



Mi Universidad

Problemas

Nombre del Alumno: Gabino Trujillo Sandoval

Nombre del tema: actividad de plataforma

Parcial: 3

Nombre de la Materia: ESTÁTICA PARA LA ARQUITECTURA

Nombre del profesor: Arq. Pedro

Nombre de la Licenciatura: Arquitectura

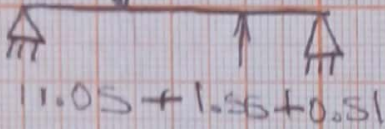
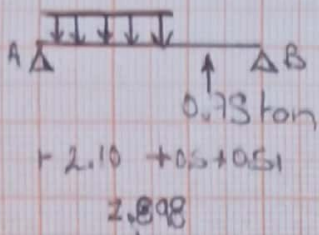
Cuatrimestre: 3

$$P = w \cdot L$$

$$UP = L/2$$

$$P = 1.38 \text{ t/m} \cdot 2.10 = 2.898$$

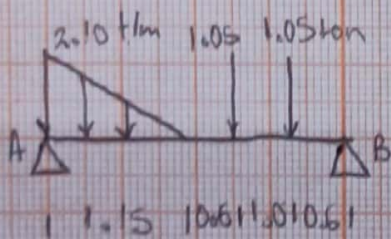
$$UP = 2.10 \text{ m} / 2 = 1.05$$



$$MA = (-2.898 \cdot 1.05) + (0.73 \cdot 2.6)$$

$$MA = -3.0429 + 1.9$$

$$MA = -1.0929 \text{ ton}$$



$$P = w \cdot L/2$$

$$P = \frac{2.10 \text{ t/m} \cdot 1.05 \text{ m}}{2} = \frac{2.205 \text{ ton}}{2} = 1.2075 \text{ ton}$$

$$UP = L/3 \left(\frac{2}{3} \right)$$

$$UP = 1.15 / 3 =$$

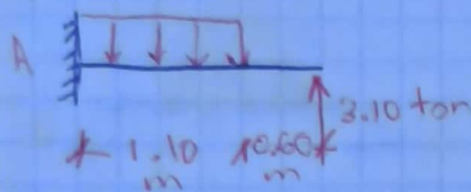
$$UP = 0.3833$$

$$MA = (-1.2075 \cdot 0.3833 \text{ m}) + (1.05 \cdot 1.75) + (-0.4628 \text{ m}) +$$

$$(-1.8375 \text{ t/m} \cdot (-2.8875$$

$$\underline{\underline{-5.166 \text{ ton m}}}$$

Cálculo de Reacciones



$$P = w \cdot c$$

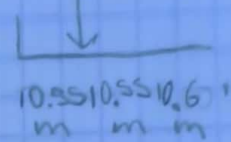
$$UP = L/2$$

$$P = -2.15 \text{ ton} \cdot 1.10 \text{ m} =$$

$$P = -2.365 \text{ ton}$$

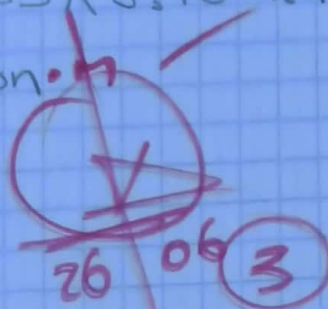
$$UP = 1.10/2 = 0.55 \text{ m}$$

$$2.365 \text{ ton}$$



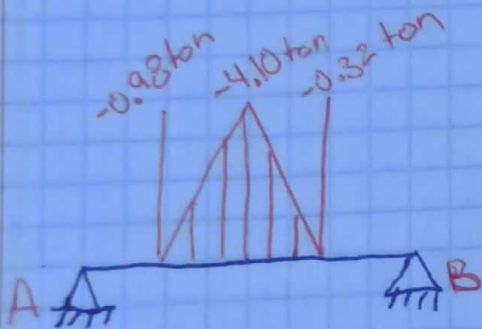
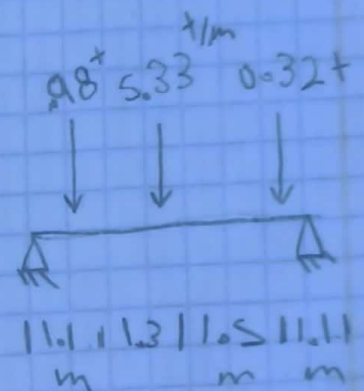
$$M_a = (-2.365 \cdot 5.5) + (3.10 \cdot 1.70)$$

