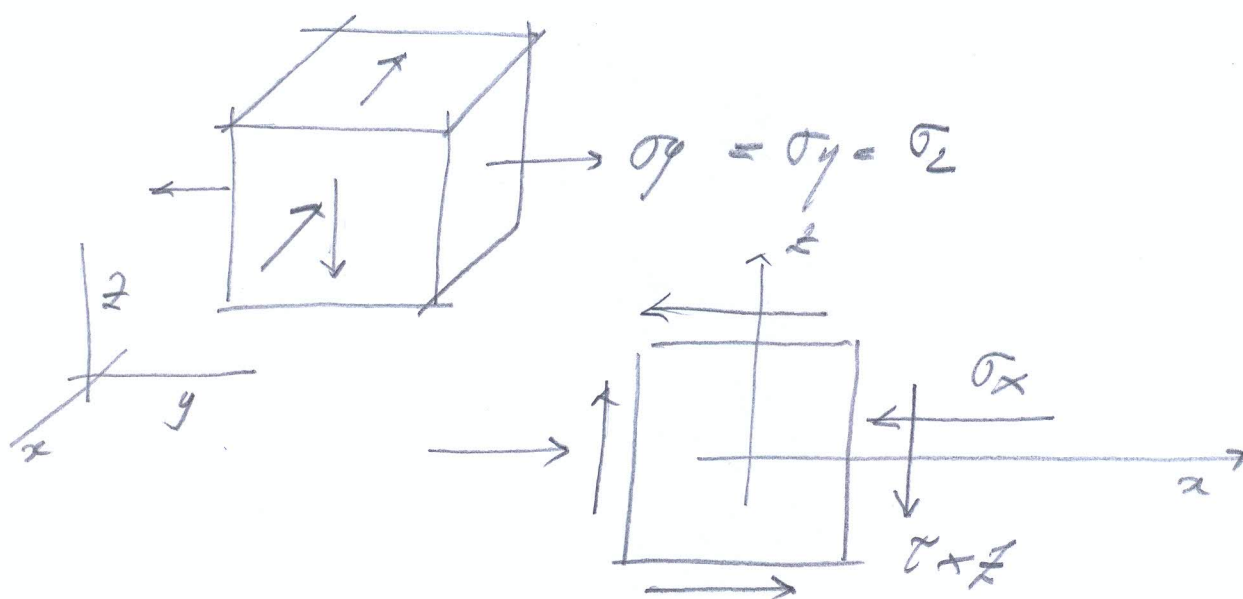


Data $[\sigma]_p = \begin{bmatrix} -1500 & 0 & -800 \\ 0 & 500 & 0 \\ -800 & 0 & -200 \end{bmatrix}_p \text{ kg/cm}^2$

detta matrice tensione calcoliamo le tensioni principali
 nello stato di tensione $\xi = 1, \eta = 2, \zeta = 3$

$$\sigma_{\xi} = \sigma_1, \sigma_{\eta} = \sigma_2, \sigma_{\zeta} = \sigma_3$$



A.2)

$$[\sigma_p] = \begin{bmatrix} -1500 & 0 & -800 \\ 0 & 500 & 0 \\ -800 & 0 & -2000 \end{bmatrix} \text{ kg/cm}^2$$

(2)

$$\sigma_y = 500 = \sigma_{\eta}$$

$\Rightarrow$ déterminer les valeurs de σ_{ξ} , σ_{η}

$$\Rightarrow \begin{bmatrix} -1500 & -800 \\ -800 & -2000 \end{bmatrix} \Rightarrow \begin{bmatrix} -1500 - \sigma & -800 \\ -800 & -2000 - \sigma \end{bmatrix} \begin{bmatrix} n_x \\ n_z \end{bmatrix} = \begin{bmatrix} 0 \\ 0 \end{bmatrix}$$

$$(-1500 - \sigma)(-2000 - \sigma) - 800^2 =$$

$$= 1500 \cdot 2000 + \sigma \cdot 1500 + \sigma \cdot 2000 + \sigma^2 - 800^2 =$$

$$= 2360000 + 3500\sigma + \sigma^2 = 0$$

$$\sigma_{\xi, \eta} = \frac{-3500 \pm \sqrt{3500^2 - 4 \cdot 2360000}}{2} = \begin{matrix} -912 \\ -2588 \end{matrix}$$

$$\sigma_x > \sigma_z \rightarrow \sigma_{\xi} > \sigma_{\eta}$$

$$\sigma_{\xi} = -912 \text{ kg/cm}^2 \quad \sigma_{\eta} = -2588 \text{ kg/cm}^2$$

$$(-1500 + 912)n_x^{\xi} - 800n_z^{\xi} = 0$$

$$-588n_x^{\xi} - 800n_z^{\xi} = 0$$

$$n_z^{\xi} / n_x^{\xi} = -\frac{588}{800} = -0,735 = \tan \varphi$$

$$\varphi = \arctan(-0,735) = -36,21^\circ$$

