

PROBLEMA N° 2

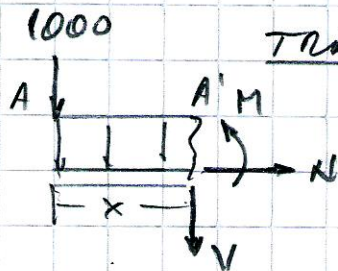
REACCIONES

$$\sum F_y: R_B + R_E = 1000 + 1500 + 10400 \\ = 12900$$

$$\sum M_E: 1000 \cdot 8 + 2600 \cdot 4 \cdot 6 + 1500 \cdot 2 = R_B \cdot 6$$

$$R_B = 12.233,3 \text{ (kg)}$$

$$R_E = 666,7 \text{ (kg)}$$



TRAMO AB

$$0 \leq x \leq 2$$

$$\sum F_y: V + 2600 \cdot x + 1000 = 0$$

$$V = -2600x - 1000$$

$$x=0 \rightarrow V = -1000 \text{ (kg)}$$

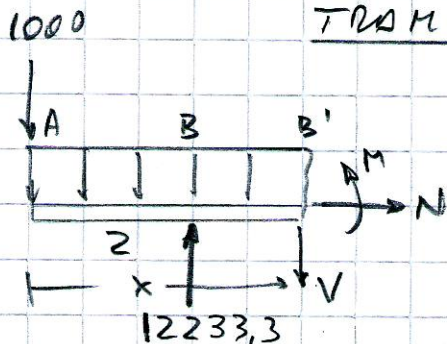
$$x=2 \rightarrow V = -6200 \text{ (kg)}$$

$$\sum M_{A'}: M + 2600 \cdot x \cdot \frac{x}{2} + 1000 \cdot x = 0$$

$$M = -1300x^2 - 1000x$$

$$x=0 \rightarrow M = 0$$

$$x=2 \rightarrow M = -7200 \text{ (kg-m)}$$



TRAMO BC

$$2 \leq x \leq 4$$

$$\sum F_y: V + 1000 + 2600 \cdot x - 12233,3 = 0$$

$$V = 11233,3 - 2600 \cdot x$$

$$x=2 \rightarrow V = 6033,3 \text{ (kg)}$$

$$x=4 \rightarrow V = 833,3 \text{ (kg)}$$

$$\sum M_{B'}: M + 2600 \cdot x \cdot \frac{x}{2} + 1000 \cdot x - 12233,3 \cdot (x-2) = 0$$

