Iber Emanuel Vázquez Arguello

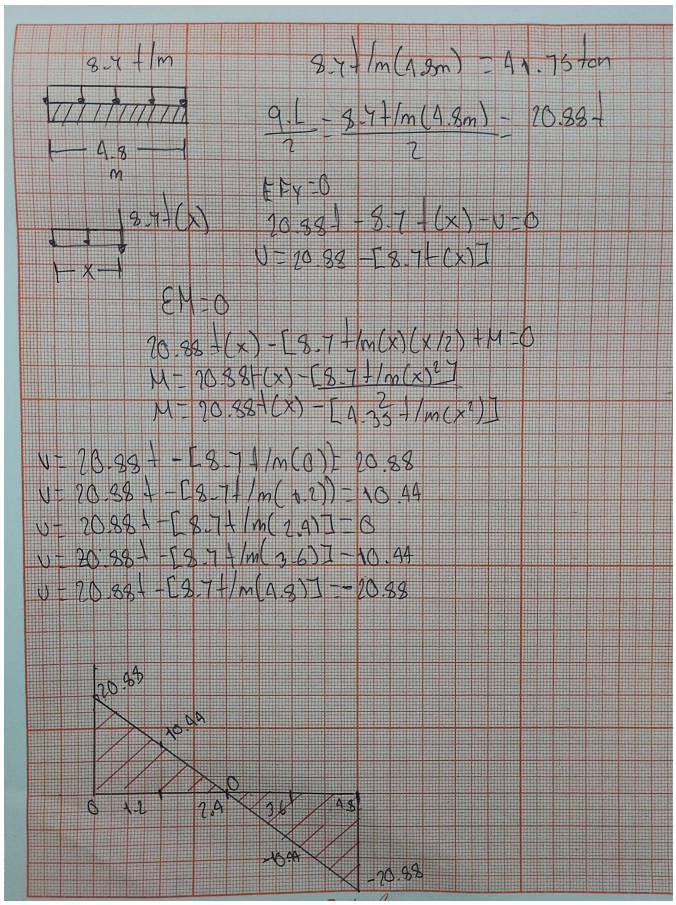
Arq. Pedro Alberto García

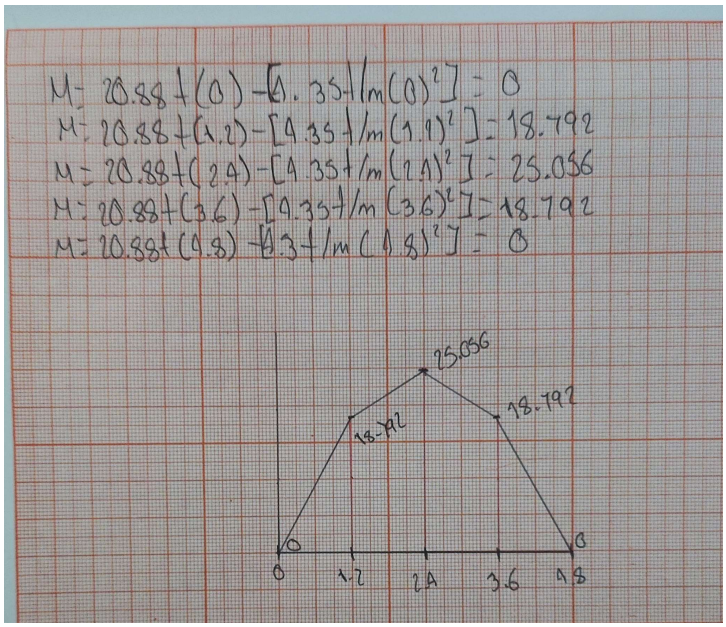
Centroides y momentos de inercia

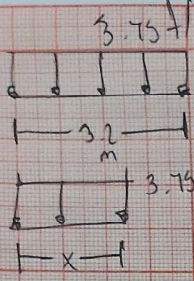
Resistencia de materiales en construcción

Cuarto Cuatrimestre

Comitán de Domínguez Chiapas a 12 de noviembre de 2023


8.7 t/m
4.8 m
8.7 t/m(4.8m) = 41.75 ton
9.L/2 = 8.7 t/m(4.8m)/2 = 20.88 t
ΣFy=0
20.88 t - 8.7 t/m(x) - V = 0
V = 20.88 - [8.7 t/m(x)]
ΣM=0
20.88 t/m(x) - [8.7 t/m(x)(x/2)] + M = 0
M = 20.88 t/m(x) - [8.7 t/m(x)²/2]
M = 20.88 t/m(x) - [4.35 t/m(x²)]
V = 20.88 t - [8.7 t/m(0)] = 20.88
V = 20.88 t - [8.7 t/m(1.2)] = 10.44
V = 20.88 t - [8.7 t/m(2.4)] = 0
V = 20.88 t - [8.7 t/m(3.6)] = -10.44
V = 20.88 t - [8.7 t/m(4.8)] = -20.88
20.88
10.44
0
1.2
2.4
3.6
4.8
-10.44
-20.88


