1 Versió 1 (la més recent)

Pregunta 1

Resposta desada

Puntuat sobre 10,00

Consider the domain determined by the mesh 'meshTriangWHole.m" (the edge lengths are measured in mm).The domain is made of an elastic material with Young Modulus $E = 10^6 \frac{N}{mm^2}$, Poisson ratio $\nu = 0.25$ and thickness $th = 0.5mm$. First suppose that the piece is only fixed exactly at the two nodes relatives to points A and C,while a vertical load of module= $1900.00 \frac{N}{mm}$ is applied to the bottom boundary in the normal exterior direction. Answer the following questions :

(a) (3 points) The maximum of the horizontal displacements of the bottom boundary nodes is

- 3.1160e-05
- Leave it empty (no penalty)
- 3.1326e-05
- 3.1222e-05
- 3.1454e-05

Hint1: The horizontal displacement of node 200 is 1.3883e-03

(b) (4 points) Now suppose that the fixed nodes are just the circle boundary ones (not A nor C) and a load of module=$1900.00 \frac{N}{m}$ is applied to the edge joining points B and C in the normal exterior direction.(you can use that the line passing through these points is $1.732x + y - 0.732 = 0$). Then, the maximum of the horizontal displacements of the bottom boundary nodes is :

- 1.5350e-03
- Leave it empty (no penalty)
- 1.5312e-03
- 1.5219e-03
- 1.5293e-03

Hint2: The vertical displacement of node 200 is 1.6186e-04

Hint3: Be careful. The force loads are always column vectors

(c) (3 points) Finally, maintaining the boundary conditions of the previous part b), also consider the own weigth of the piece if it has density $\rho = 9$. Taking $g = 9800$, and using that the local force for each element is $F_e = th \cdot Area/3 \cdot [0; -\rho g; 0; -\rho g; 0; -\rho g]$, the maximum of the horizontal displacements of the bottom boundary nodes is :

- -1.9673e-03
- Leave it empty (no penalty)
- -1.9565e-03
- -1.9679e-03
- -1.9726e-03

Hint3: The vertical displacement of node 200 is -2.4443e-03

Torna a començar | Desa | Emplena amb les respostes correctes | Envia i acaba | Tanca la previsualització

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