

### Esercizio 3.13.

Calcolo le quantità legate alla sezione.

$$W_{xx} = W_{yy} = \frac{\tilde{\Pi}}{32} \cdot l^3 \cdot [1 - \alpha^4]$$

$$W_P = \frac{\tilde{\Pi}}{16} l^3 \cdot (1 - \alpha^4)$$

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

Calcolo  $N$  e le variazioni  $\sigma_N$ .

$$N = \alpha F$$

$$\sigma_{N_A} = \sigma_{N_B} = \sigma_{N_C} = \frac{\alpha F}{A}$$

Calcolo  $M_{f_{xx}}$ ,  $M_{f_{yy}}$  e le variazioni  $\sigma_f$ .

$$|M_{f_{xx}}| = F \cdot \lambda l$$

$$|M_{f_{yy}}| = \alpha F \cdot l$$

$$\sigma_{f_A} = - \frac{F \cdot \lambda l}{W_{xx}}$$

$$\sigma_{f_B} = - \frac{\alpha F \cdot l}{W_{yy}}$$

$$\sigma_{f_C} = + \frac{F \cdot \lambda l}{W_{xx}}$$

Calcolo  $T$  e le varie  $\tau_T$ .

$$|T| = |F|$$

$$|\tau_{TA}| = |\tau_{TC}| = 0$$

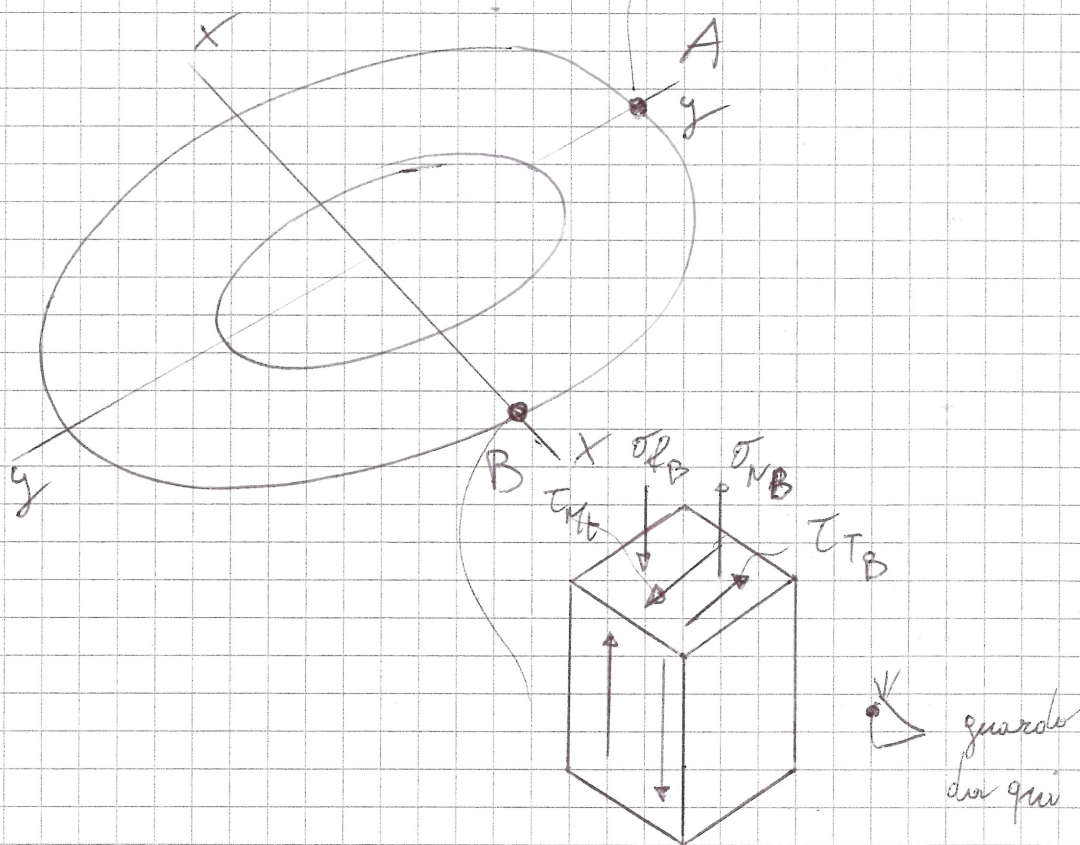
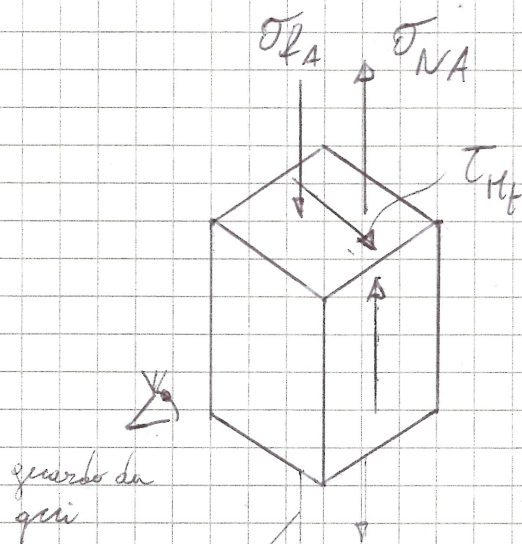
$$|\tau_{TB}| = \frac{F}{A} \cdot \frac{4}{3} \cdot \left(1 + \frac{1}{d + \frac{1}{d}}\right)$$

Calcolo  $M_f$  e le varie  $\tau_{Mf}$ .

$$|M_f| = F \cdot l$$

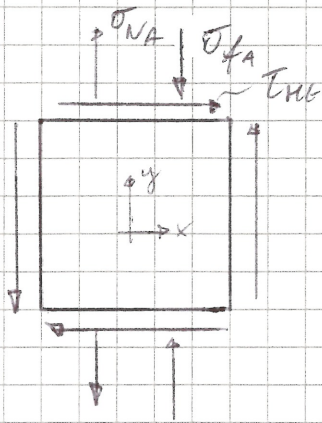
$$|\tau_{MfA}| = |\tau_{MfB}| = |\tau_{Mfc}| = \frac{F \cdot l}{W_p}$$

Disegnare i cubetti elementari:





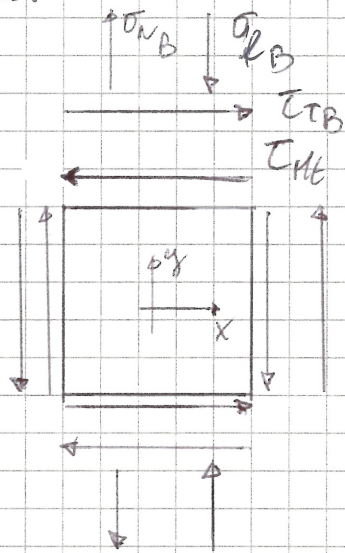
• A



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

ha segno < 0!

• B



$$\sigma_{1-2B} = \frac{(\sigma_{TB} + \sigma_{NB}) + 0}{2} \pm \sqrt{\left(\frac{(\sigma_{TB} + \sigma_{NB}) - 0}{2}\right)^2 + (\tau_{TB} \ominus \tau_{TB})^2}$$

ha segno < 0.

così hanno  
segno discorde