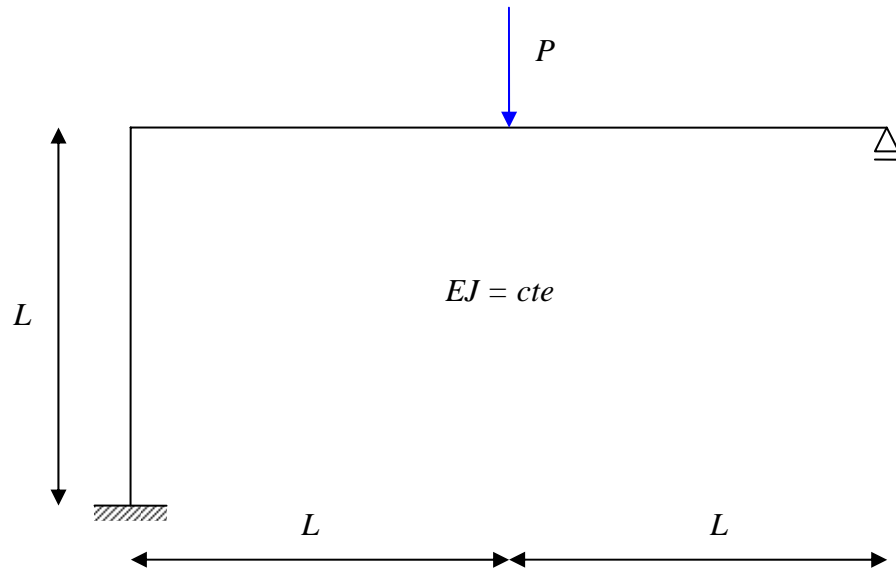


Estabilidad II B – Coloquio

19/12/06

Práctico:

Resolver:

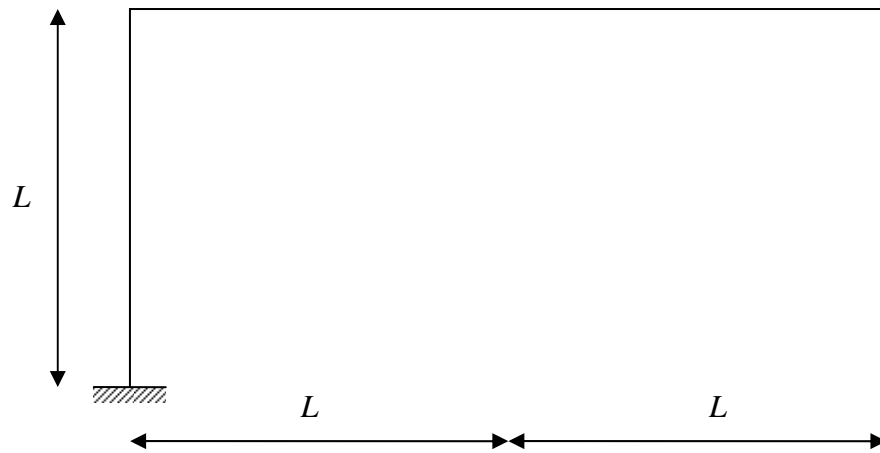


Teórico:

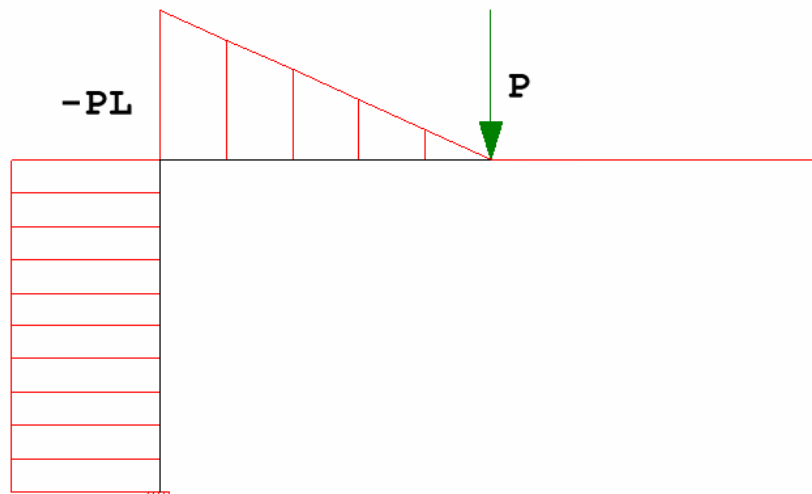
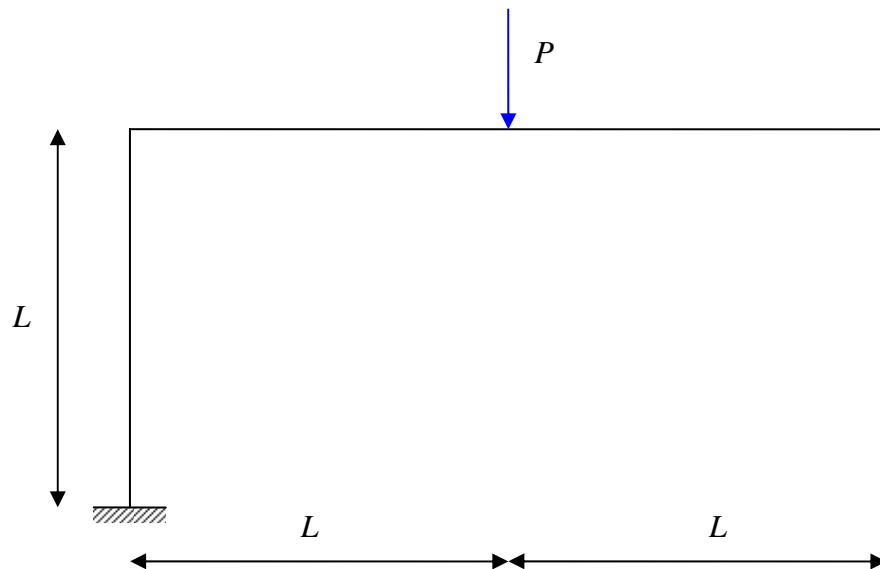
Torsión en período elástico

