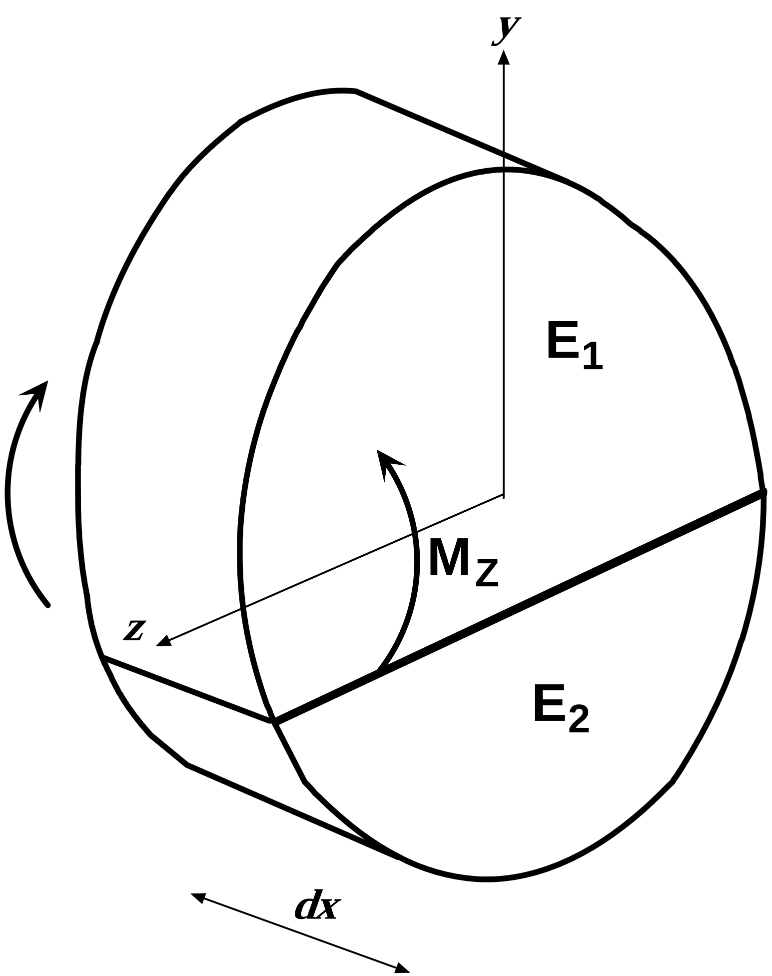
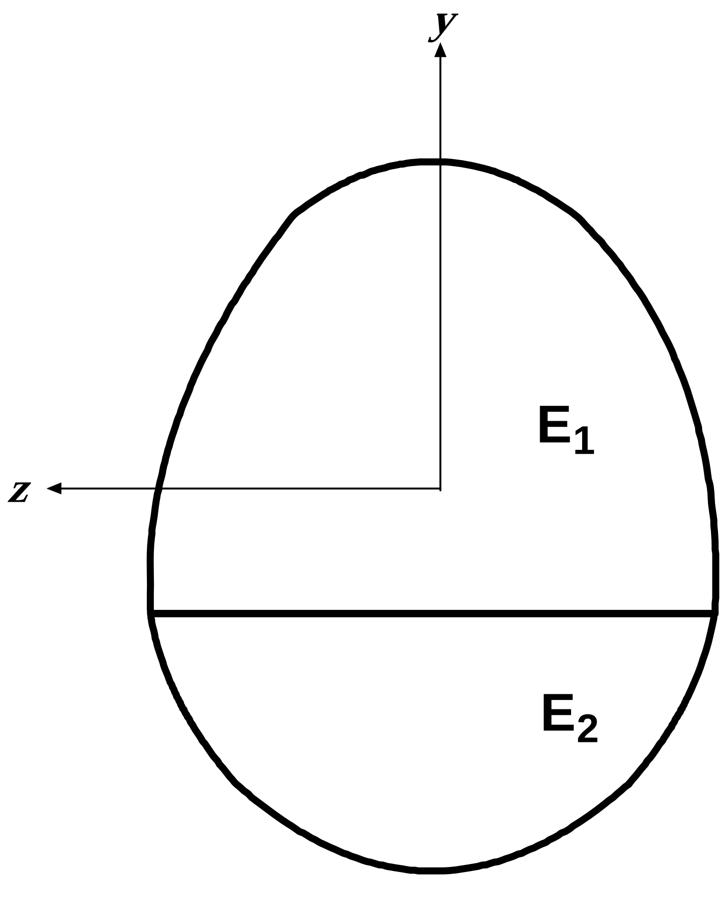