$$R_A = 3.966 \text{ ton}$$



$$P = \frac{w \cdot c}{2}$$

$$UP = L/2$$



$$1.10 \text{ m} \quad 2.60 \text{ m} \quad 1.10 \text{ m}$$

$$M_a = (-0.98 \cdot 1.1) + (-5.33 \cdot 2.4) + (-0.32 \cdot 3.7)$$

$$(R_B \cdot 4.8)$$

$$M_a = -10.78 - 12.792 - 1.184 + (R_B \cdot 4.8)$$

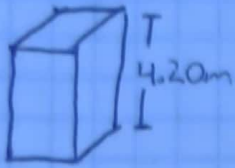
$$M_a = -12.054 + R_B \cdot 4.8$$

$$R_B = 3.13 +$$

$$R_A = 0.98 - 5.33 - 0.32 + 3.13 = -3.49$$

$$R_A = 3.49 \text{ ton}$$

①



$$15 \times 0.30 = 4.50$$

$$h = \leq 15 \quad B_{\min}$$

$$4.20 \leq 4.50$$

$$B_{\min} = \geq 0.40$$

$$B_{\max}$$

$$B_{\max} = 0.40 \cdot 0.30$$

$$B_{\max} = 0.12 < 0.30$$

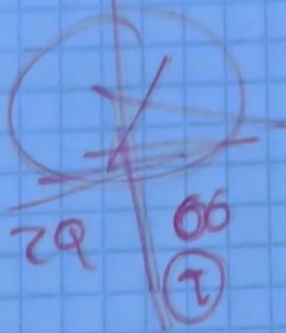
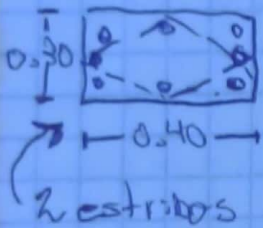
$$B_{\max} = 0.42 = 0.40 \text{ m}$$

$$A = (0.30 \cdot 0.40) \times 0.01 = \frac{12 \text{ cm}^2}{8}$$

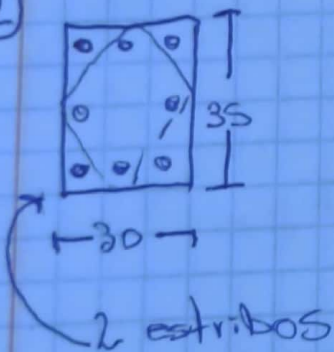
$$A = 1.5$$

$$4\#4 = (1.27 \times 4) = 5.08 \text{ cm}^2$$

$$4\#5 = (1.98 \times 4) = \frac{7.92 \text{ cm}^2}{13.00 \text{ cm}^2}$$



②

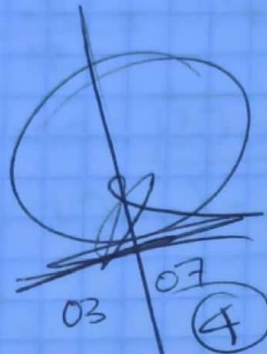
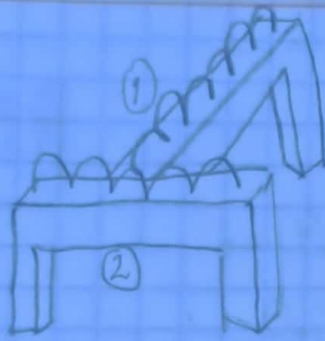


