

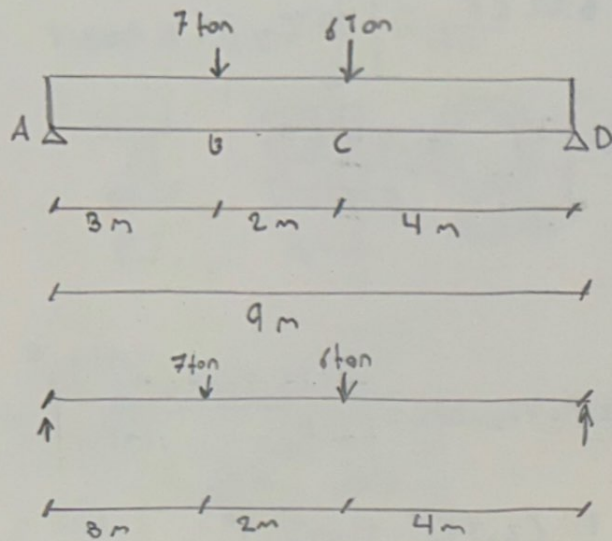
**Nombre:**  
**Jose Gabriel Mérida Nájera**

**Docente:**  
**Arq. Perla Barajas**

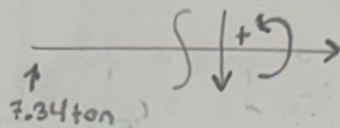
**MATERIA:**  
**Analisis de estructura**

**CUATRIMESTRE:**  
**5**

**FECHA:**  
**10/03/2024**



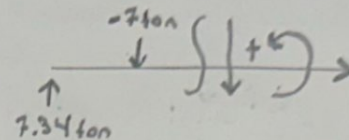
Corte 1



$$M_1 = 7.34 \text{ ton}(x)$$

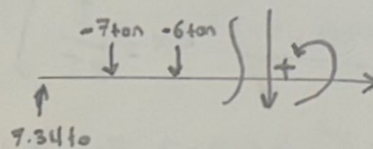
$$M_1 = 7.34x$$

Corte 2



$$M_2 = 7.34 \text{ ton}(x) - 7 \text{ ton}(x - 3m)$$

Corte 3



$$M_3 = 7.34 \text{ ton}(x) - 7 \text{ ton}(x - 3m) - 6 \text{ ton}(x - 5m)$$

Euros

$$-7 \text{ ton}(3m) - 6 \text{ ton}(5m) + DJ(9m) = 0$$

$$-21 \text{ ton} \cdot m - 30 \text{ ton} \cdot m + DJ(9m) = 0$$

$$-51 \text{ ton} \cdot m + DJ(9m) = 0$$

$$DJ = \frac{51 \text{ ton} \cdot m}{9m}$$

$$DJ = 5.66 \text{ ton}$$

$$A_D = -7 \text{ ton} - 6 \text{ ton} + 5.66 \text{ ton}$$

$$A_D = 7.34 \text{ ton}$$

$$DJ = (9m) - 1 \text{ ton}(5m) - 1 \text{ ton}(3m) \quad A_D = 1 - 1 + 0.88$$

$$DJ = (9m) - 5m - 3m$$

$$A_D = 2 + 0.88$$

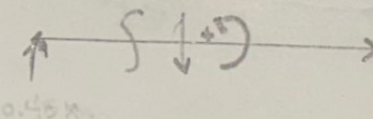
$$DJ = (9m) - 8 \text{ ton} \cdot m$$

$$A_D = 1.12 \text{ ton}$$

$$DJ = \frac{8 \text{ ton} \cdot m}{9m}$$

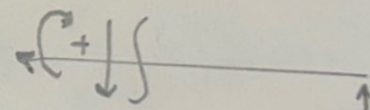
$$DJ = 0.88 \text{ ton}$$

Corte 1



$$M_1 = 0.48x$$

$$0 \leq x \leq 3$$



$$M_2 = 1.12x - 1 \text{ ton}(x - 3)$$

$$0 \leq x \leq 5$$

$$M_3 = 0.88x$$

$$0 \leq x \leq 4$$

$$1 - \Delta v_B = \int_0^3 \frac{(7.34x)(1.12x) dx}{EI} = \frac{1}{EI} \int_0^3 (8.22x^2) dx = \frac{1}{EI} \left[ 8.22 \frac{x^{n+1}}{n+1} \right]_0^3 =$$

$$\frac{1}{EI} \left[ 8.22 \frac{x^{2+1}}{2+1} \right]_0^3 = \frac{1}{EI} \left[ \frac{8.22x^3}{3} \right]_0^3 = \frac{1}{EI} \frac{(2.74x^3)}{1} \Big|_0^3 = \frac{2.74x^3}{EI}$$

$$\frac{2.74(3)^3}{EI} - \frac{2.74(0)^3}{EI} = \frac{2.74(27)}{EI} = \frac{73.98}{EI}$$

$$2 - \Delta v_B = \int_0^5 \frac{(7.31x - 7 \text{ ton})(x-3)(1.12x - 1 \text{ ton})(x-3) dx}{EI} = \frac{1}{EI} \int_0^5 (8.22x^2 - 7 \text{ ton}) dx = \frac{1}{EI} \left[ \frac{8.2208x^{n+1}}{n+1} \right]_0^5 =$$

$$\frac{1}{EI} \left[ \frac{8.2208x^{2+1}}{2+1} - 7 \text{ ton} \right]_0^5 = \frac{1}{EI} \left[ \frac{8.2208x^3}{3} - 7 \text{ ton} \right]_0^5 = \frac{1}{EI} \frac{(2.74x^3 - 7 \text{ ton})}{1} \Big|_0^5 =$$