$$M = 12233,3(x-2) - 1000x - 1300x^2$$

$$x=2 \rightarrow M = -7200 \text{ (kg-m)}$$

$$x=4 \rightarrow M = -333,4 \text{ (kg-m)}$$

TRAMO ED

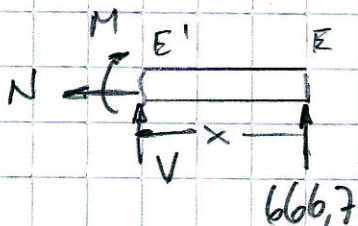
$$0 \leq x \leq 2$$

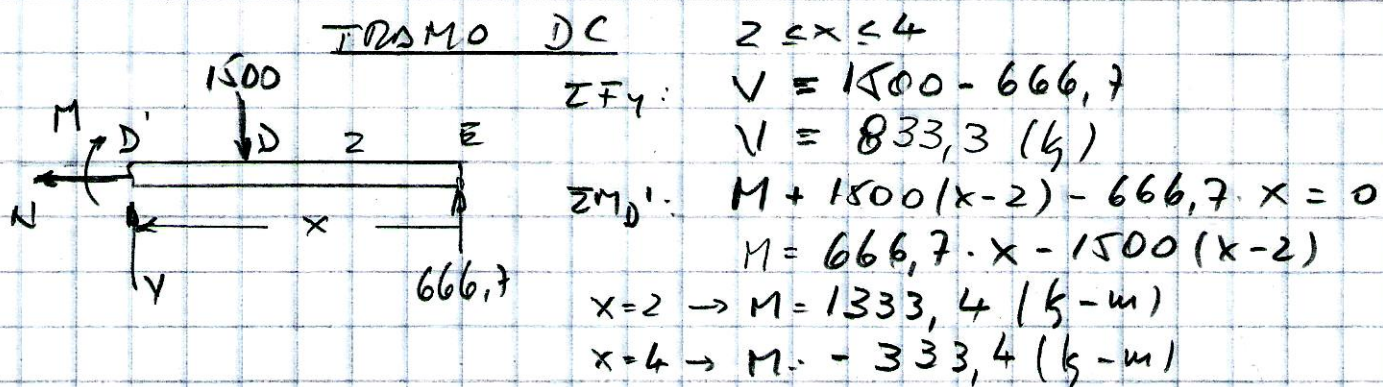
$$\sum F_y: V = -666,7 \text{ (kg)}$$

$$\sum M_{E'}: M = 666,7 \cdot x$$

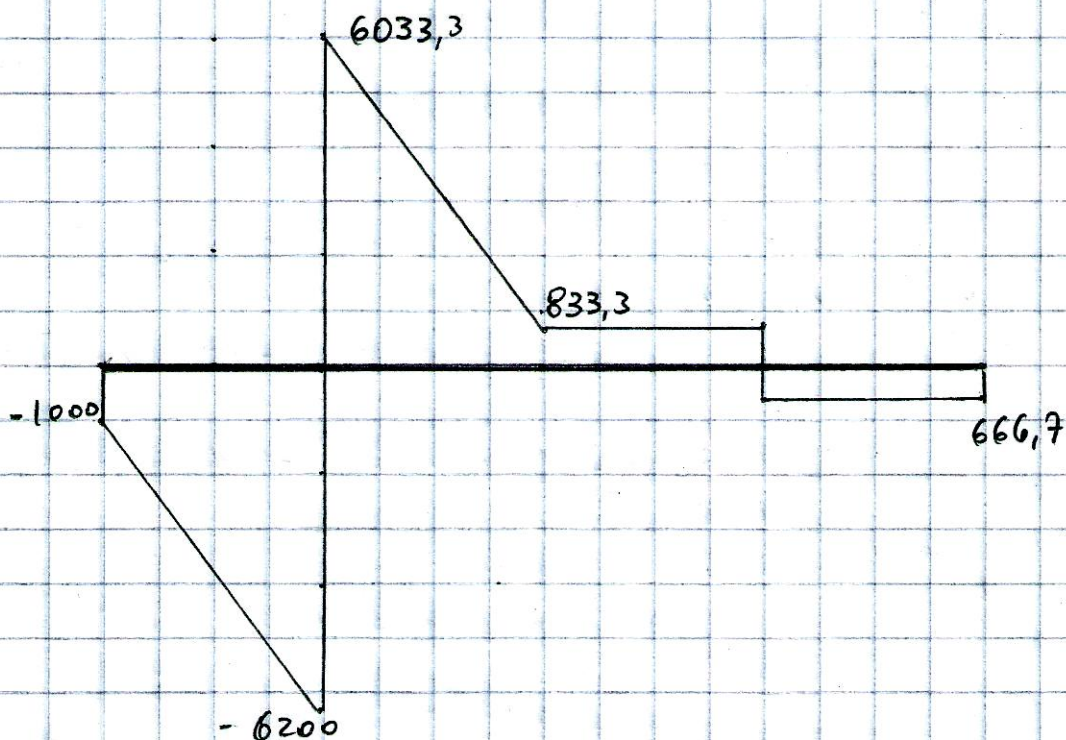
$$x=0 \rightarrow M = 0$$

$$x=2 \rightarrow M = 1333,4 \text{ (kg-m)}$$

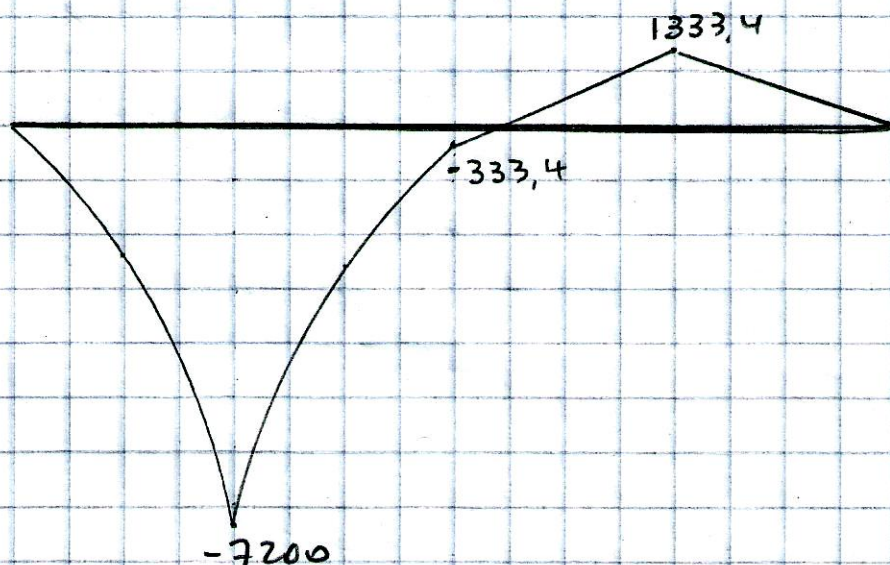




ESFUERZO DE CORTE

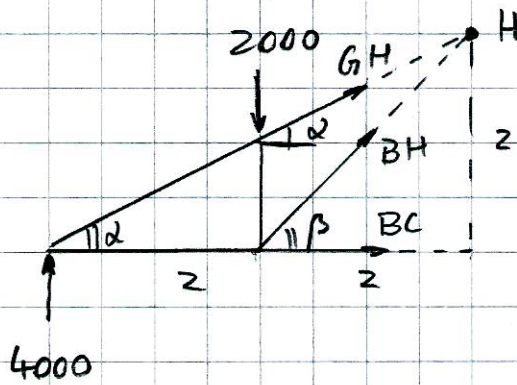


MOMENTO FLECTOR



PROBLEMA N°3

Por simetría $R_A = R_F = 4000 \text{ (k)}$



$$\textcircled{1} \sum F_x: BC + GH \cos \alpha + BH \sin \beta = 0$$

$$\textcircled{2} \sum F_y: 4000 - 2000 + GH \sin \alpha + BH \cos \beta = 0$$

$$\sum M_H: 4000 \cdot 4 - 2000 \cdot 2 - BC \cdot 2 = 0$$

$$BC = 8000 - 2000$$

$$BC = 6000 \text{ (k)}$$

De la figura:

$$\sin \alpha = 0,447$$

$$\cos \alpha = 0,894$$

$$\sin \beta = \cos \beta = 0,707$$

Se tiene:

$$\textcircled{1} GH \cdot 0,894 + BH \cdot 0,707 = -6000$$

$$\textcircled{2} GH \cdot 0,447 + BH \cdot 0,707 = -2000$$

Sumando:

$$GH (0,894 - 0,447) = -4000$$

$$GH = \frac{-4000}{0,447}$$

$$GH = -8948,5 \text{ (k)}$$

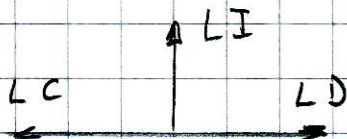
De $\textcircled{1}$

$$BH = \frac{-6000 - GH \cdot 0,894}{0,707}$$

$$BH = \frac{-6000 - (-8948,5) \cdot 0,894}{0,707}$$

$$BH = 2829 \text{ (k)}$$

NULO L



$$\sum F_x: LC = LD \text{ (simetric)}$$

$$\sum F_y: LI = 0$$