$$A = (0.30 \times 0.35) \times 0.01 = \frac{10.5 \text{ cm}^2}{8}$$

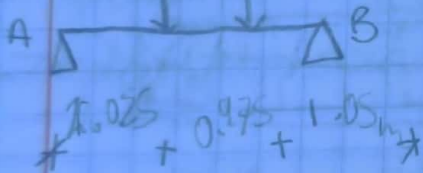
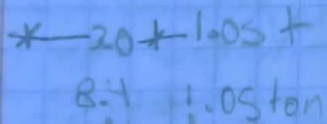
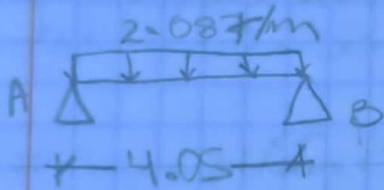
$$A = 1.3125$$

$$4\#5 = (1.98 \times 4) = 7.92 \text{ cm}$$

$$4\#3 = (0.71 \times 4) = \frac{2.84 \text{ cm}}{10.76 \text{ cm}}$$



①



$$(-8.424 \times 2.025) + (-1.05 \times 3) + (RB \cdot 4.05)$$

$$MA = 17.058 \text{ ton} + 3.15 \text{ ton} + RB \cdot 4.05$$

$$MA = \frac{20.208}{4.05} = 4.989 \text{ ton} = RB$$

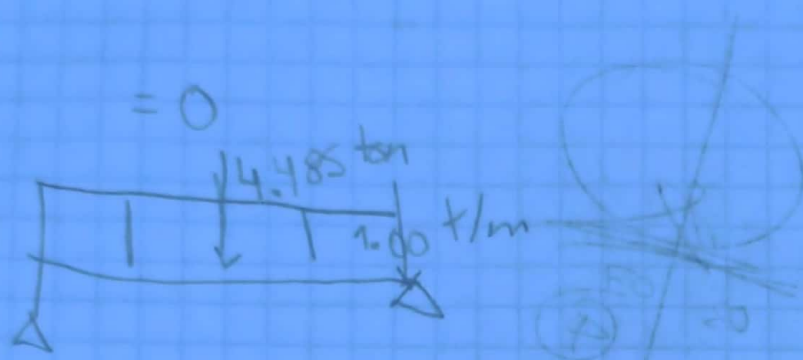
$$RA = \sum F_Y = 0 \quad RA - 8.424 \text{ ton} -$$

$$1.05 \text{ ton} + 4.989 \text{ ton} = 4.485$$

$$4.485 - 8.424 - 1.05 + 4.989 = 0$$

$$RA - 4.485 = 0$$

$$RA = 4.485 \text{ (ton)}$$



$$\sum M_B = 0$$

$$MA = (-8.937 \text{ ton} \cdot 2.1 \text{ m}) + RB \cdot 4.20 \text{ m}$$

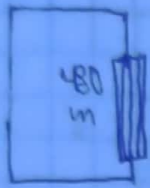
$$MA = -18.7677 = 2.10 \cdot RB - 8.937$$

$$RB = 9.4685 \text{ ton}$$

$$\sum F_y = 0 \Rightarrow RA = -8.937 + 9.4685 = 4.4685 \text{ ton}$$

$$\sum F_x = 0 \Rightarrow 4.4685 \text{ ton} - 8.937 \text{ ton} + 4.4685 \text{ ton} = 0$$

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← Altura: 40 cm

$$\frac{4.80}{12} = 0.40 \text{ m}$$

← Base: 20 cm

$$0.5(40 \text{ cm}) = 20 \text{ cm}$$

← Acero mínimo.
b.p. (0.00235)