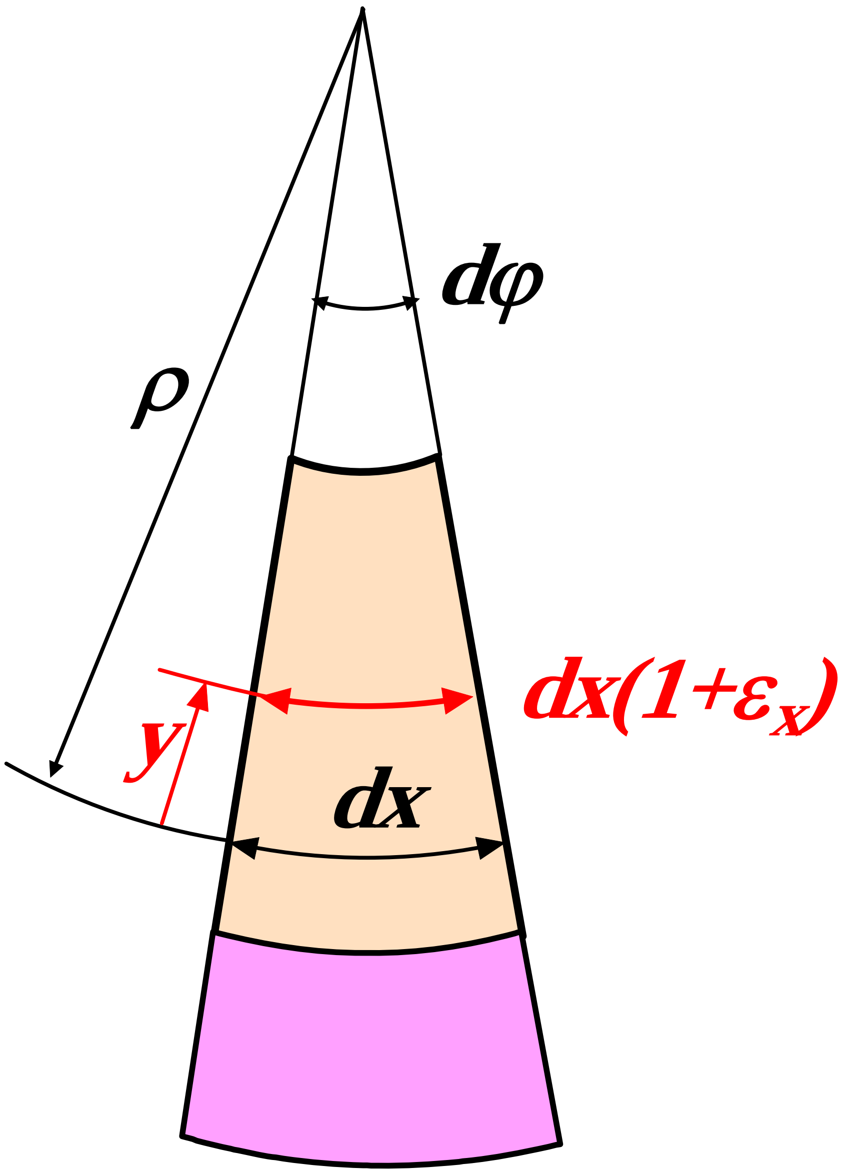
FLEXIÓN SIMÉTRICA EN SECCIONES COMPUESTAS







