



Mi Universidad

ejercicios

Nombre del Alumno: Gael Federico López Ochoa

Nombre del tema: cargas

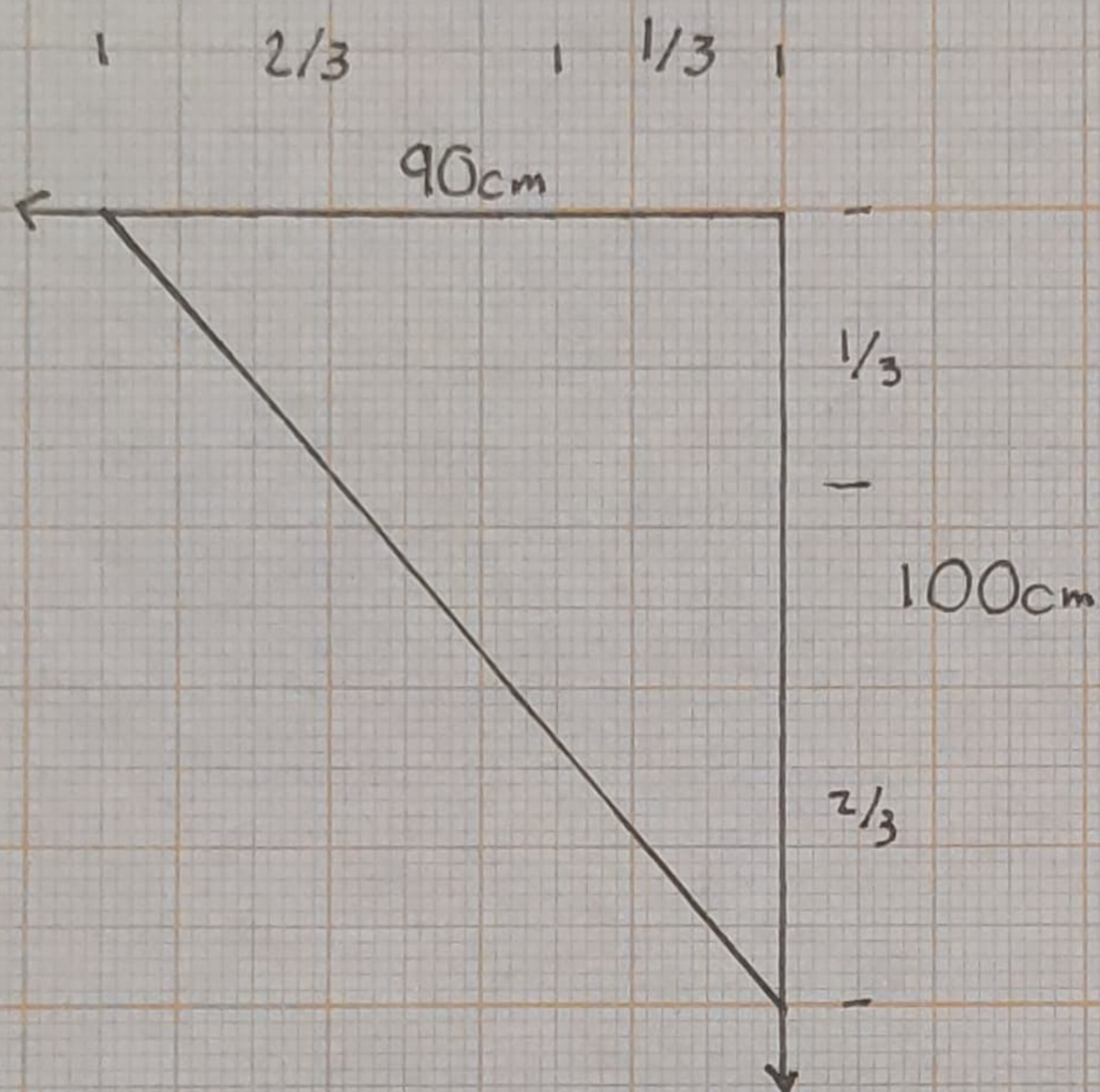
Parcial: 4

Nombre de la Materia: estatica para la arquitectura

Nombre del profesor: pedro alberto García lopez

Nombre de la Licenciatura: arquitectura

Cuatrimestre: 3



$$A = b \cdot h / 2$$

$$\bar{I}_x = bh^3 / 36$$

$$I_x = \bar{I}_x + A \cdot \bar{y}^2$$

$$\bar{I}_y = hb^3 / 36$$

$$I_y = \bar{I}_y + A \cdot \bar{x}^2$$

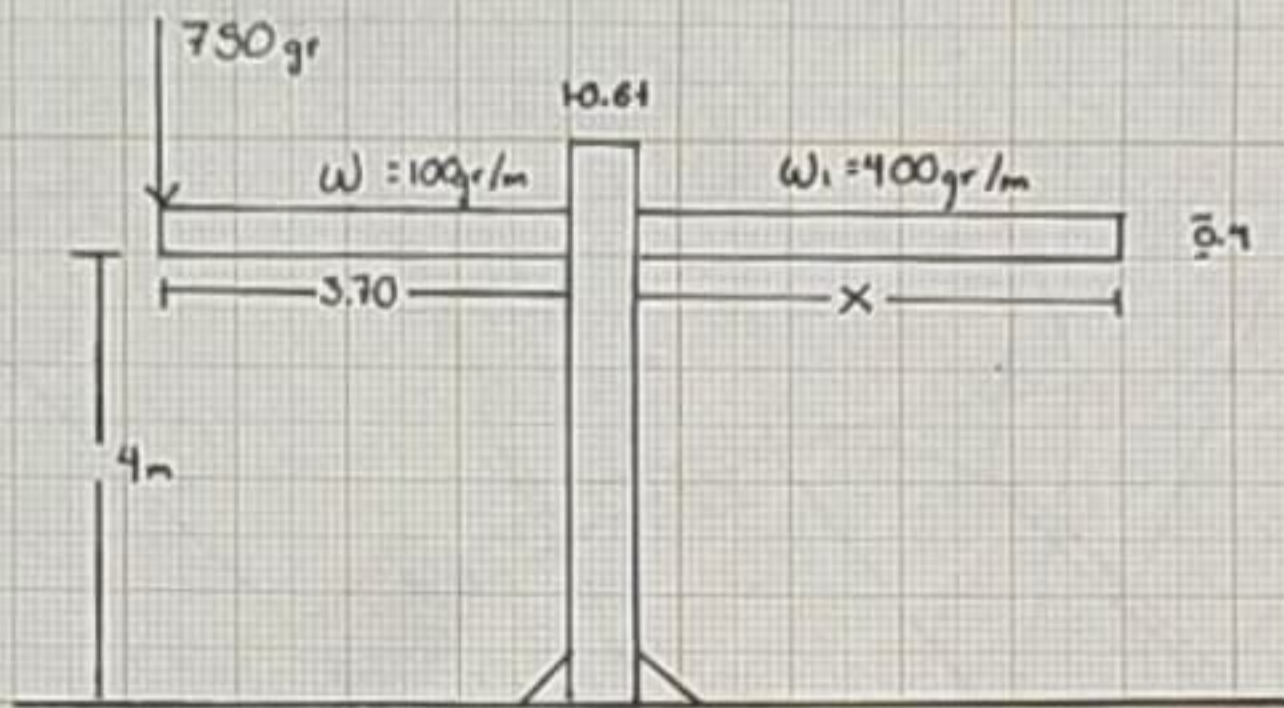
$$A = [90 \text{ cm} \cdot (100 \text{ cm})] / 2 = 4500 \text{ cm}^2$$

$$\bar{I}_x = [90 \text{ cm} \cdot (100 \text{ cm})^3] / 36 = 2,500,000 \text{ cm}^4$$

$$I_x = [2,500,000 \text{ cm}^4 + 4500 \text{ cm}^2 \cdot (66.66)^2] = 1.1128 \cdot 10^{10}$$

