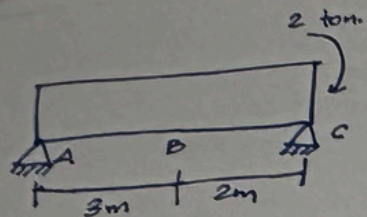
FERNANDA STEPHANIA RAMIREZ GUILLÉN

ARQUITECTURA

Cuatrimestre 5°



• DETERMINAR LA FLEXION EN EL PUNTO "B" DE LA VIGA

1. APLICAR CARGA "P".

$\sum M_o = 0$

$C_y(5m) - 2\,ton.m - P(3m) = 0$

$C_y = 2\,ton.m/5m - P(3m/5m)$

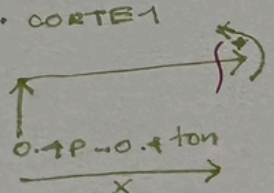
$C_y = 0.4\,ton - 0.6P$

$A_y - P + C_y = 0$

$A_y = P - (0.4\,ton - 0.6P)$

$A_y = 0.4P - 0.4\,ton$

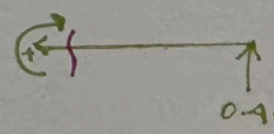
• CORTE 1



$0 \le x \le 3$

$M_1 = 0.4P(x) - 0.4\,ton(x)$

• CORTE 2



$0 \le x \le 2$

$M_2 = 0.4\,ton(x) + 0.6(P) - 2$

③ M_1

$\frac{am}{ap} = 0.4x$

$M_2 = \frac{am}{ap} = 0.6x$

FORMULA =

$$\Delta = \int_0^L \frac{(m)\left(\frac{am}{ap}\right)}{EI}\,dx = \Delta = \frac{\int_0^L (-0.4x)(0.4x)\,dx}{EI} \int_0^L \frac{(0.4x-2)(0.6x)\,dx}{EI}$$

$$\Delta = \int_0^L \frac{(-0.4x)(0.4x)}{EI}\,dx = \frac{1}{EI}\int_0^3 (-0.16)\,dx =$$

$$\frac{1}{EI}\left[-0.16\left(\frac{x^{n+1}}{n+1}\right)\right]_0^3 = \left[0.16\left(\frac{x^{2+1}}{2+1}\right)\right]_0^3 =$$

$$\frac{1}{EI}\left[\frac{-0.16x^3}{3}\right]_0^3 = \frac{1}{EI}\left(-0.0533x^3\right)_0^3 = \frac{-0.0533x^3}{EI}$$

$$\frac{0.0533x^3}{EI} = 0 \quad \frac{0.0533(0)^3}{EI} - \frac{0.0533(3)^3}{EI} = \frac{0.0533(27)}{EI}$$

$$= \frac{-1.4391}{EI}$$

$$\frac{-1.4391}{EI} + \int_0^2 \frac{(0.4x-2)(0.6x)}{EI}\,dx = \frac{1}{EI}\int_0^2 (0.24x^2 - 1.2 =$$

$$\frac{1}{EI} = \left[\left(0.24\left(\frac{x^{2+1}}{2+1}\right) - 1.2\left(\frac{x^{1+1}}{1+1}\right)\right) = \frac{1}{EI} = \left(\frac{0.24x^3}{3}\right)\right.$$

$$\left. - \left(\frac{1.2x^2}{2}\right)\right]_0^2 = \frac{1}{EI} = \frac{0.08x3}{1} - \frac{0.6x2}{1} =$$

$$\frac{0.08(2)^3}{EI} - \frac{0.08(0)^3}{EI} = \frac{0.08(8)}{EI}$$

$$= 0.64\,ton/m^3$$

$$\frac{0.6(2)^2}{EI} - \frac{0.6(0)^2}{EI} = \frac{0.6(4)}{EI} \rightarrow 1.76\,ton/m^3$$

$$= -2.4\,ton/m^3$$

$$\frac{-1.4391}{EI} + (-1.76)$$

$$= -9.1991\,ton/m^3$$