M = 20.88 t/m(0) - [4.35 t/m(0)²] = 0
M = 20.88 t/m(1.2) - [4.35 t/m(1.2)²] = 18.792
M = 20.88 t/m(2.4) - [4.35 t/m(2.4)²] = 25.056
M = 20.88 t/m(3.6) - [4.35 t/m(3.6)²] = 18.792
M = 20.88 t/m(4.8) - [4.35 t/m(4.8)²] = 0
25.056
18.792
18.792
0
0
0
1.2
2.4
3.6
4.8



$3.75\ t/m\,(3.2\,m) = 12\ ton$

$\frac{qL}{2} = \frac{3.75\ t/m\,(3.2\,m)}{2} = 6\ ton$

$\sum F_y = 0 \quad 6\ t - 3.75\ t(x) - V = 0$

$V = 6\ t - 3.75\ t(x) = 0$

$\sum M = 0$

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

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

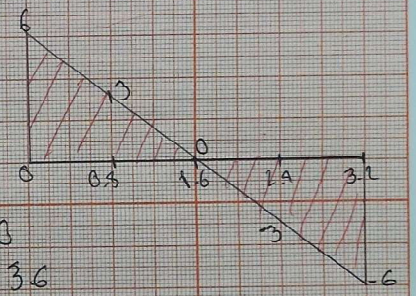
$V = 6 - [3.75\ t(0)] = 6$

$V = 6 - [3.75\ t(0.8)] = 3$

$V = 6 - [3.75\ t(1.6)] = 0$

$V = 6\ t - [3.75\ t(2.4)] = -3$

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



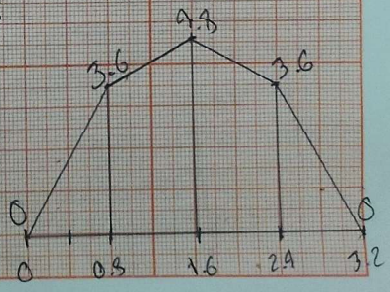
$M = 6\ t(0) - [1.875\ t/m(0)^2] = 0$

$M = 6\ t(0.8) - [1.875\ t/m(0.8)^2] = 3.6$

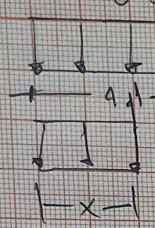
$M = 6\ t(1.6) - [1.875\ t/m(1.6)^2] = 4.8$

$M = 6\ t(2.4) - [1.875\ t/m(2.4)^2] = 3.6$

$M = 6\ t(3.2) - [1.875\ t/m(3.2)^2] = 0$



Rayter



$5.87\ t/m(4.1m) = 29.067\ t$

$\frac{9L}{2} = \frac{5.87\ t/m(4.1m)}{2} = 12.033\ t$

$\Sigma F_y = 0$

$12.033\ t - 5.87\ t(x) = V = 0$

$V = 12.033\ t - [5.87\ t(x)]$

$M = 12.033\ t(x) - [5.87\ t(x)^2]$

$M = 12.033\ t(x) - 2.935\ t(x)^2]$

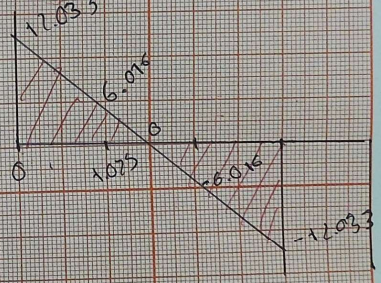
$V = 12.033\ t - [5.87\ t(0)] = 12.033$

$V = 12.033\ t - [5.87\ t(1.025)] = 6.016$

$V = 12.033\ t - [5.87\ t(2.05)] = 0$

$V = 12.033\ t - [5.87\ t(3.075)] = -6.016$

$V = 12.033\ t - [5.87\ t(4.1)] = -12.033$



$M = 12.033\ t(0) - [2.935\ t(0)^2] = 0$

$M = 12.033\ t(1.025) - [2.935\ t(1.025)^2] = 9.25$

$M = 12.033\ t(2.05) - [2.935\ t(2.05)^2] = 12.33$

$M = 12.033\ t(3.075) - [2.935\ t(3.075)^2] = 9.25$

$M = 12.033\ t(4.1) - [2.935\ t(4.1)^2] = 0$