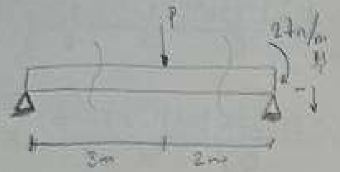


1. Aplicar Carga "P"

$\Sigma M_0 = 0$

$C_y(5m) - 2\,tn\cdot m - P(3m) = 0$

$C_y = 2\,tn\cdot m / 5m - P(3m/5m)$

$C_y = \underline{0.4\,ton - 0.6P}$

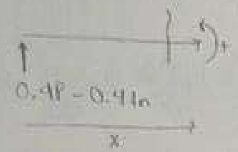
$A_y - P + C_y = 0$

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

$A_y = \underline{0.4P - 0.4\,ton}$

Corte 1

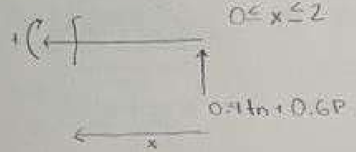
$0 \le x \le 3$



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

Corte 2

$0 \le x \le 2$



$\underline{M_2 = 0.4tn(x) + 0.6P(x) - 2}$

Determinar la deflexión en el Punto "B" de la viga.

$\frac{M_1}{1}\ \frac{am}{ap} = 0.4x$

$\frac{M_2}{2}\ \frac{am}{ap} = 0.6x$

Integral:

Formula

$$\Delta = \int_0^L \frac{(M)\left(\frac{am}{ap}\right) dx}{EI}$$

INTEGRAL

$$\Delta = \int_0^3 \frac{(-0.4x)(0.4x)\,dx}{EI} \int_0^2 \frac{(0.4x-2)(0.6x)\,dx}{EI} =$$

$$\Delta VB = \int_0^3 \frac{(-0.4x)(0.4x)\,dx}{EI} = \frac{1}{EI}\int_0^3 \frac{(-0.16x^2)}{EI}\,dx = \frac{1}{EI}\left[-0.16\frac{(x^{n+1})}{n+1}\right]\Bigg|_0^3 = \frac{1}{EI}\left[-0.16\frac{(x^{2+1})}{2+1}\right]\Bigg|_0^3 =$$

$$\frac{1}{EI}\left[\frac{-0.16x^3}{3}\right]\Bigg|_0^3 = \frac{-0.053x^3}{1}\Bigg|_0^3 = \frac{-0.053x^3}{EI}\int = \frac{-0.053(3)^3}{EI} - \frac{0.053(0)^3}{EI} =$$

$$\frac{0.053(27)}{EI} = \frac{-1.431}{EI}$$

$$\Delta VB = \int_0^2 \frac{(0.4x)(0.6x)\,dx}{EI} = \frac{1}{EI}\int_0^2 \frac{(0.24x^2)}{EI}\,dx = \frac{1}{EI}\left[0.24\frac{(x^{n+1})}{n+1}\right]\Bigg|_0^2 = \frac{1}{EI}\left[0.24\frac{(x^{2+1})}{2+1}\right]\Bigg|_0^2 = \frac{1}{EI}\left[\frac{0.24x^3}{3}\right]\Bigg|_0^2 = \frac{0.08x^3}{1}\Bigg|_0^2 = \frac{0.08x^3}{EI}\int =$$

$$\frac{0.08(2)^3}{EI} - \cancel{\frac{0.08(0)^3}{EI}} = \frac{0.08(8)}{EI} = \underline{\frac{0.64}{EI}}$$

$$\Delta VF = \int_0^2 \frac{(-2)(0.6x)}{EI}\,dx = \frac{1}{EI}\int_0^2 \frac{(-1.2x)}{EI}\,dx = \frac{1}{EI}\left[-1.2\frac{(x^{n+1})}{n+1}\right]_0^2 = \frac{1}{EI}\left[-1.2\frac{(x^{1+1})}{1+1}\right]_0^2 = \frac{1}{EI}\left[\frac{-1.2x^2}{2}\right]_0^2 = \frac{-0.6x^2}{1}\Big|_0^2$$

$$\frac{-0.4x^2}{EI}\int = \frac{-0.4(2)^2}{EI} - \frac{0.4\cancel{(0)}^2}{\cancel{EI}} = \frac{-0.8(4)}{EI} = \frac{-2.4}{EI}$$

$$-1.431 + 0.64 - 2.4 = -3.191$$