← Acero máximo
b.p. (0.01143)
 $20 \cdot 30 \cdot 0.01143$

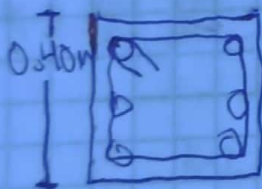
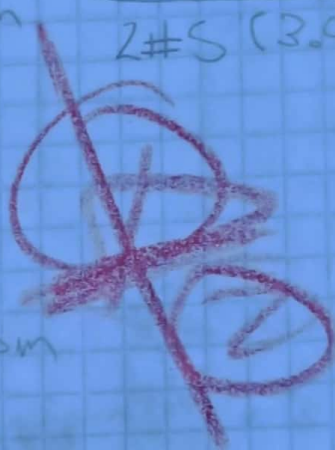
$$6.858 \text{ cm}^2$$

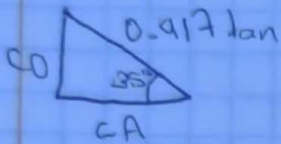
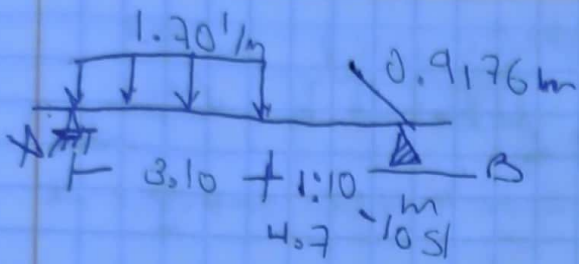
2#5 (3.96)

← Separación de estribos
 $0.5(h) \rightarrow 0.5(40 \text{ cm}) = @ 20 \text{ cm}$



$E @ 10 \text{ cm}$ $E @ 20 \text{ cm}$ $E @ 10 \text{ cm}$

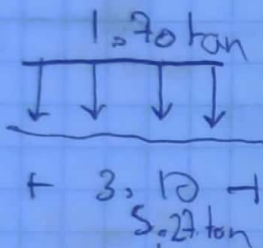




$$\text{Sen } \theta = \frac{CO}{H} = \frac{CO}{0.9176 \text{ ton}} = \text{Sen } 35^\circ$$

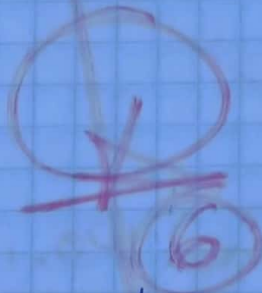
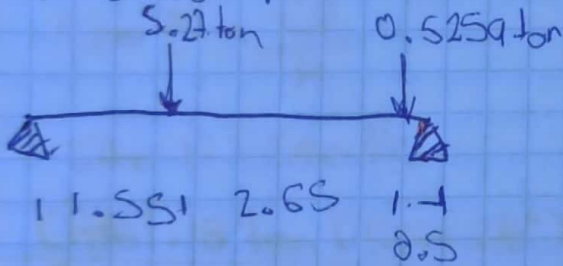
$$CO = \text{Sen } 35^\circ (0.9176 \text{ ton}) = 0.5259 \text{ ton}$$

$$\text{Cos } \theta = \frac{CA}{H} \Rightarrow CA = \text{Cos } 35^\circ (0.9176 \text{ ton}) = 0.7511 \text{ ton}$$



$$w \cdot L = 1.70 \cdot 3.10 = 5.27 \text{ ton}$$

$$x_p = L/2 = 3.10 (2^\circ) = 1.55 \text{ m}$$



$$M_A = [5.27 \text{ ton} \cdot (1.55 \text{ m})] + [0.5259 \text{ ton} \cdot (4.2)] + [RB (4.7)]$$

$$8.1685 \text{ t/m} + 2.20828 + RB \cdot 4.7$$

$$RB = 10.37728 \text{ ton} \cdot \text{m} / 4.7 \text{ m}$$

$$RB = 2.2079 \text{ ton}$$

$$R_A = -5.27 - 0.7802 + 2.2079 = +3.8423 \text{ ton}$$

$$R_A = -5.27 - 0.7802 + 2.2079 + 3.8423 = 0$$