

Esercizio 3.16.

Calcolo le quantità legate alla sezione:

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

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

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

Calcolo N e σ_N :

$$N = 0$$

$$\sigma_{N,A} = \sigma_{N,B} = \sigma_{N,C} = \frac{N}{A} = 0$$

Calcolo M e σ_M :

$$M_{f,xx} = |F \cdot \lambda l - \alpha F \cdot (\lambda l - \beta l)|$$

$$M_{f,yy} = 0$$

$$\sigma_{f,A} = - \frac{F \cdot \lambda l - \alpha F \cdot (\lambda l - \beta l)}{W_{xx}} ; \sigma_{f,B} = 0 ; \sigma_{f,C} = + \frac{F \cdot \lambda l - \alpha F \cdot (\lambda l - \beta l)}{W_{xx}}$$

Calcolo T e τ_T .

$$T = |F - \alpha F|$$

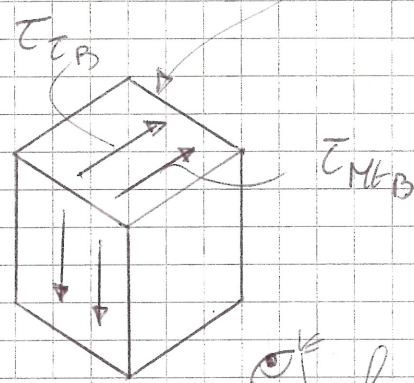
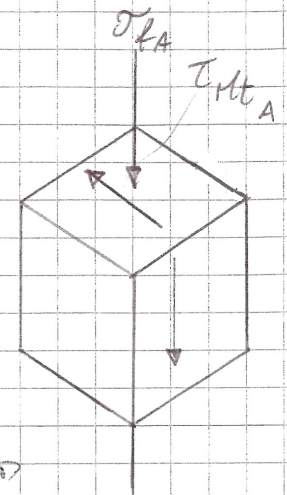
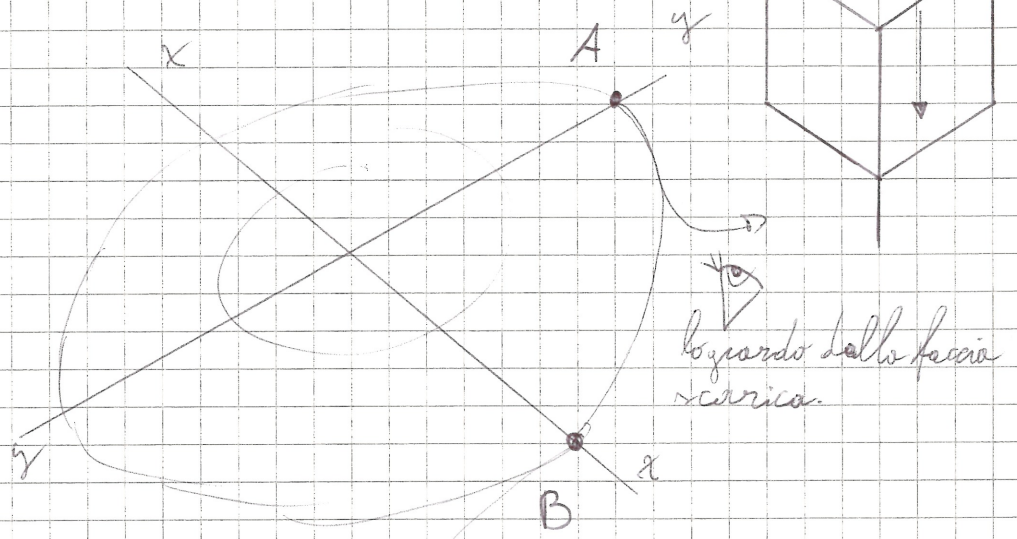
$$\tau_{T,A} = 0 ; \tau_{T,B} = \frac{F - \alpha F}{A} \cdot \frac{4}{3} \cdot \left(1 + \frac{1}{\alpha + \frac{1}{\alpha}}\right) ; \tau_{T,C} = 0$$

Calcolo M_t e τ_{M_t} .

$$M_t = \alpha F \cdot l$$

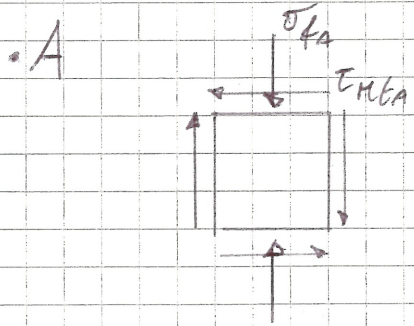
$$\tau_{M_t,A} = \tau_{M_t,B} = \tau_{M_t,C} = \frac{\alpha F \cdot l}{W_p}$$

Rappresenta i cubetti elementari nei punti A e B.

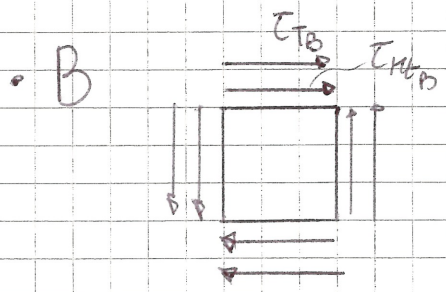


lo sguardo dalla faccia scarica

Rappresenta i cubetti in 2D guardandoli da una faccia già orientata rispetto alla sua direzione principale.



$$\sigma_{1-2,A} = \frac{\sigma_{fA}}{2} \pm \sqrt{\left(\frac{\sigma_{fA}}{2}\right)^2 + (\tau_{Mt,A})^2}$$



$$\sigma_{1-2,B} = \pm \sqrt{(\tau_{Mt,B} + \tau_{T,B})^2}$$