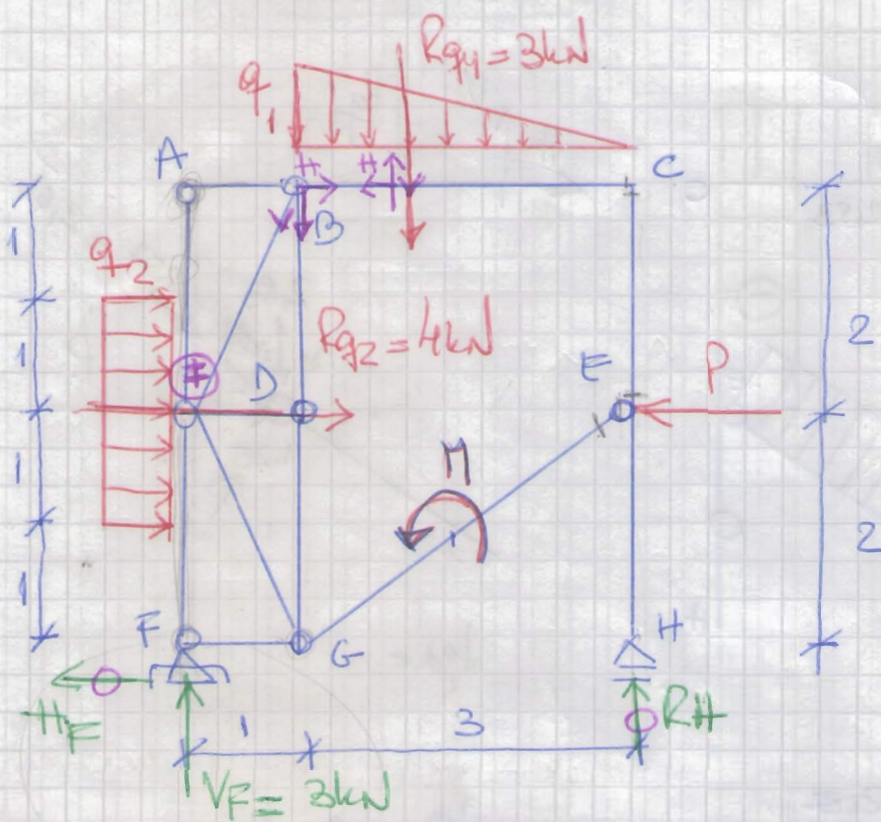


Segundo Parcial Temp 1º C 2016.



Dato.

$$q = 2 \text{ kN/m}$$

$$M = 6 \text{ kNm}$$

$$P = 4 \text{ kN}$$

$$q_1 = q_2 = q$$

$$R_{q1} = \frac{q_1 \cdot 3\text{m}}{2} = 3 \text{ kN}$$

$$R_{q2} = q_2 \cdot 2\text{m} = 4 \text{ kN}$$

Calculo de Reacciones de Vínculo.

$$\sum F_{\text{HOR}} = H_f - R_{q2} + P = 0 \Rightarrow \boxed{H_f = 0}$$

$$\sum M^{\odot} = -M - R_H \cdot 4\text{m} + R_{q1} \cdot 2\text{m} = 0 \Rightarrow \boxed{R_H = 0}$$

$$\sum F_v = -V_f + 3\text{kN} (R_{q1}) = 0 \Rightarrow \boxed{V_f = 3\text{kN}}$$

Solución de Esfuerzos Internos de la Estructura Cerrada

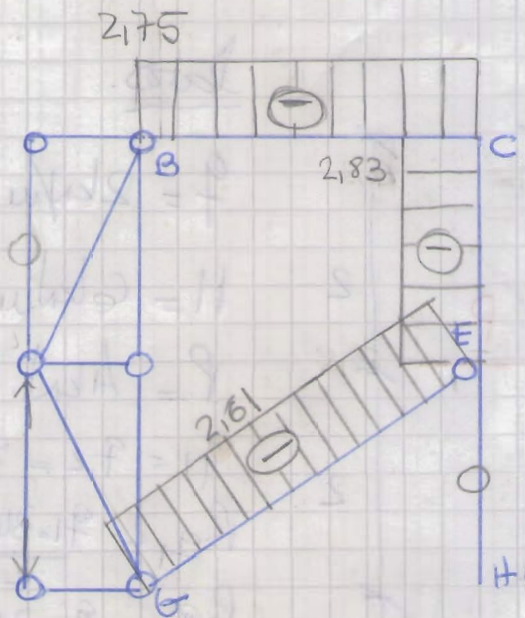
Abrimos la estructura en el Nudo B:

Tomamos momentos respecto de la articulación G

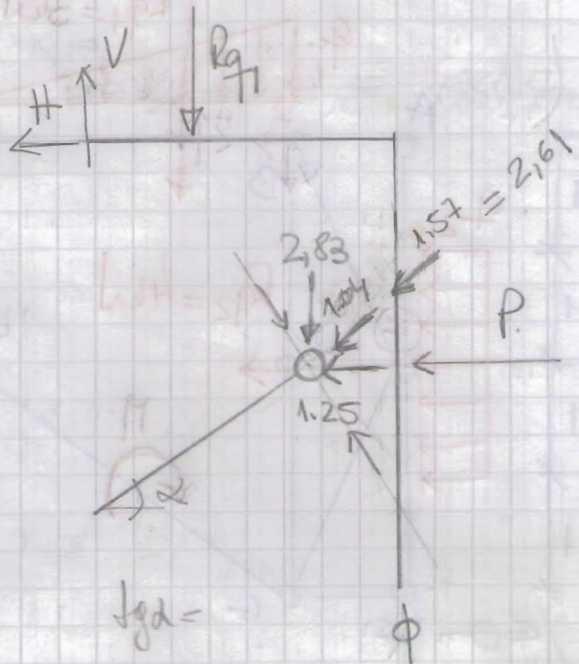
$$\sum M^G = H \cdot 4\text{m} + R_{q2} \cdot 2\text{m} + V_f \cdot 1\text{m} = 0 \Rightarrow \boxed{H = -2,75 \text{ kN}}$$

$$\sum M^E = H \cdot 2\text{m} + V_f \cdot 4\text{m} - M - V \cdot 3\text{m} = 0 \Rightarrow \boxed{V = 0,167 \text{ kN}}$$

ESFUERZOS NORMALES. BARRAS. GE, BCEH

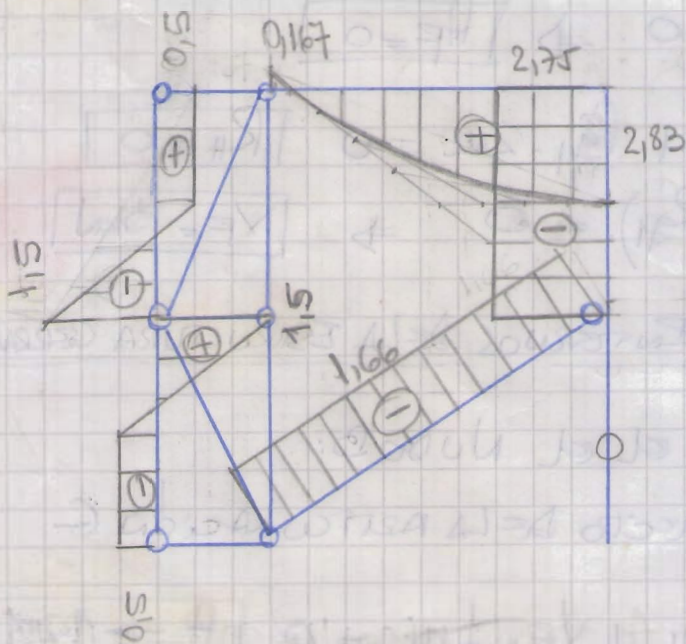


DETALLE NUDO E

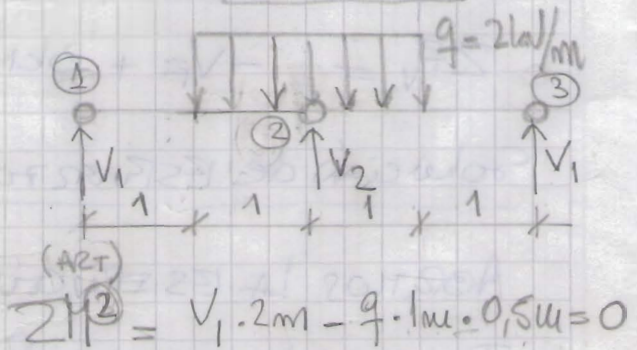


ESFUERZOS DE CORTA:

$$\frac{dQ}{dz} = -q_y$$



Detalle equilibrio tramo A-F



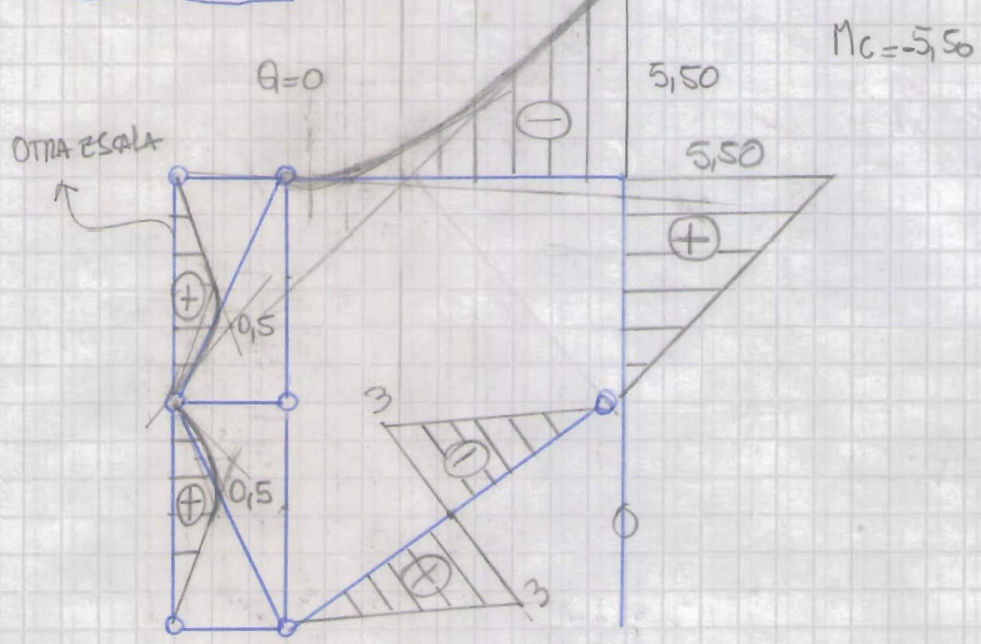
$$\sum \mathcal{M}^{\text{AET}} = V_1 \cdot 2m - q \cdot 1m \cdot 0.5m = 0$$

$$V_1 = 0.5 \text{ kN}$$

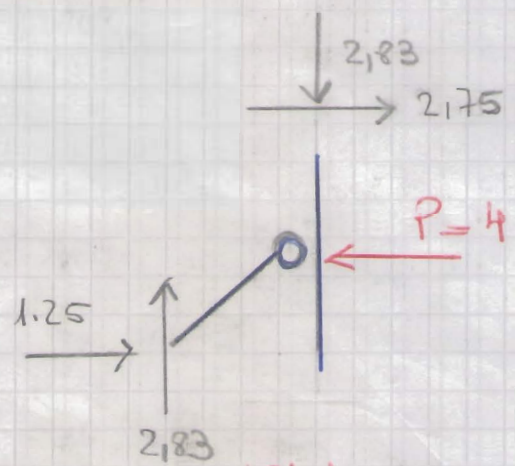
$$\sum F_V = 2V_1 + V_2 - q \cdot 2m = 0$$

$$V_2 = 3 \text{ kN}$$

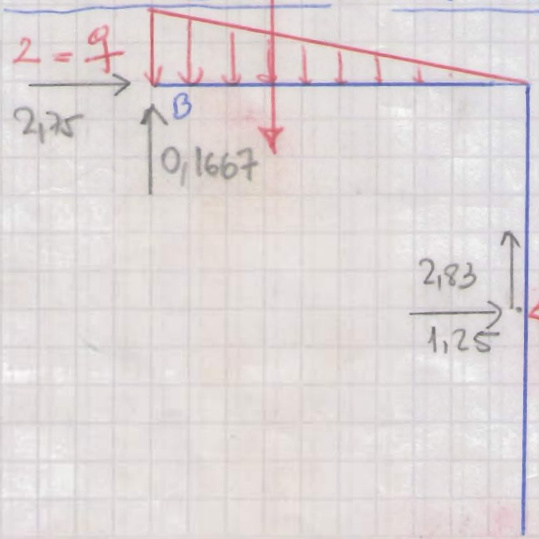
MOMENTOS.



Equilibrio del Nudo E



Barra BCE + Equilibrio.



$$\sum F_v = 3kN - 0.1667 - 2.83 = 0$$

$$\sum F_H = 4 - 2.75 - 1.25 = 0$$

$$\sum M^B = 3kN \cdot 1 + 4kN \cdot 2 - 1.25 \cdot 2 - 2.83 \cdot 3 = 0$$