TEMA 3

$L := 2\ \text{m}$ $q_z := 1\ \frac{\text{kN}}{\text{m}}$ $E := 200\ \text{GPa}$ $D := 10\ \text{cm}$ $e := 0{,}5\ \text{cm}$

$$J_y := \frac{\pi}{64} \cdot \left(D^4 - (D - 2 \cdot e)^4 \right) = 168{,}8115\ \text{cm}^4$$

Para que el giro en B sea nulo el Mt =0 $M_x := q_z \cdot \frac{L^2}{2} = 2\ \text{kN m}$

Desplazamiento del punto D

$MD_{DV} := M_x = 2\ \text{kN m}$ $MD_{SE} := +1 \cdot \frac{L}{2} = 100\ \text{cm}$

$MA_{DV} := q_z \cdot L \cdot 2 \cdot L = 8\ \text{kN m}$ $MA_{SE} := +1 \cdot 2 \cdot L = 400\ \text{cm}$

$$\eta_{Dmx} := \frac{1}{2} \cdot \frac{MD_{DV} \cdot MD_{SE}}{E \cdot J_y} \cdot \frac{L}{2} = 2{,}9619\ \text{mm}$$

$$\eta_{Dqz} := \frac{1}{3} \cdot \frac{MA_{DV} \cdot MA_{SE}}{E \cdot J_y} \cdot 2 \cdot L = 126{,}3737\ \text{mm}$$

$\eta_D := \eta_{Dmx} + \eta_{Dqz} = 129{,}3356\ \text{mm}$