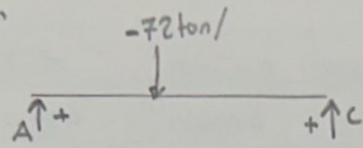
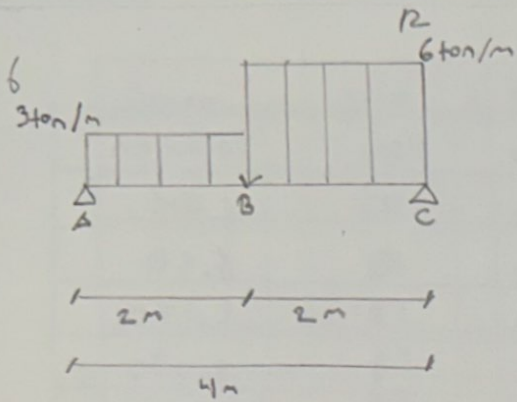
$$\frac{2.74x^3 - 7 \text{ ton}}{EI} = \frac{2.7402(5)^3}{EI} - \frac{2.7402(0)^3}{EI} = \frac{2.7402(125)}{EI} = \frac{342.525}{EI}$$

$$3 - \Delta v_B = \int_0^4 \frac{(5.66x)(0.88x) dx}{EI} = \frac{1}{EI} \int_0^4 (4.98x^2) dx = \frac{1}{EI} \left[ 4.98 \frac{x^{n+1}}{n+1} \right]_0^4 =$$

$$\frac{1}{EI} \left[ 4.98 \frac{x^{2+1}}{2+1} \right]_0^4 = \frac{1}{EI} \left[ \frac{4.98x^3}{3} \right]_0^4 = \frac{1}{EI} \frac{(1.66x^3)}{1} \Big|_0^4 = \frac{1.66x^3}{EI} =$$

$$\frac{1.66(4)^3}{EI} = \frac{1.66(0)^3}{EI} = \frac{1.66(64)}{EI} = \frac{106.24}{EI}$$

$$\Delta v_B = \frac{73.98}{EI} + \frac{342.525}{EI} + \frac{106.24}{EI} = \frac{522.745}{EI}$$



$$\begin{aligned} \sum V (4m) - 72(2m) \\ \sum V (4m) - 72(2m) \\ \sum V = \frac{72 \text{ ton/m}}{4m} \\ \sum V = 0.5 \text{ ton} \end{aligned}$$

$$\sum F_x = 0$$

$$\begin{aligned} \sum V (4m) - 72 \text{ ton} \cdot (2m) \\ \sum V (4m) - 144 \text{ ton/m} \\ \sum V = \frac{144 \text{ ton/m}}{4m} \\ \sum V = 36 \end{aligned}$$

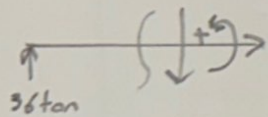
$$\begin{aligned} \sum V - 1 \text{ ton} + 0.5 \text{ ton} \\ \sum V = 0.5 \text{ ton} \end{aligned}$$

$$\begin{aligned} \sum V = -72 \text{ ton} + 36 \text{ ton} \\ \sum V = 36 \text{ ton} \end{aligned}$$

Corte 1

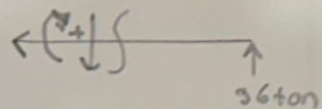
Corte 2

Corte 1

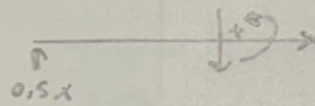


$$M_1 = 36x$$

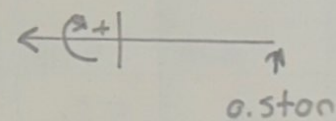
Corte 2



$$M_2 = 36x$$



$$\begin{aligned} M_1 = 0.5x \\ 0 \leq x \leq 2 \end{aligned}$$



$$\begin{aligned} M_2 = 0.5x \\ 0 \leq x \leq 2 \end{aligned}$$

$$1 - \Delta v_B \int_0^2 \frac{(36x)(0.5x)}{EI} dx = \frac{1}{EI} \int_0^2 (18x^2) dx = \frac{1}{EI} \left[ 18 \frac{x^{n+1}}{n+1} \right]_0^2 = \frac{1}{EI} \left[ 18 \frac{x^{2+1}}{2+1} \right]_0^2 =$$

$$\frac{1}{EI} \left[ \frac{18x^3}{3} \right]_0^2 = \frac{1}{EI} \left[ \frac{6x^3}{1} \right]_0^2 = \frac{6x^3}{EI} = \frac{6(2)^3}{EI} - \frac{6(0)^3}{EI} = \frac{6(8)}{EI} = \frac{48}{EI}$$

$$2 - \Delta v_B \int_0^2 \frac{(36x)(0.5x)}{EI} dx = \frac{1}{EI} \int_0^2 (18x^2) dx = \frac{1}{EI} \left[ 18 \frac{x^{n+1}}{n+1} \right]_0^2 = \frac{1}{EI} \left[ 18 \frac{x^{2+1}}{2+1} \right]_0^2 =$$

$$\frac{1}{EI} \left[ \frac{18x^3}{3} \right]_0^2 = \frac{1}{EI} \left[ \frac{6x^3}{1} \right]_0^2 = \frac{6x^3}{EI} = \frac{6(2)^3}{EI} - \frac{6(0)^3}{EI} = \frac{6(8)}{EI} = \frac{48}{EI}$$

$$\frac{48}{EI} + \frac{48}{EI} = \frac{96}{EI}$$