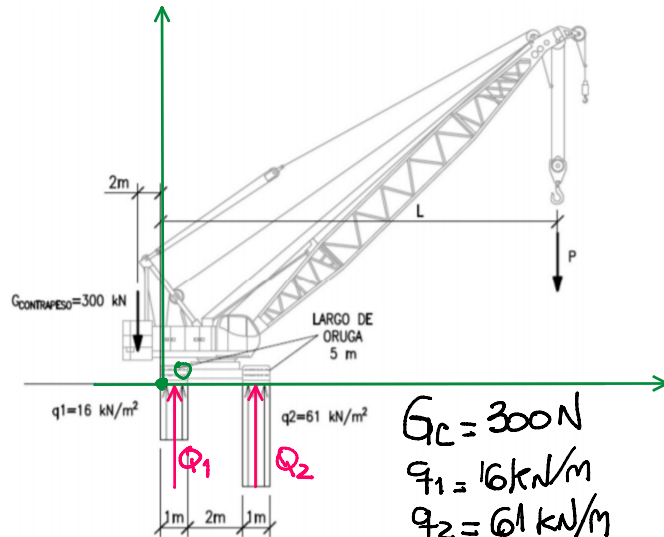


Ejercicio 18 - Grúa

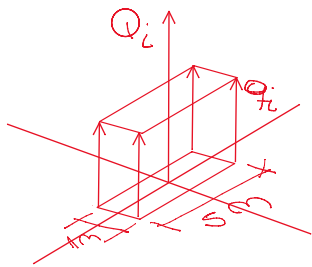
miércoles, 15 de septiembre de 2021 16:06



$$G_c = 300 \text{ kN}$$

$$q_1 = 16 \text{ kN/m}$$

$$q_2 = 61 \text{ kN/m}$$



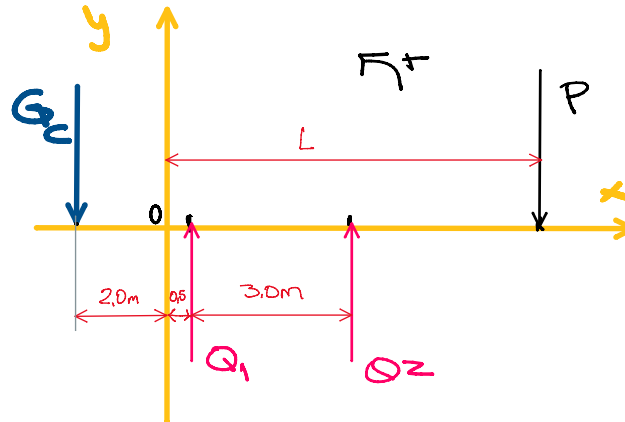
$$L_{OR} = 5 \text{ m}$$

$$Q_1 = q_1 \cdot 1 \text{ m} \cdot L_{OR} = 16 \frac{\text{kN}}{\text{m}^2} \cdot 5 \text{ m}^2$$

$$Q_1 = 80 \text{ kN}$$

$$Q_2 = q_2 \cdot 1 \text{ m} \cdot L_{OR} = 61 \frac{\text{kN}}{\text{m}^2} \cdot 5 \text{ m}^2$$

$$Q_2 = 305 \text{ kN}$$



$$1) \sum F_v = 0 \quad 2) \sum \tau^o = 0$$

$$\sum F_v = -G_c + Q_1 + Q_2 - P = 0$$

$$-300 \text{ kN} + 80 \text{ kN} + 305 \text{ kN} = P$$

$$\Rightarrow \boxed{P = 85 \text{ kN}}$$

$$\sum \tau^o = -P \cdot L + G_c \cdot 2 \text{ m} + Q_1 \cdot 0.5 \text{ m} + Q_2 \cdot 3.5 \text{ m} = 0$$

$$\Rightarrow \boxed{L = 20.09 \text{ m}}$$