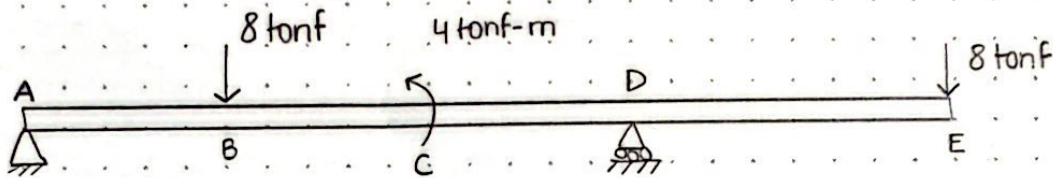
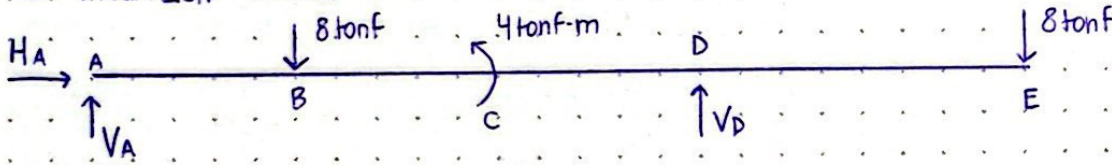


Pauta P1 ejercicio 2



1° Realizar DCL



2° Sumatoria de Fuerzas y Momento

$$\sum F_x = 0 \quad H_A = 0$$

$$\sum F_y = 0 \quad V_A - 8 + V_D - 8 = 0$$

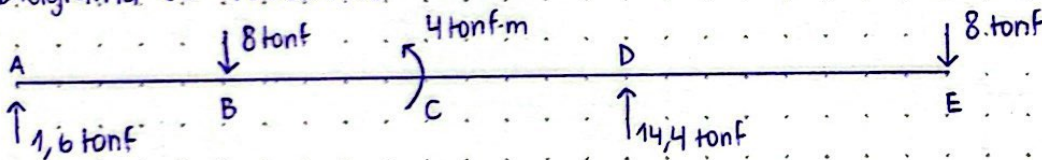
$$V_A + V_D = 16 \text{ tonf}$$

$$\sum M_A = 0 \quad -8 \cdot 2,5 + 4 + V_D \cdot 7,5 - 8 \cdot 11,5 = 0$$

$$\rightarrow V_D = 14,4 \text{ tonf}$$

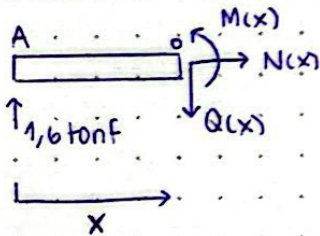
$$\rightarrow V_A = 1,6 \text{ tonf}$$

3° Diagrama de Reacciones



4° Esfuerzos internos

Tramo AB $x \in [0, 2,5]$



$$\sum F_x = 0 = N(x)$$

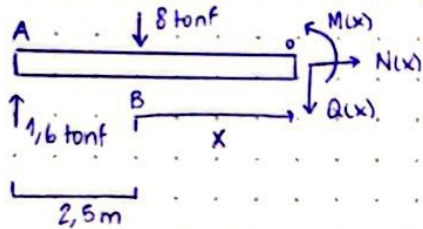
$$\sum F_y = 0 = 1,6 - Q(x) \rightarrow Q(x) = 1,6 \text{ tonf}$$

$$\sum M_o = 0 = M(x) - 1,6x \rightarrow M(x) = 1,6 \cdot x$$

$$M(x=0) = 0$$

$$M(x=2,5) = 4 \text{ tonf} \cdot \text{m}$$

Tramo BC $x \in [0, 2,5]$



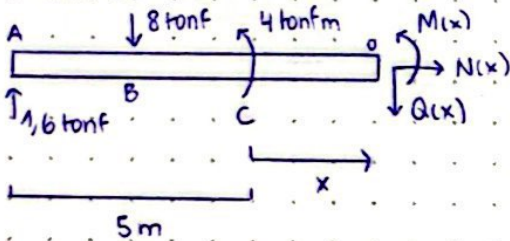
$$\Sigma F_x = 0 = N(x) = 0$$

$$\Sigma F_y = 0 = 1,6 - 8 - Q(x) \rightarrow Q(x) = -6,4 \text{ tonf}$$

$$\Sigma M_o = 0 = M(x) + 8 \cdot x - 1,6(2,5 + x)$$

$$M(x) = -6,4x + 4 \rightarrow M(x=0) = 4 \text{ tonf-m} \\ M(x=2,5) = 12 \text{ tonf-m}$$

