



**CARLOS ALEJANDRO CORDERO
CORDILLO**

PEDRO ALBERTO GARCÍA

ESTÁTICA PARA LA ARQUITECTURA

EXÁMEN 2U

17/06/2021

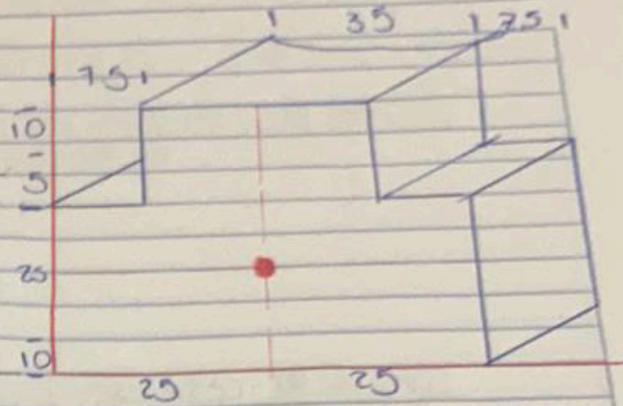
Viga rebabricada con concreto reforzado

$$\bar{X} = \frac{\sum x \cdot A}{\sum A}$$

$$CEX = \frac{A_1 \cdot x_1 + A_2 \cdot x_2 + \dots}{A_1 + A_2 + A_3 + \dots}$$

$$\bar{Y} = \frac{\sum y \cdot A}{\sum A}$$

$$CEY = \frac{A_1 \cdot y_1 + A_2 \cdot y_2 + \dots}{A_1 + A_2 + A_3 + \dots}$$



$$1. A_1 = b \cdot h = 50 \text{ cm} (35 \text{ cm}) = \underline{1750 \text{ cm}^2}$$

$$x_1 = b/2 = 50 \text{ cm}/2 = 25 \text{ cm}$$

$$y_1 = h/2 = 35 \text{ cm}/2 = 17.5 \text{ cm}$$

$$2. A_2 = \pi R^2 = 3.1416 (5)^2 = \underline{78.54 \text{ cm}^2}$$

$$x_2 = R = 5 \text{ cm} + 20 \text{ cm} = 25 \text{ cm}$$

$$y_2 = R = 5 \text{ cm} + 5 \text{ cm} = 10 \text{ cm}$$

$$3. A_3 = b \cdot h = 35 \text{ cm} (15 \text{ cm}) = \underline{525 \text{ cm}^2}$$

$$x_3 = b/2 = 35 \text{ cm}/2 = 17.5 + 17.5 = 25 \text{ cm}$$

$$y_3 = h/2 = 15 \text{ cm}/2 = 7.5 + 35 = 42.5 \text{ cm}$$

$$4. A_4 = \pi R^2 = 3.1416 (5)^2 = \underline{78.54 \text{ cm}^2}$$

$$x_4 = R = 5 \text{ cm} + 20 \text{ cm} = 25 \text{ cm}$$

$$y_4 = R = 5 \text{ cm} + 35 \text{ cm} = 40 \text{ cm}$$

$$Afc = 1750 - 78.54 + 525 - 78.54 = 2117.92 = \underline{2118 \text{ cm}^2}$$

$$Cgx = \frac{1750(25) - 78.54(25) + 525(25) - 78.54(25)}{1750 - 78.54 + 525 - 78.54}$$

$$Cgx = \frac{52,948}{2117.92}$$

$$Cgx = \underline{25 \text{ cm}}$$

$$Cgy = \frac{1750(17.5) - 78.54(10) + 525(42.5) - 78.54(40)}{1750 - 78.54 + 525 - 78.54}$$

$$Cgy = \frac{49010.5}{2117.92}$$

$$Cgy = \underline{23.14 \text{ cm}}$$