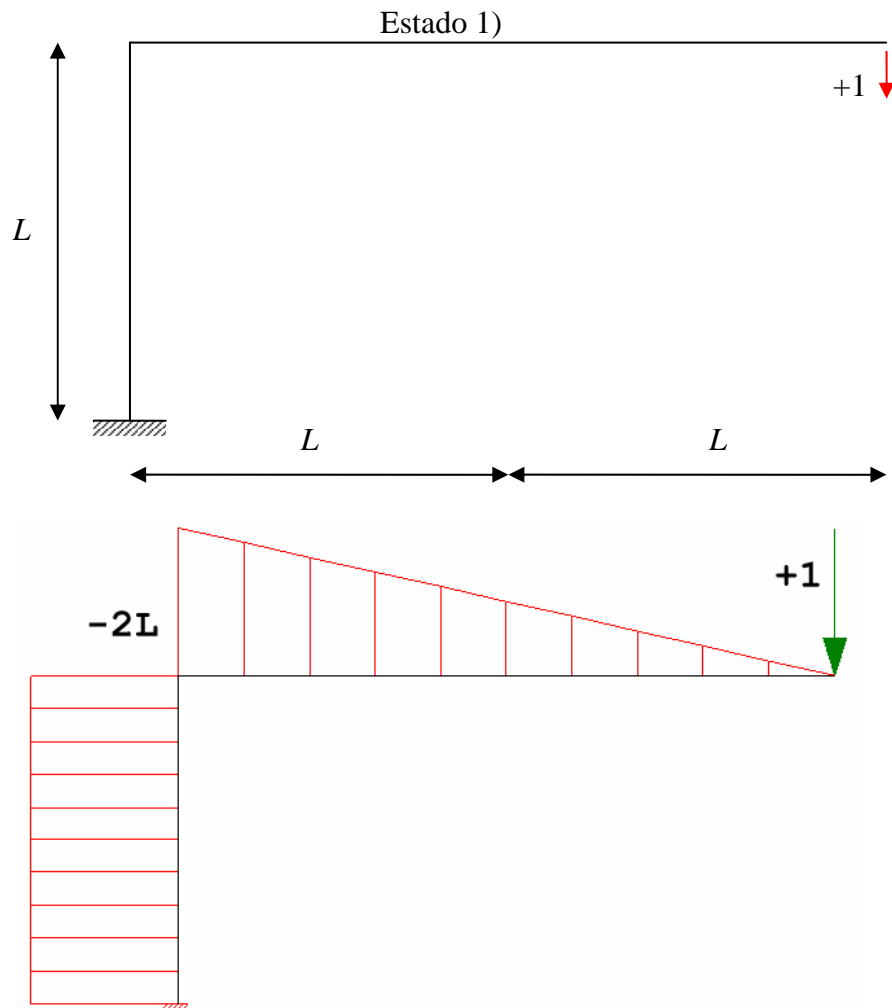
Resolución:

Sistema fundamental



Estado 0)





$$\text{Desplazamiento en 1 debido a 0: } d_{10} = \int_l \frac{M_0 \bar{M}_1}{EJ} dx = \int_{1m} \frac{(-PL)(2L)}{EJ} dx + \int_{1m} \frac{\frac{-PL}{2} \frac{-2L}{2}}{EJ} dx$$

