Pregunta 1

No s'ha respost encara

Puntuat sobre 10,00

Let us consider the domain Ω , meshed by means of two elements (a quadrilateral and a triangle) as follows.

Nodes: (0,0), (2,0), (5,0), (0,1), (2,1).

 $\text{Connectivity matrix:} \left(\begin{matrix} 1 & 2 & 5 & 4 \\ 5 & 2 & 3 & * \end{matrix} \right).$

Using this mesh, we are going to consider the finite element method for the following problem:

$$\begin{cases} -k_c\Delta u = f & \text{on } \Omega, \\ u(x,0) = 3x, \\ u(0,y) = 2y, \\ \frac{\partial u}{\partial y}(x,y) = 2, & \text{on the line joining nodes 4 and 5.} \\ \frac{\partial u}{\partial n}(x,y) = 0, & \text{on the line joining nodes 3 and 5.} \end{cases}$$

where $k_c=12$ and $f\equiv 2$ on Ω^1 , $k_c=6$ and $f\equiv 4$ on Ω^2 .

- (a) (2 points) What is the value of $\psi_2^1(0.5,0.5)$?
- O3/16
- **O**5/36
- OLeave it empty (no penalty)
- O3/8
- **O**1/8
- (b) (2 points) Let [K] be the assembled matrix of the system. What is the value of K(5,2)?

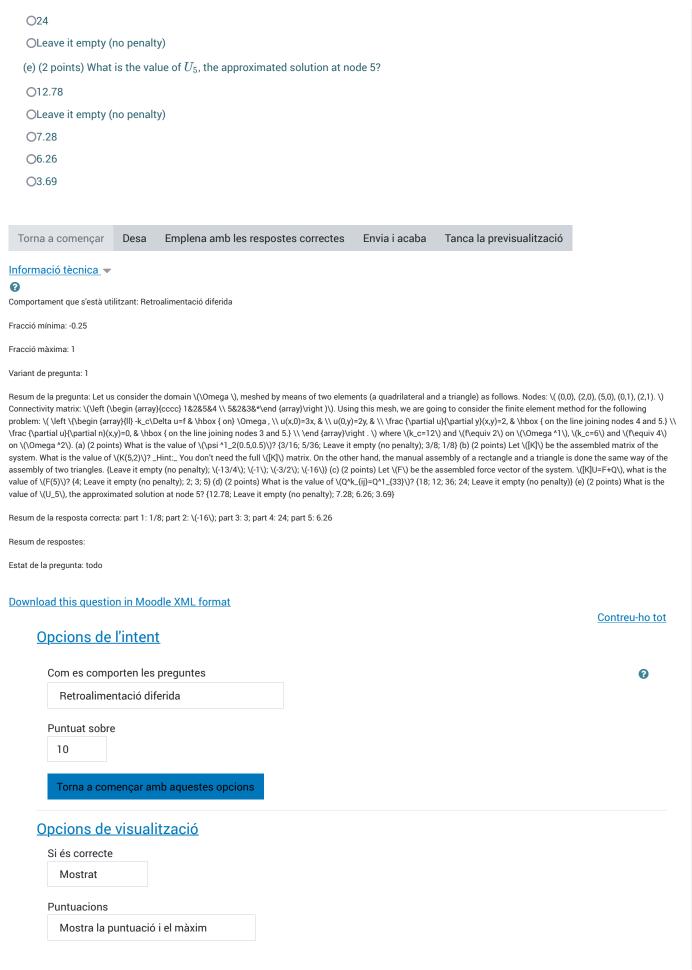
Hint: You don't need the full [K] matrix. On the other hand, the manual assembly of a rectangle and a triangle is done the same way of the assembly of two triangles.

OLeave it empty (no penalty)

- O 13/4
- 0-1
- O 3/2
- O 16
- (c) (2 points) Let F be the assembled force vector of the system. [K]U = F + Q, what is the value of F(5)?
- **O**4
- OLeave it empty (no penalty)
- **O**2
- **O**3
- **O**5
- (d) (2 points) What is the value of $Q_{ij}^{k}=Q_{33}^{1}$?
- **O**18
- **O**12
- **O**36

Previsualitza	la pregunta:
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Previsualitza la pregunta: 1

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Retroacció específica			
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Retroacció general			
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Resposta correcta			
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