operaciones

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Nombre del tema: CENTROIDES Y MOMENTOS DE INERCIA.

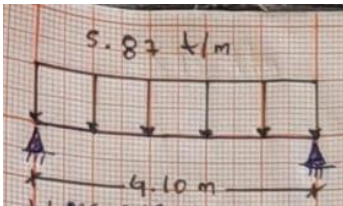
Parcial: Unida 3

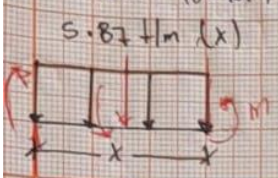
Nombre de la Materia: resistencia de materiales de construcción.

Nombre del profesor: ARQ. Pedro Alberto García López.

Nombre de la Licenciatura: Arquitectura.

Cuatrimestre: Numero 4





$qL \rightarrow 5.87\ t/m\ (4.10)$

$: 24.067\ ton$

Reacciones en A-B

$RA-RB: \frac{qL}{2} \rightarrow \frac{5.87\ t/m\ (4.10\ m)}{2}$

$: 12.0335\ ton$

Ecuacion de Cortante

$\Sigma F_y = 0$

$12.0335\ ton - [5.87\ t/m\ (x)] - V = 0$

$V = 12.0335\ ton - [5.87\ t/m\ (x)]$

$V = 12.0335\ ton - [5.87\ t/m\ (0)]$

$V = 12.0335\ ton$

$V = 12.0335\ ton - [5.87\ t/m\ (1.025m)]$

$V = 6.01675\ ton$

$V = 12.0335\ ton - [5.87\ t/m\ (2.05\ m)]$

$V = 0\ ton$

$V = 12.0335\ ton - [5.87\ t/m\ (3.075)]$

$V = -6.01675\ ton$

$V = 12.0335\ ton - [5.87\ t/m\ (4.10m)]$

$V = -12.0335\ ton$

Ecuacion en momento

$\Sigma m = 0$

$12.0335\ ton\ (x) + [5.87\ t/m\ (x)(x/2) + M] = 0$

$M = 12.0335\ ton\ (x) - \frac{[5.87\ t/m\ (x)^2]}{2}$

$M = 12.0335\ ton\ (x) - [2.935\ t/m\ (x^2)]$

$M = 12.0335\ ton\ (0) - [2.935\ t/m\ (0)^2]$

$M = 0$

$M = 12.0335\ ton\ (1.025) - [2.935\ t/m\ (1.025)^2]$

$M = 9.2507\ ton$

$M = 12.0335\ ton\ (2.05) - [2.935\ t/m\ (2.05)^2]$

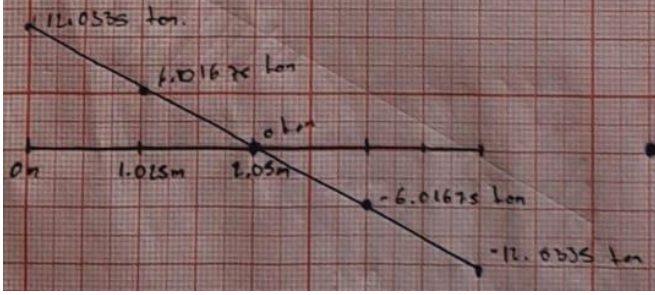
$M = 12.33495\ ton$

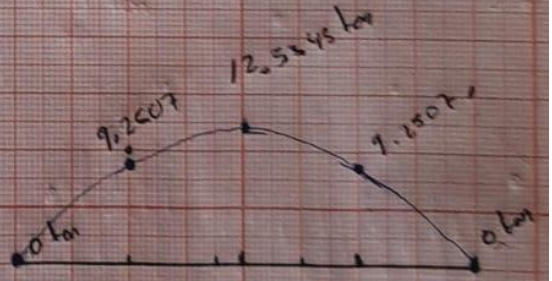
$M = 12.0335\ ton\ (3.075) - [2.935\ t/m\ (3.075)^2]$

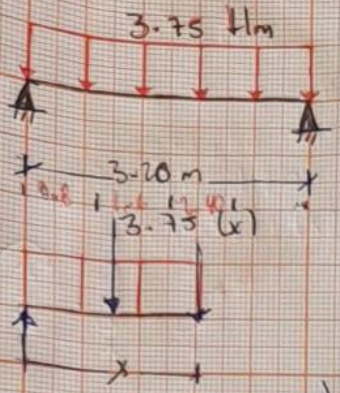
$M = 9.2507\ ton$

$M = 12.0335\ ton\ (4.10) - [2.935\ t/m\ (4.10)^2]$

$M = 0\ ton$







q (L)

3.75 t/m (3.20m)

12 ton

Reaccion en A-B

Reaccion en RA-RB $\frac{qL}{2}$ → RA-RB $\frac{3.75\ t/m\ (3.20}{2}$

RA-RB = 6 ton

Ecuacion de cortante

$\Sigma F_y = 0$

$6\ ton - [3.75\ ton/m\ (x)] - V = 0$

$V = 6\ ton - [3.75\ ton/m\ (x)] = 0$

$V = 6\ ton - [3.75\ t/m\ (0m)]$

$V = 6\ ton$

$V = 6\ ton - [3.75\ t/m\ (0.8m)]$

$V = 3\ ton$

$V = 6\ ton - [3.75\ t/m\ (1.6m)]$

$V = 0\ ton$

$V = 6\ ton - [3.75\ t/m\ (2.40m)]$

$V = -3\ ton$

$V = 6\ ton - [3.75\ t/m\ (3.2m)]$

$V = -6\ ton$

Ecuaciones en momento

Σm_{80}

$6\ ton\ (x) + [3.75\ t/m\ (x)(x/2)] + M = 0$

$M = 6\ ton\ (x) - [\frac{3.75\ t/m\ (x^2)}{2}] = 0$

$M = 6\ ton\ (x) - [1.875\ (x)^2] = 0$

$M = 6\ ton\ (0) - [1.875(0)^2] =$

$M = 0\ ton$

$M = 6\ ton\ (0.8) - [1.875(0.8)^2]$

$M = 3.6\ ton$

$M = 6\ ton\ (1.6m) - [1.875(1.6m)^2]$

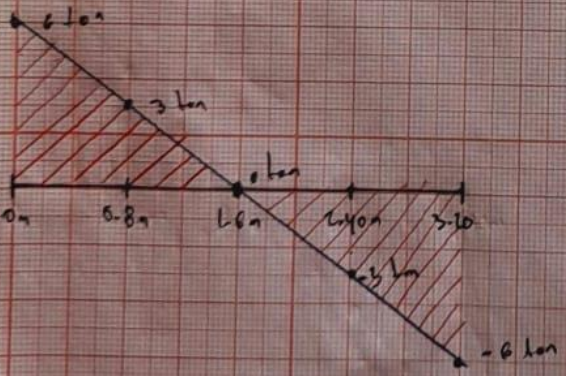
$M = 4.8\ ton$

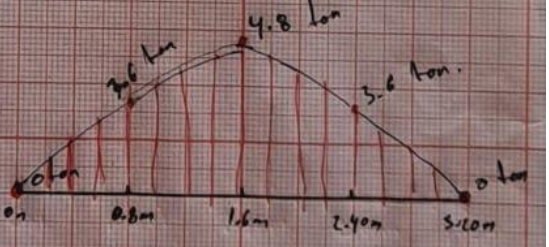
$M = 6\ ton\ (2.4m) - [1.875(2.4m)^2]$

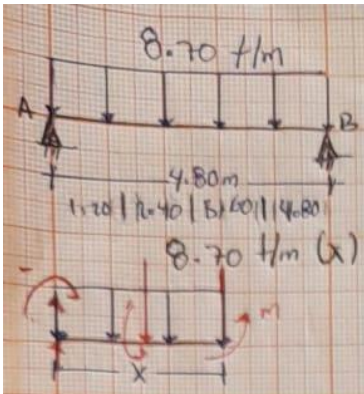
$M = 3.6\ ton$

$M = 6\ ton\ (3.20m) - [1.875(3.2m)^2]$

$M = 0\ ton$







① q(L).

8.70 ton/m (4.80m)

R: 41.76 ton

Reaccion en A-B

$R_{A-B} = \frac{qL}{2}$ R_{A-B}: 8.70 ton/m (4.80) 41.76

R_{A-B}: 20.88

Ecuacion de cortante

$\sum F_y = 0$

$20.88\ t - [8.70\ t/m\ (x)] - V = 0$

$V = 20.88 - [8.70\ t/m\ (x)]$

$V = 20.88 - [8.70\ t/m\ (0)]$

$V = 20.88$ ton

$V = 20.88 - [8.70\ t/m\ (1.20m)]$

$V = 10.44$ ton

$V = 20.88 - [8.70\ t/m\ (2.40)]$

$V = 0$ ton

$V = 20.88 - [8.70\ t/m\ (3.60m)]$

$V = -10.44$

$V = 20.88 - [8.70\ t/m\ (4.80m)]$

-20.88

Ecuacion de momento

$\sum m = 0$

$20.88\ t\ (x) + [8.70\ t/m\ (x)\ (x/2) + M] = 0$

$M = 20.88\ t\ (x) - \frac{8.70\ t/m\ (x^2)}{2} = 0$

$M = 20.88\ t\ (x) - 4.35\ t/m\ (x^2)$

$M = 20.88$ ton $(0) - 4.35\ t/m\ (0)^2$

$M = 0$

$M = 20.88$ ton $(1.20m) - 4.35\ t/m\ (1.20)^2$

$M = 18.792$ ton

$M = 20.88$ ton $(2.40m) - (4.35\ t/m\ (2.40m)^2$

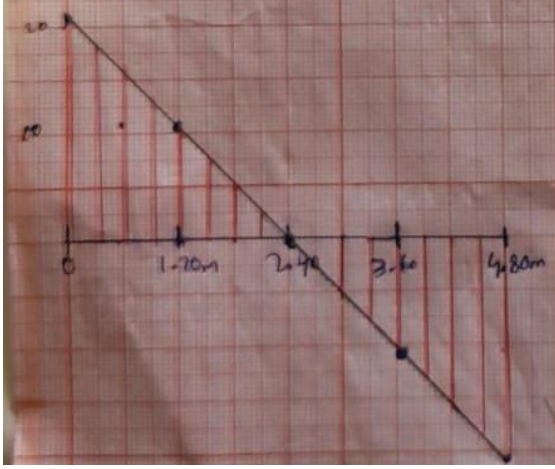
$M = 25.056$

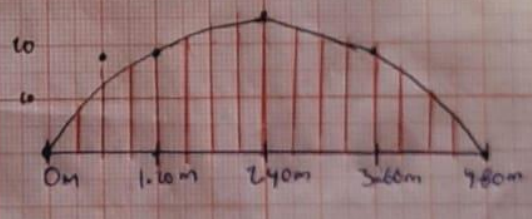
$M = 20.88$ ton $(3.60m) - (4.35\ t/m\ (3.60m)^2)$

$M = 18.792$ ton

$M = 20.88$ ton $(4.80m) - (4.35\ t/m\ (4.80m)^2)$

$M = 0$ ton.





Amier /