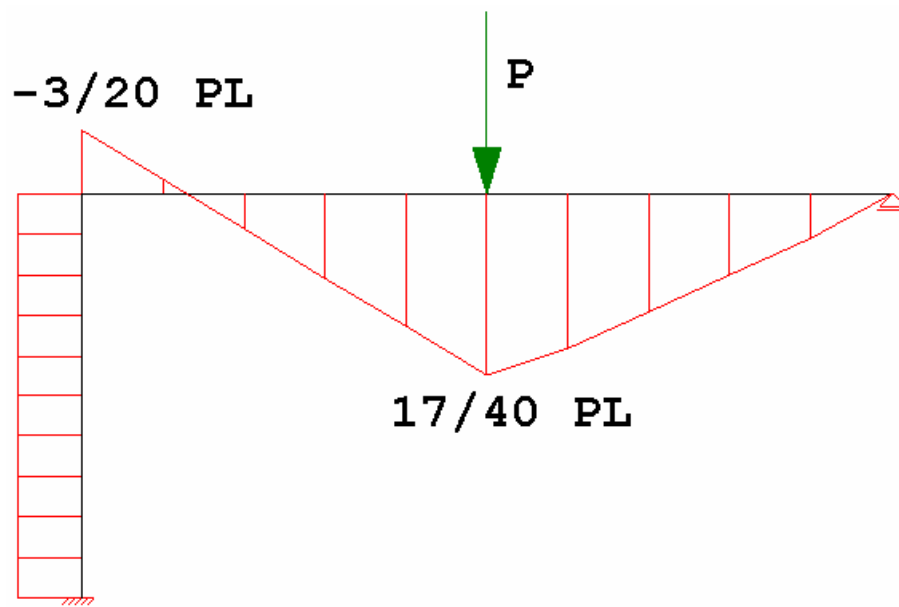
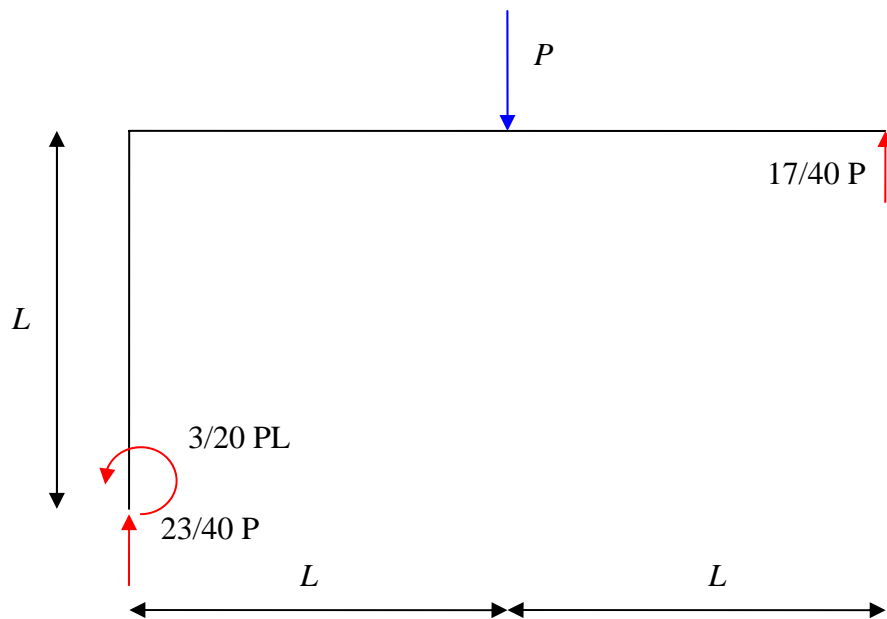
$$d_{10} = \{ 2PL^3 + 1/6 \cdot (-PL) \cdot [2(-2L) - L] \} / EJ = (2PL^3 + 5/6 PL^3) / EJ = 17/6 PL^3 / EJ$$

$$\text{Desplazamiento en 1 debido a 1: } d_{11} = \int_l \frac{M_1 \bar{M}_1}{EJ} dx = \int_{1m} \frac{(2L)^2}{EJ} dx + \int_{2m} \frac{(\frac{-2L}{2})^2}{EJ} dx$$

$$d_{11} = [4L^3 + 1/3 \cdot (-2L)^2 2L] / EJ = 20/3 L^3 / EJ$$

$$\text{Ec. Compatibilidad: } d_{10} + R \cdot d_{11} = 0$$

$$\text{Despejando la reacción de vínculo: } R = \frac{-d_{10}}{d_{11}} = \frac{-17PL^3}{6EJ} \cdot \frac{3EJ}{20L^3} \rightarrow \boxed{R = -\frac{17}{40} P}$$



Deformada:

