Alumno: Jarib Jahziel Hernández Toledo

Licenciatura: Arquitectura

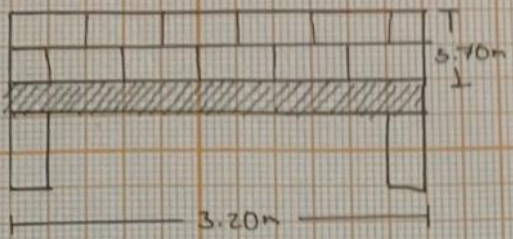
Cuatrimestre: 4

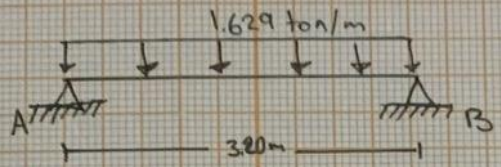
Materia: Resistencia de materiales de construcción

Profesor: García López Pedro Alberto

Actividad: Momentos

Fecha: 15/10/2023





Concreto Reforzado = 2400 kg/m³
Muro de Block = 270 kg/m E = 3 100 000 t/m²

$h = \frac{L}{12}$ $h = \frac{3.20m}{12} \rightarrow 0.266$ 0.25m

$b = 0.5(h)$ $b = 0.5(0.25) \rightarrow 0.13$ 0.15m

P.P. trabe = 0.25m x 0.15m x 2,400 kg/m³
= 90 kg/m

P.P. muro = 5.70m (270 kg/m)
= 1539 kg/m

q = 1629 kg/m → 1.629 ton/m

$M = \frac{1.629\ ton/m\ (3.20m)^2}{8}$

$M = 2.085\ ton \cdot m$

$M = \frac{qL^2}{8}$ $R_A = R_B = \frac{q \cdot L}{2}$

$\theta_A = \theta_B = \frac{qL^3}{24EI}$ $f = \frac{5}{384} \cdot \frac{qL^4}{EI}$

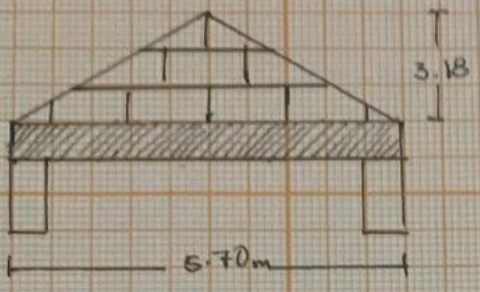
$R_A = R_B = \frac{1.629\ ton/m\ (3.20m)}{2} = 2.606\ ton$

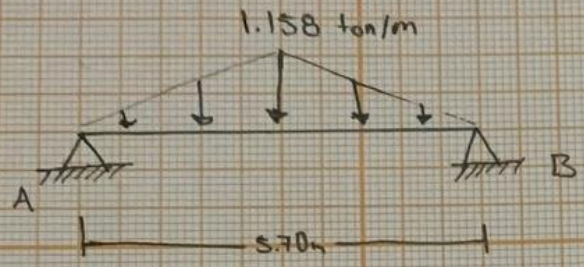
$I_x = \frac{0.15m\ (0.25m)^3}{12} = 0.000195312\ m^4$

$\theta_A = \theta_B = \frac{1.629\ ton/m\ (3.20m)^3}{24\ (0.0001953\ m^4)(3100000\ t/m^2)}$

$\theta_A = \theta_B = 0.003673$

$f = 0.013020833 \cdot \frac{1.629\ ton/m\ (3.20m)^4}{3\,100\,000\ ton/m^2 \cdot 0.0001953\ m^4} = \frac{0.003673407}{0.28213506} \rightarrow 0.00367363\ m/s$





Concreto reforzado = 2400 kg/m³ E = 3 100 000 t/m²
Muro de block = 270 kg/m

$h = \frac{L}{12}$ $h = \frac{5.70m}{12} \rightarrow 0.475$ **0.50 m**

$b = (0.5)h$ $b = (0.5)0.50m \rightarrow 0.237$ **0.25m**

P.P. trabe = (0.50m)(0.25m)(2400 kg/m³)
= 300 kg/m

P.P. muro = 3.18m (270 kg/m)
= 858.6 kg/m
↳ = 1.1586 ton/m

$M = \frac{qL^2}{12}$ $RA = RB = \frac{qL}{4}$

$M = \frac{1.158\ ton/m\ (5.70m)^2}{12} = 3.1352\ ton.m$

$\theta A = \theta B = \frac{5 \cdot q \cdot L^3}{196\ E \cdot I}$ $f = \frac{qL^4}{120\ E\ I}$

$RA = RB = \frac{1.158\ ton/m\ (5.70m)}{4} = 1.650\ ton$

$I_x = \frac{0.25m\ (0.50m)^3}{12} = 0.0026041666\ m^4$

$\theta A = \theta B = \frac{5(1.158\ ton/m)(5.70m)^3}{196\ (3100000)(0.002604\ m^4)} = 0.000677$

$f = \frac{1.158\ ton/m\ (5.70m)^4}{120\ (3100000\ t/m^2)(0.002604\ m^4)} = 0.001261\ m$