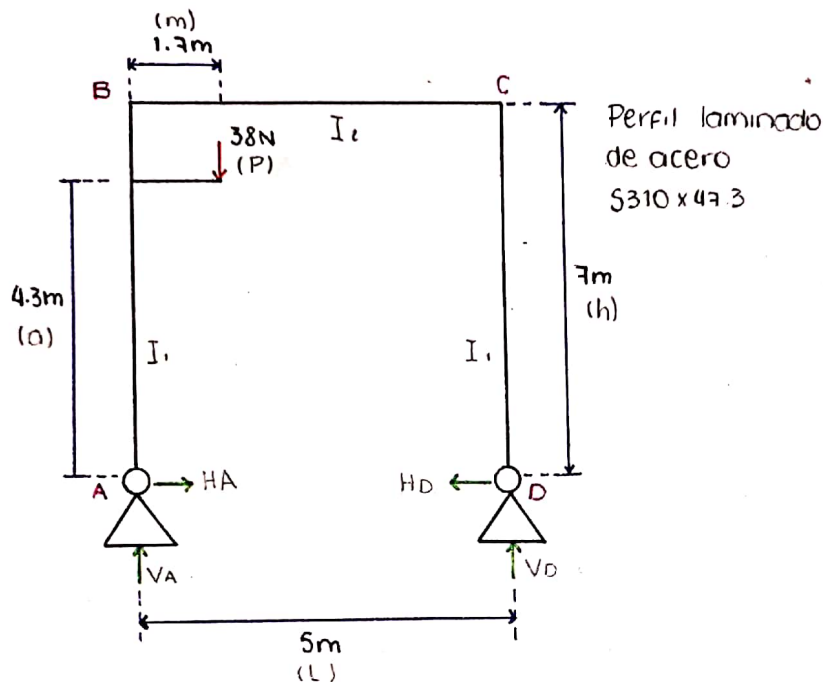


PÓRTICO ARTICULADO Y DINTEL HORIZONTAL



reacciones

$$V_A = P \frac{(L-m)}{L} \quad V_D = P \frac{m}{L}$$

$$\begin{aligned} V_A &= 38 \text{ N} \frac{(5\text{m} - 1.7\text{m})}{5\text{m}} \\ &= 38 \text{ N} \frac{(3.3)}{5} \\ &= 38 \text{ N} (0.66\text{m}) \\ &= 25.08 \text{ N/m} \end{aligned}$$

$$\begin{aligned} V_D &= 38 \text{ N} \frac{1.7\text{m}}{5\text{m}} \\ &= 38 \text{ N} (0.34\text{m}) \\ &= 12.92 \text{ N/m} \end{aligned}$$

momentos flectores

$$M_B = \frac{Pm}{2} \frac{((3a^2 - h^2)K + Nh^2)}{Nh^2}$$

$$\frac{(38)(1.7)}{2} \frac{((3(4.3)^2 - (7)^2)31.906 + 66.812(7)^2)}{66.812(7)^2}$$

$$(37.3) \frac{(55.47 - 49)(31.906 + 3273.788)}{3273.788}$$

$$(37.3) \frac{(6.47)(3305.694)}{3273.788}$$

$$(37.3) \frac{(21387.84018)}{3273.788}$$

$$(37.3)(6.533)$$

$$\underline{211.0159 \text{ KNm}}$$

$$H_A = H_D = P \frac{m}{2} \frac{(Nh^2 - (3a^2 - h^2)K)}{Nh^3}$$

$$K = \frac{I_2}{I_1} \cdot \frac{h}{L} \quad N = 3 + 2K$$

$$\frac{90.5 \times 10^6 \text{ mm}^4}{3.97 \times 10^6 \text{ mm}^4} \cdot \frac{7\text{m}}{5\text{m}} =$$

$$(22.79 \text{ mm}^4)(1.4\text{m}) =$$

$$K = 31.906$$

$$N = 3 + 63.812$$

$$N = 66.812$$

$$H = 38 \frac{1.7}{2} \frac{(66.812(7)^2 - (3(4.3)^2 - (7)^2)K)}{66.812(7)^3}$$

$$= 37.3(3273.2 - (55.47 - 49)31.906)$$

$$= 32.3(3273.2 - (6.47)31.906)$$

$$= 32.3(3273.2 - 206.43182)$$

$$66.812(7)^3$$

$$= 32.3 \frac{(3066.768)}{22916.516} = 4.32 \text{ N/m}$$

$$\begin{aligned}
 M_C &= - \frac{P_m}{2} \frac{(N h^2 - (3Q^2 - h^2)K)}{N h^2} \\
 &= - \frac{(38)(1.7)}{2} \frac{(66.812(7)^2 - (3(4.3)^2 - (7)^2) 31.906)}{66.812(7)^2} \\
 &= \frac{(37.3)(3273.788 - (55.47 - 49) 31.906)}{3273.788} \\
 &= \frac{(37.3)(3273.788 - (6.47) 31.906)}{3273.788} \\
 &= \frac{(37.3)(3273.788 - 206.43182)}{3273.788} \\
 &= \frac{(37.3)(3067.35618)}{3273.788} \\
 &= (37.3)(0.9369) \\
 &= \underline{30.2632 \text{ kNm}}
 \end{aligned}$$

$$M_{PA} = -H_A Q$$

$$\begin{aligned}
 &= -4.32(4.3) \\
 &= \underline{-18.576 \text{ kNm}}
 \end{aligned}$$

$$M_{PB} = P_m - H_A Q$$

$$\begin{aligned}
 &= (38)(1.7) - 4.32(4.3) \\
 &= 64.6 - 18.576 \\
 &= \underline{46.024 \text{ kNm}}
 \end{aligned}$$