Esercizio 3.10

$$A = \pi \frac{l^2}{4} - \pi \frac{\alpha^2 l^2}{4} = \pi \frac{l^2}{4}(1-\alpha^2)$$

$$W_{xx} = W_{yy} = \frac{\pi}{32} l^3 (1-\alpha^4)$$

$$W_p = \frac{\pi}{16} l^3 (1-\alpha^4)$$

- N alla sezione incastrata

$$N = 0 \rightarrow \sigma_{NA} = \emptyset \text{ e } \sigma_{NB} = \emptyset$$

- M_f alla sezione incastrata

$$M_{f(A)yy} = \emptyset \rightarrow \sigma_{f(A)} = \emptyset$$

$$M_{f(B)xx} = 2 \cdot F \cdot \lambda l \rightarrow \sigma_{f(B)} = -\frac{2 \cdot F \cdot \lambda l}{W_{yy}}$$ (negativo perché compressivo)

- T alla sezione incastrata

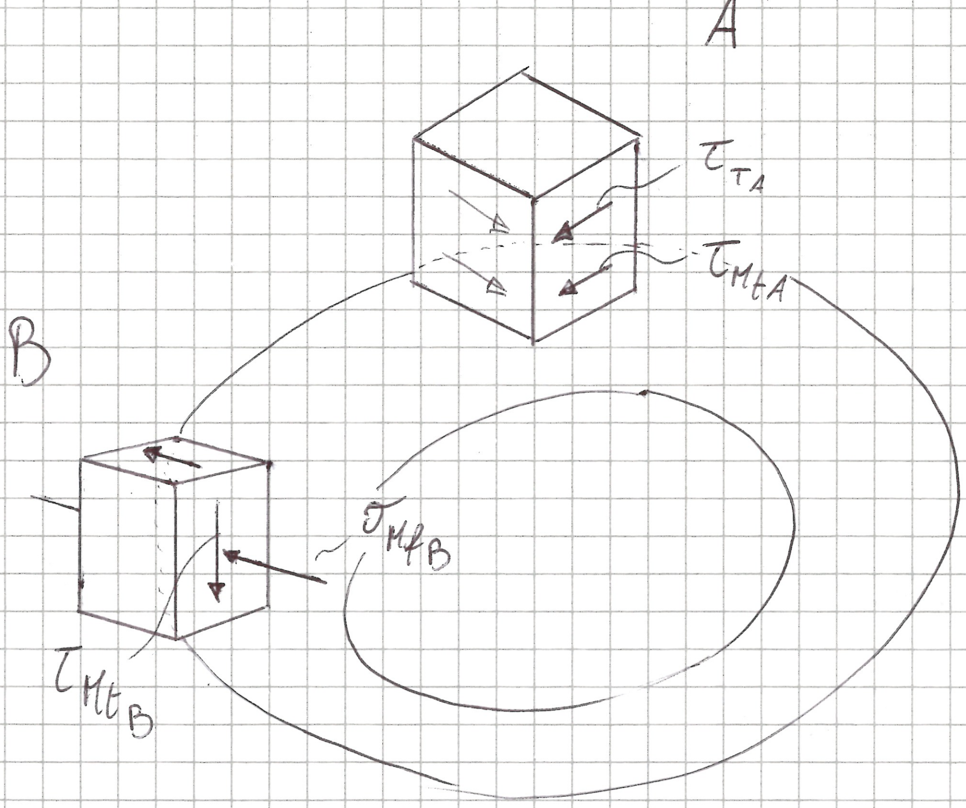
$$T = 2F$$

$$\tau_{TB} = \emptyset \quad ; \quad \tau_{TA} = \overbrace{\frac{2F}{A} \cdot \frac{4}{3} \cdot \left(1 + \frac{1}{\frac{1}{\alpha} + \alpha}\right)}^{\text{Jourawsky}}$$

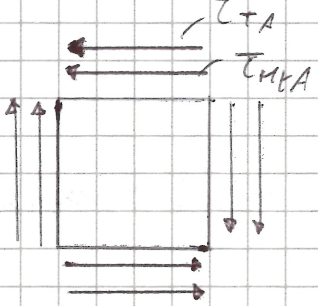
- M_t alla sezione incastrata

$$M_t = F \cdot \beta l$$

$$\tau_{M_tA} = \tau_{M_tB} = \frac{F \cdot \beta l}{W_p}$$

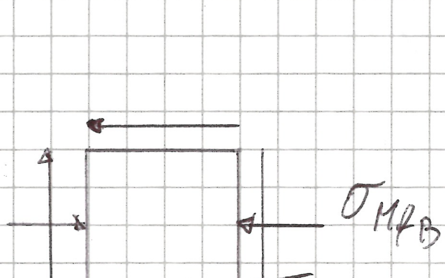


A)



$$\sigma_{1,2} = \frac{0+0}{2} \pm \sqrt{\left(\frac{0-0}{2}\right)^2 + \left(\tau_{TA} + \tau_{MtA}\right)^2}$$

B)



$$\sigma_{1-2} = \frac{\sigma_{Mf_B}+0}{2} \pm \sqrt{\frac{\sigma_{Mf_B}-0}{2} + \left(\tau_{Mt_B}\right)^2}$$

che ha valore negativo
perché compressivo