Problemas

Nombre del Alumno: Yessica Hernandez Zuñiga

Nombre del tema: Momentos

Parcial: 2

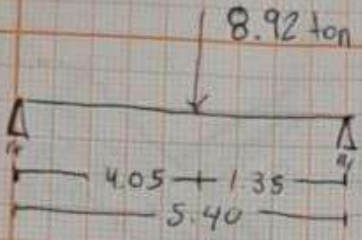
Nombre de la Materia: Resistencia de Materiales de Construcción

Nombre del profesor: Pedro Alberto Garcia Lopez

Nombre de la Licenciatura: Arquitectura

Cuatrimestre: Cuarto Cuatrimestre

Comitán de Domínguez a 14 de octubre del 2023.



$M = 9.031 \text{ ton} \cdot m$

$R_A = 2.23 \text{ ton}$

$R_A \; 6.69 \text{ ton}$

$h = 0.42 m$

$I_x = 0.001898 \; m^4$

$\theta_A = 0.01726$

$\theta_B = 0.02417$

$M = \frac{F \cdot R \cdot B}{L}$

$M = \frac{8.92 \text{ ton} \cdot 4.05 m \cdot 1.35 m}{5.40 m}$

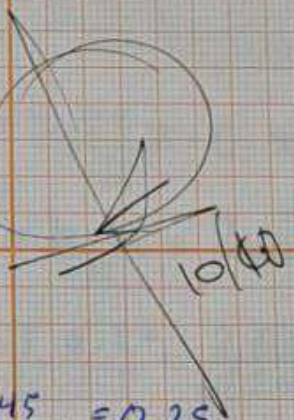
$= 2.8 \text{ ton}$

$R_A = \frac{F \cdot b}{L} =$

$\frac{8.92 \text{ ton} \cdot 1.35 m}{5.40 m} = 2.23 \text{ ton}$

$R_B = \frac{F \cdot A}{L}$

$R_B = \frac{8.92 \text{ ton} \cdot 4.05 m}{5.40 m} = 6.69 \text{ ton}$



$h = b/12 \; h = \frac{5.40}{12} = 0.45 \quad b \; h/2 = \frac{0.45}{2} = 0.25$

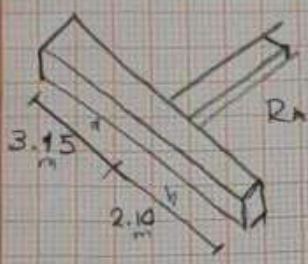
$I_x = \frac{b \cdot h^3}{12} = \frac{0.25 m \cdot (0.45)^3 m}{12} = 0.001898 m^4$

$\theta_A = \frac{F \cdot 2 \cdot h^3}{6L \cdot E \cdot I}$

$\theta_A = \frac{8.92 \text{ ton} \cdot 0.45 m \cdot 1.35 m (5.40 m + 1.35 m)}{6(5.40 m) \cdot (310{,}000 \text{ ton}/m^2)(0.001898 m^4)} = 0.01726$

$\theta_B = \frac{F \cdot 2 \cdot b (L + a)}{6L \cdot E \cdot I}$

$\theta_B = \frac{8.92 \text{ ton} \cdot 4.05 m \cdot 1.35 m (5.40 m + 4.05 m)}{6(5.40) \cdot 310{,}000 \text{ ton}/m^2 \cdot 0.001898 m^4} = 0.02417$



$R_A = R_L = 2.10 \text{ ton}$

$\frac{h}{12}$ @ 5cm

$b = h(0.5)$

$M = \frac{F \cdot a \cdot b}{L}$

$M = \frac{2.10 \text{ ton} \cdot 3.15 \text{ m} \cdot 2.10 \text{ m}}{5.25 \text{ m}} = 2.646 \text{ t-m}$

$R_A = \frac{F \cdot b}{L}$

$R_A = \frac{2.10 \text{ ton} \cdot 2.10 \text{ m}}{5.25} = 0.84 \text{ t-m}$

$R_B = \frac{F \cdot a}{L}$

$R_B = \frac{2.10 \text{ ton} \cdot 3.15 \text{ m}}{5.25 \text{ m}} = 1.26 \text{ t-m}$

$h = \frac{5.25 \text{ m}}{12} = 0.45 \text{ m}$

$I = \frac{b \cdot h^3}{12} = \frac{2.10 \text{ m} (0.45)^3 \text{ m}}{12} = 0.0015 1875$

$O_A = \frac{F \cdot a \cdot h^3}{6L \cdot E \cdot I} = \frac{2.10 \text{ m} \cdot 3.15 \text{ m} \cdot (0.45)^3}{6(5.25 \text{ m}) \cdot 310{,}000 \text{ t/m}^2 \cdot 0.001518}$

$= 0.01033$

$O_B = \frac{2.10 \text{ m} \cdot 3.15 \text{ m} \cdot 2.10 \text{ ton} (5.25 + 3.15)}{6(5.25 \text{ m}) \cdot 310{,}000 \text{ t/m}^2 \cdot 1518)}$

$= 0.01549$

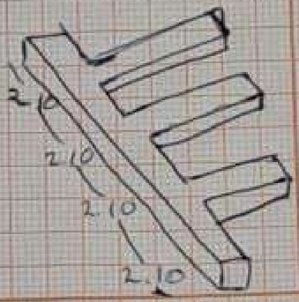
RA = AB = 0.987

Madera de Pino

E = 700 000

4" x 8"

(0.1016) (0.02032



0.987 0.987 0.987

A Δ Δ B

2.10 + 2.10 + 2.10

8.40

12|10

M = ~~3~~ $\frac{(0.987)(8.40)}{2}$ = ~~12.436~~ 4.1454 ton.m

RA = RB $\frac{3(0.987)}{2}$ ~~()~~ = 1.480 / 4.441 ?

δR δB = $\frac{5(0.987)\ 8.40^2}{32(700.000)(0.0000710)}$ = 0.6568 = 0.218833666987

Ix = $\frac{b \cdot h^2}{12}$ = $\frac{(0.1016)(0.2032)^3}{12}$ = 0.0000710