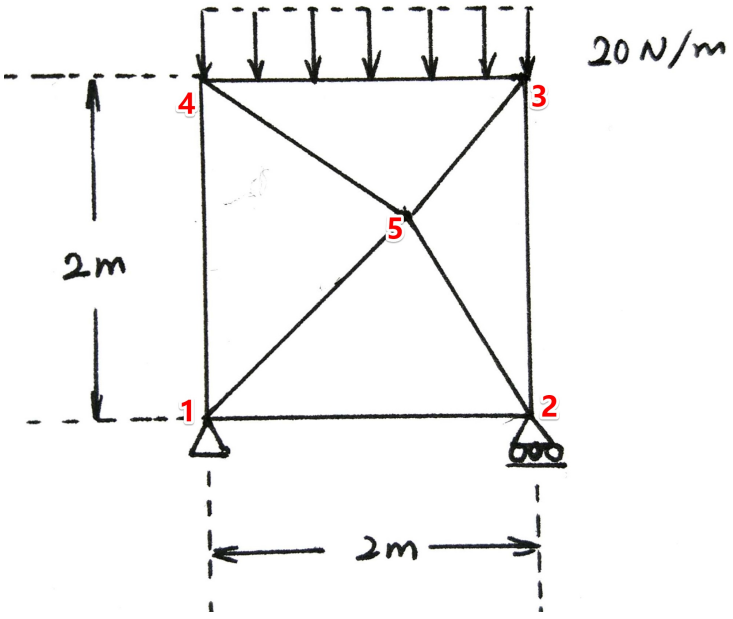
```
                    Stress at Gauss Points
--------------------------------------------------------------------------------
Element  1
-------------
    x-coord         y-coord         s_xx            s_yy            s_xy
    1.333333        0.500000        -6.380783       -1.914235       -38.404804
    0.333333        0.750000        -6.380783       -1.914235       -38.404804
    0.333333        0.250000        -6.380783       -1.914235       -38.404804
Element  2
-------------
    x-coord         y-coord         s_xx            s_yy            s_xy
    1.666667        0.916667        12.761565       -19.202402      -3.190391
    0.666667        0.916667        12.761565       -19.202402      -3.190391
    1.666667        0.666667        12.761565       -19.202402      -3.190391
```

Answer in Stap90

```
S T R E S S   C A L C U L A T I O N S   F O R   E L E M E N T   G R O U P   1

 ELEMENT      X-CORRD          Y-CORRD           STRESS_XX        STRESS_YY        STRESS_XY
    1     0.133333E+01     0.500000E+00     -0.638078E+01    -0.191423E+01    -0.384048E+02
    1     0.333333E+00     0.250000E+00     -0.638078E+01    -0.191423E+01    -0.384048E+02
    1     0.333333E+00     0.750000E+00     -0.638078E+01    -0.191423E+01    -0.384048E+02
    2     0.166667E+01     0.916667E+00      0.127616E+02    -0.192024E+02    -0.319039E+01
    2     0.166667E+01     0.666667E+00      0.127616E+02    -0.192024E+02    -0.319039E+01
    2     0.666667E+00     0.916667E+00      0.127616E+02    -0.192024E+02    -0.319039E+01
```

2 PatchTest3T



We constrain the node 1 in xy direction and node 2 in y direction. With the pressure added on the top surface of plate, we get the constant stress that

$$s_x x = 0$$

$$s_y y = -20$$

$$s_x y = 0$$

Answer in Stap90

ELEMENT	X-CORRD	Y-CORRD	STRESS_XX	STRESS_YY	STRESS_XY
1	0.100000E+01	0.113333E+01	0.000000E+00	-0.200000E+02	0.000000E+00
1	0.250000E+00	0.533333E+00	0.000000E+00	-0.200000E+02	0.000000E+00
1	0.250000E+00	0.153333E+01	0.000000E+00	-0.200000E+02	0.000000E+00
2	0.133333E+01	0.800000E+00	0.888178E-15	-0.200000E+02	0.000000E+00
2	0.158333E+01	0.200000E+00	0.888178E-15	-0.200000E+02	0.000000E+00
2	0.583333E+00	0.200000E+00	0.888178E-15	-0.200000E+02	0.000000E+00
3	0.166667E+01	0.113333E+01	-0.266454E-14	-0.200000E+02	0.000000E+00
3	0.191667E+01	0.153333E+01	-0.266454E-14	-0.200000E+02	0.000000E+00
3	0.191667E+01	0.533333E+00	-0.266454E-14	-0.200000E+02	0.000000E+00
4	0.158333E+01	0.186667E+01	0.177636E-14	-0.200000E+02	0.244336E-14
4	0.133333E+01	0.146667E+01	0.177636E-14	-0.200000E+02	0.244336E-14
4	0.583333E+00	0.186667E+01	0.177636E-14	-0.200000E+02	0.244336E-14