Tramo CD $x \in [0, 2,5]$



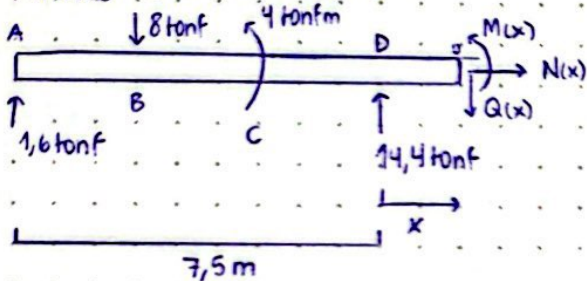
$$\Sigma F_x = 0 = N(x)$$

$$\Sigma F_y = 0 = 1,6 - 8 - Q(x) \rightarrow Q(x) = -6,4 \text{ tonf}$$

$$\Sigma M_o = 0 = 4 + 8(2,5 + x) - 1,6(5 + x) + M(x)$$

$$M(x) = -6,4x - 16 \rightarrow M(x=0) = -16 \text{ tonf-m} \\ M(x=2,5) = -32 \text{ tonf-m}$$

Tramo DE $x \in [0, 4]$



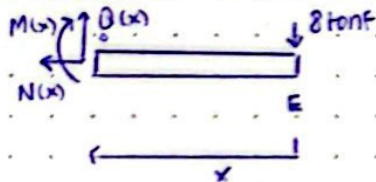
$$\Sigma F_x = 0 = N(x)$$

$$\Sigma F_y = 0 = 1,6 - 8 + 14,4 - Q(x) \rightarrow Q(x) = 8 \text{ tonf}$$

$$\Sigma M_o = 0 = M(x) - 14,4 \cdot x + 4 + 8(5 + x) - 1,6(7,5 + x)$$

$$M(x) = 8x - 32 \rightarrow M(x=0) = -32 \text{ tonf-m} \\ M(x=4) = 0$$

* Otra forma de Realizar el tramo DE:



$$\Sigma F_x = 0 = N(x)$$

$$\Sigma F_y = 0 = Q(x) - 8 \rightarrow Q(x) = 8 \text{ tonf}$$

$$\Sigma M_o = 0 = -M(x) - 8x \rightarrow M(x) = -8 \cdot x$$

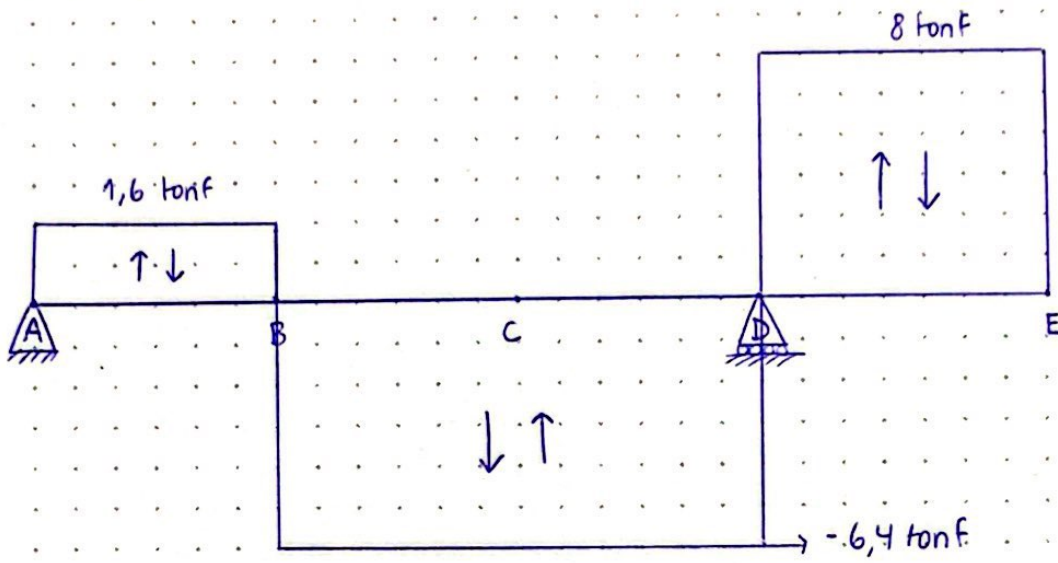
$$M(x=0) = 0 \quad (\text{En el punto E})$$

$$M(x=4) = -32 \text{ tonf-m} \quad (\text{En el punto D})$$

5° Diagrama de Esfuerzos internos

$N(x) \rightarrow$ todos los tramos son ≈ 0

$Q(x)$ [tonf]



$M(x)$ [tonf-m]