$$\varepsilon_x = \frac{-y}{\rho}$$

Equilibrio de fuerzas según $\boldsymbol{x}$:

$$\sum Fx = 0 \quad \rightarrow \quad \iint_A \sigma_x dA = 0 \quad \rightarrow$$

Posición de $\boldsymbol{z}$:

$$n = \frac{E_1}{E_2} \quad \rightarrow$$

$$y'_z = \frac{\iint_{A_1} y' dA + n \iint_{A_2} y' dA}{A_1 + nA_2}$$

Equilibrio de pares según ***z***:

$$\sum M_{(Z)} = M_z \quad \rightarrow \quad \iint_{A_1} -\sigma_{x1} \cdot y \cdot dA + \iint_{A_2} -\sigma_{x2} \cdot y \cdot dA = M_z$$

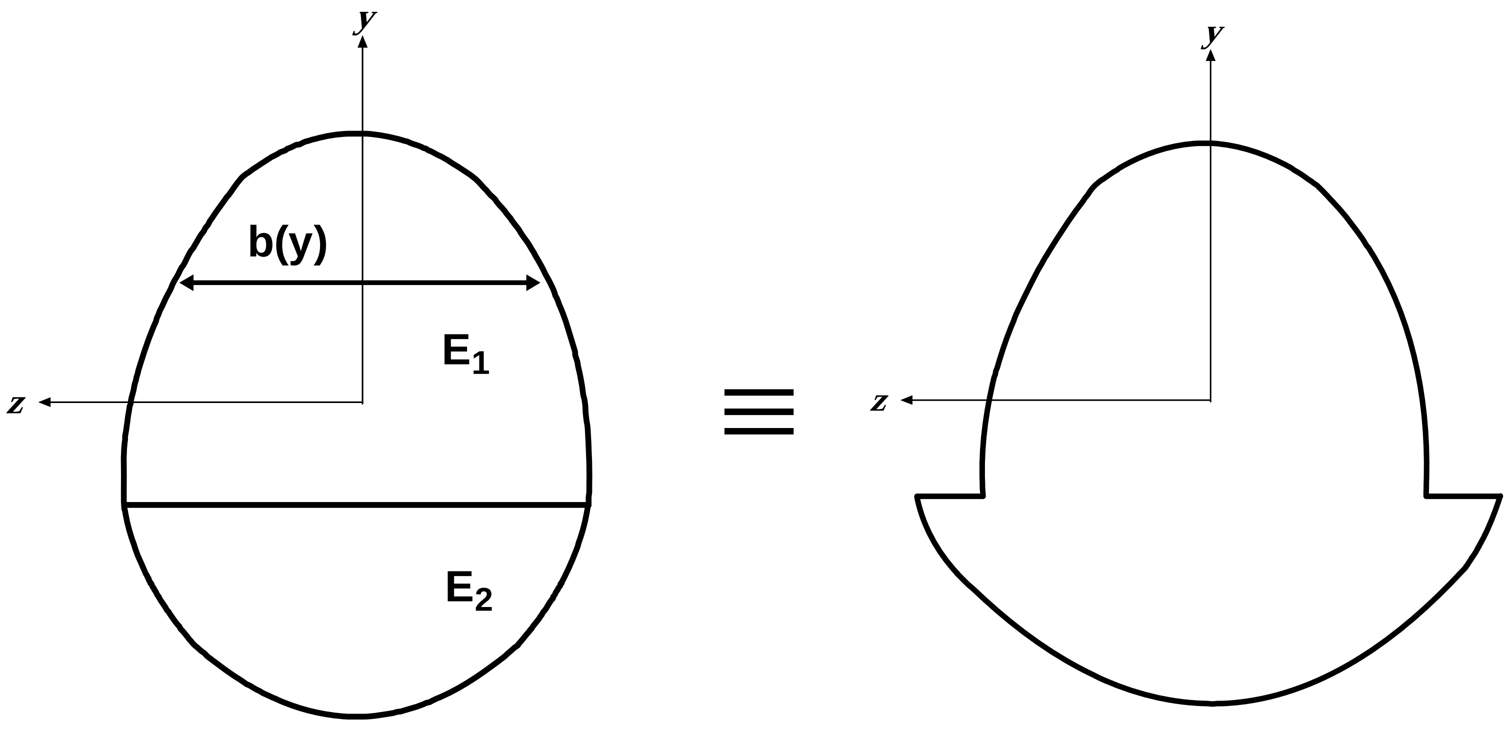
$$\frac{E_1}{\rho} \iint_{A_1} y^2 dA + \frac{E_2}{\rho} \iint_{A_2} y^2 dA = M_z$$

$$\frac{1}{\rho} = \frac{M_z}{\qquad\qquad\qquad\qquad} \qquad\qquad \frac{1}{\rho} = \frac{M_z}{I_{Z1} + n \cdot I_{Z2}}$$

Interpretación práctica: Sección transformada

$$\iint_{A_1} y\,dA + n\iint_{A_2} y\,dA = 0 \quad \equiv$$

$$I_{Z1} + n\cdot I_{Z2} = \quad \equiv \iint_{A_1} y^2 dA + \iint_{A_2} y^2 d(nA)$$



$\sigma_{x1} =$

$\sigma_{x2} =$