JOSE MIGUEL ALFARO PEREZ

PEDRO ALBERTO GARCIA LOPEZ

RESISTENCIA DE MATERIALES DE CONSTRUCCION

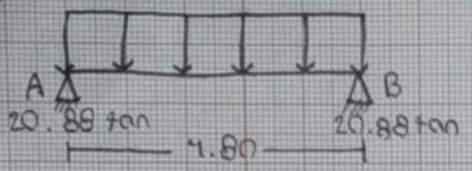
CUATRIMESTRE: 4°

LICENCIATURA EN ARQUITECTURA

CENTROIDES Y MOMENTOS DE INERCIA

José Miguel Alfaro Pérez. 12/Noviembre/2023

①



$\Sigma F_y = 0$

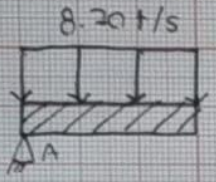
$20.88\,ton - [8.70\,t/m(x)] - V = 0$

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

$\Sigma m = 0$

$q(L) = 8.70\,t/m\,(4.80m) = 41.76\,ton$

$RA = RB \rightarrow \frac{qL}{2} \rightarrow \frac{41.76}{2} = 20.88\,ton$

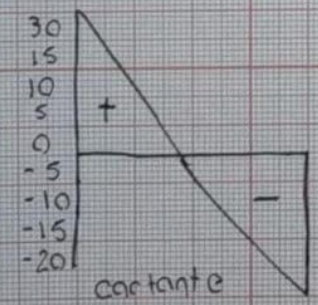


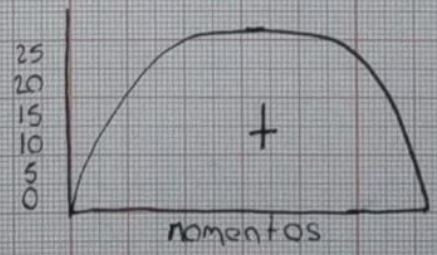
$-20.88\,ton(x) + [8.70\,t/m(x)\,\frac{x}{2}] + m = 0$

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

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

X	0	1.20	2.40	3.60	4.80
V	20.88	10.44	0	-10.44	20.88
M	0	18.79	25.05	18.72	0





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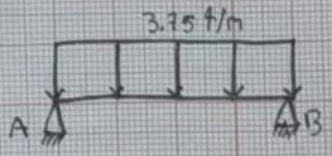


① $qL \quad 3.75\ t/m\ (3.20m) = 12\ ton$

② $R_A\ R_B = \rightarrow \frac{qL}{2} \quad \frac{3.75\ (3.20)}{2} = 6\ ton$

Ecuación cortante

$\Sigma F_y = 0$

$6\ ton - 3.75\ t/m\ (x) - v = 0$

$v = 6\ ton - [3.75\ t/m\ (x)]$

$\Sigma m = 0$

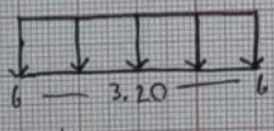
$-6\ ton(x) + [3.75\ t/m\ (x)\ (x/2)]\ tm = 0$

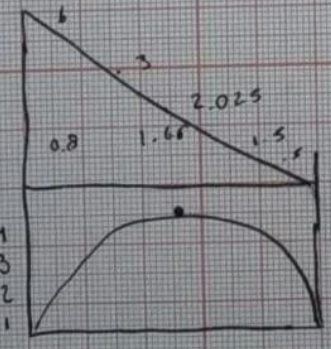
$-6\ ton(x) + [\frac{3.75\ t/m\ x^2}{2}]\ tm = 0$

$-6\ ton(x) + 1.875x^2\ m = 0$

$v = 6\ ton - [3.75\ t/m\ (x)]$

$m = 6\ ton(x) - 1.875\ t/m\ (x)^2 = 4.125x$





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

$v = 6\ t - (3.75\ t/m\ (0.8) = 3$

$v = 6\ t - (3.75\ ton\ (1.06) = 2.025$

$v = 6\ t - (3.75\ t/m\ (3.2) = -6$

x	0	0.8	1.6	2.4	3.2
v	6	3	0	-3	-6
m	0	3.6	4.8	3.6	0

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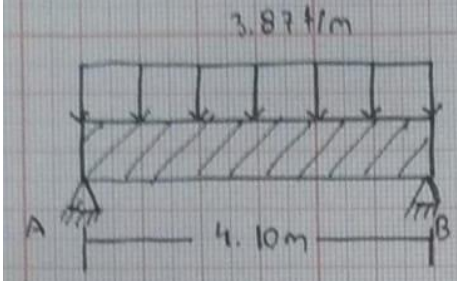


$\Sigma F_y = 0$

$12.03\ ton - [5.87\ t/m\ (x)] - V = 0$

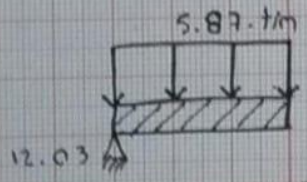
$V = 12.03\ ton - [5.87\ t/m\ (x)]$

$\Sigma m = 0$

$q(L) = 5.87\ t/m\ (4.10m) = 24.067\ ton$

$R_A = R_B$

$\frac{q(L)}{2} = \frac{24.067}{2} = 12.03\ ton$



$-12.03\ ton\ (x) + [5.87\ t/m\ (x)\ (\frac{x}{2})]\ m = 0$

$m = 12.03\ ton\ (x) - \frac{[5.87\ t/m\ (x)^2]}{2}$

$m = 12.03\ ton\ (x) - [2.935\ t/m\ (x)^2]$

X	0	1.025	2.05	3.075	4.200
V	12.03	6.013	0	-6.03	-12.03
m	0	9.247	12.325	9.247	0