$$\bar{I}_y = [100 \text{ cm} \cdot (90)^3] / 36 = 2025000 \text{ cm}^4$$

$$I_y = [2,025,000 + 4500 \text{ cm}^2 \cdot (60)^2] = 18,225,000 \text{ cm}^4$$



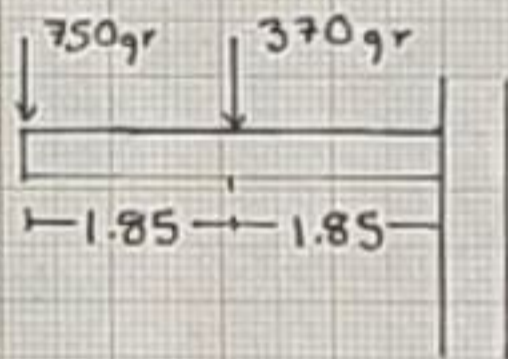
$$W = 100 \text{ gr/m} \cdot 3.70 \text{ m} = 370 \text{ gr}$$

$$u_p = 3.70 \text{ m} / 2 = 1.85 \text{ m}$$

$$M_1 = 750 \text{ gr} \cdot (3.70 \text{ m}) = 2775 \text{ gr}$$

$$M_2 = 370 \text{ gr} \cdot (1.85 \text{ m}) = 684.5 \text{ gr}$$

$$M_r = 3459.5 \text{ gr}$$



$$\sqrt{2} M_r / W_1 = \sqrt{2} (3459.5) / 400 \text{ gr/m} = \sqrt{6919 \text{ gr}} / 400 \text{ gr/m}$$

$$= \sqrt{17.2975} = 4.1590 \text{ m} \approx \underline{4.2 \text{ m}}$$

$$W_1 = 400 \text{ gr/m} \cdot 4.2 \text{ m} = 1680 \text{ gr}$$

$$u_p = 4.2 \text{ m} / 2 = 2.1 \text{ m}$$

$$M = 1680 \text{ gr} \cdot (2.1 \text{ m}) = \underline{3528 \text{ gr}}$$