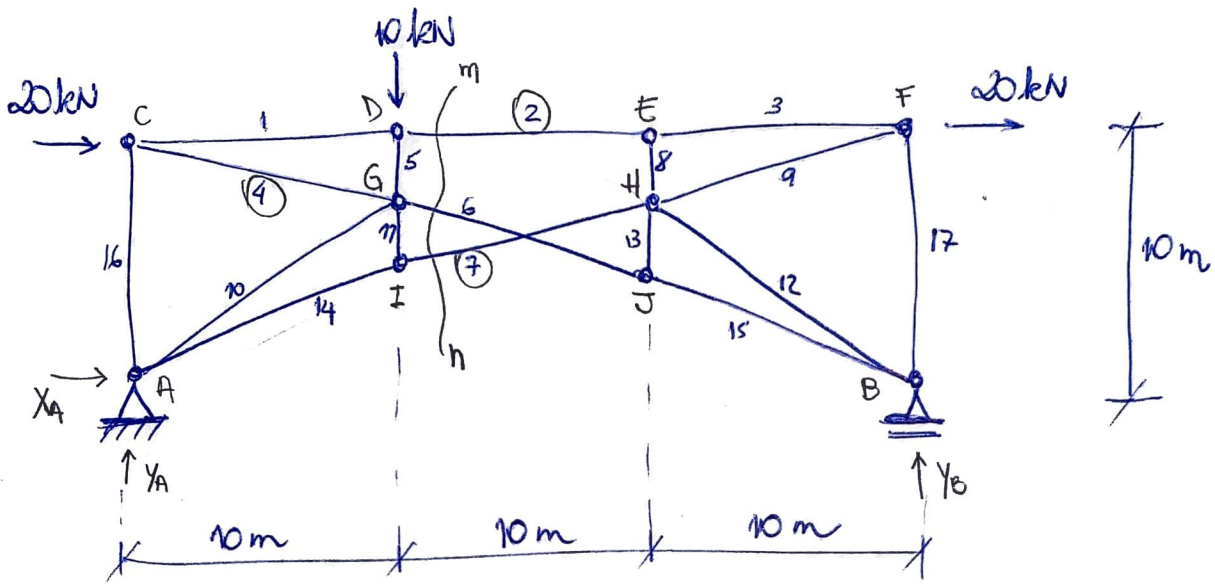


Quisa Buena

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PEF 3200

P2 - Q01



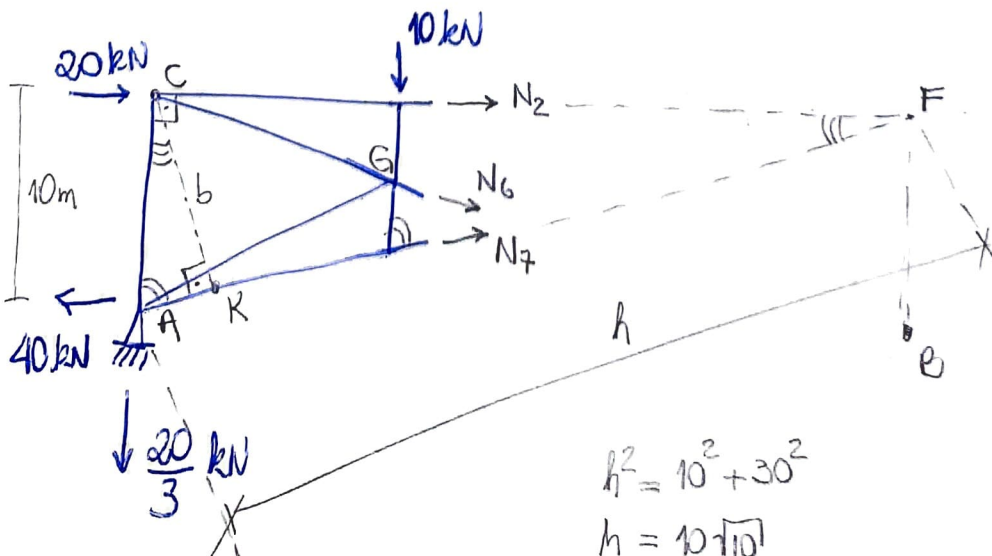
REAÇÕES DE APOIO

$$\sum X = 0 \Rightarrow 20 + 20 + X_A = 0 \Rightarrow X_A = -40 \text{ kN}$$

$$\sum M_A = 0 \Rightarrow -20 \cdot 10 - 10 \cdot 10 - 20 \cdot 10 + Y_B \cdot 30 = 0 \Rightarrow Y_B = \frac{50}{3} \text{ kN}$$

$$\sum Y = 0 \Rightarrow Y_A - 10 + Y_B = 0 \Rightarrow Y_A - 10 + \frac{50}{3} = 0 \Rightarrow Y_A = -\frac{20}{3} \text{ kN}$$

CORTE mn



$b = ?$

$\Delta ACF \sim \Delta ACK$

$$\frac{b}{30} = \frac{10}{10\sqrt{10}}$$

$$b = 3\sqrt{10} \text{ m}$$

$$h^2 = 10^2 + 30^2$$

$$h = 10\sqrt{10}$$

$$\sum M_C = 0 \Rightarrow -10 \cdot 10 + N_7 \cdot 3\sqrt{10} - 40 \cdot 10 = 0$$

$$-100 - 400 = -3\sqrt{10} N_7$$

$$N_7 = \frac{50\sqrt{10}}{3} \text{ kN}$$

$$N_7 \approx 52,7046 \text{ kN} \quad \text{tração}$$

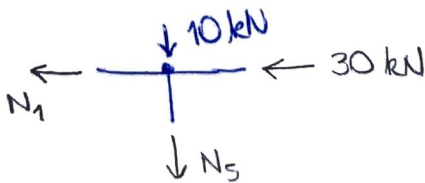
$$\sum M_B = 0 \Rightarrow \frac{20}{3} \cdot 30 - 20 \cdot 10 + 10 \cdot 20 - N_2 \cdot 10 - N_7 \cdot 3\sqrt{10} = 0$$

$$200 - 200 + 200 - 10N_2 - \frac{50\sqrt{10}}{3} \cdot 3\sqrt{10} = 0$$

$$200 - 10N_2 - 500 = 0$$

$$N_2 = -30 \text{ kN} \quad \text{compressão}$$

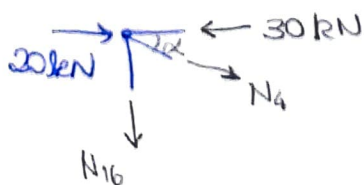
NÓ D



$$\sum X = 0 \Rightarrow -N_1 - 30 = 0 \Rightarrow N_1 = -30 \text{ kN}$$

$$\sum Y = 0 \Rightarrow -10 - N_5 = 0 \Rightarrow N_5 = -10 \text{ kN}$$

NÓ C



$$\sum X = 0 \Rightarrow 20 - 30 + N_4 \cos \alpha = 0$$

$$-10 + N_4 \cdot \frac{30}{h} = 0$$

$$-10 + N_4 \cdot \frac{30}{10\sqrt{10}} = 0$$

tração

$$N_4 \approx 10,5409 \text{ kN}$$