Pregunta **1**

No s'ha respost encara

Puntuat sobre 10,00

The support of a certain mechanism hangs from the ceiling. As seen in the figure, it consists of two parts of square cross-sections: of length $h_1 = 2$ and area of section $A_1 = 1$ at the top, and length $h_2 = 1$ and area $A_2 = 2$ at the bottom. Only for academic purposes, we assume that the material has modulus of elasticity $E = 1$ and specific weight $\omega = 1$. We want to study the elastic deformation due to its **own weight** of the piece with the Element Finite Method with a linear element, in the upper part, and a quadratic one in the lower part, as is shown in the figure. Answer the following questions

(a) (2 points) The entry $K(2,2)$ of the stiff matrix of the global assembled system is

- 1.3122e+00
- Leave it empty (no penalty)
- 8.4188e+00
- 5.1667e+00
- 9.3599e+00

Hint1: The value of $K(2,3)$ is -5.3333e+00

(b) (3 points) The second component of the global assembled force $F(2)$ is

- 1.6863e+00
- 1.3333e+00
- 2.4357e+00
- Leave it empty (no penalty)
- 2.6011e-01

Hint2: The value of $F(3)$ is 1.3333e+00

(c) (5 points) Besides, we suppose that the bottom of the upper element is attached to a spring initially at rest and anchored at the ceiling and with recovering constant $\kappa = 4$. Then the displacement U_3 of the global node 3 is (you can use Hint3)

- 5.8020e-01
- 1.1393e+00
- 1.9948e+00
- Leave it empty (no penalty)
- 1.0417e+00

Hint3: The value of U_4 is 1.1667e+00

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

Informació tècnica

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Expandeix-ho tot

Opcions de l'intent

Opcions de visualització