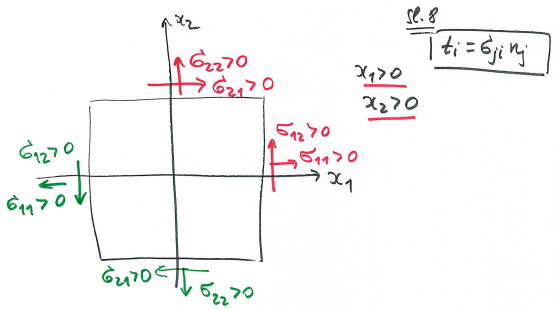
$$\sigma_{allow} \leq \frac{\sigma_{ultimate}}{n}$$

$$\boldsymbol{\sigma}' = \boldsymbol{A} \cdot \boldsymbol{\sigma} \cdot \boldsymbol{A}^{\mathbf{T}}, a_{ij} = \cos(x'_i, x_j)$$



$$\varepsilon_{ij} = \frac{1}{2}\left(\frac{\partial u_i}{\partial x_j} + \frac{\partial u_j}{\partial x_i}\right)$$

$$\begin{cases} \varepsilon_{11} = \dfrac{1}{E}\sigma_{11} - \dfrac{\nu}{E}\sigma_{22} - \dfrac{\nu}{E}\sigma_{33} \\ \varepsilon_{22} = -\dfrac{\nu}{E}\sigma_{11} + \dfrac{1}{E}\sigma_{22} - \dfrac{\nu}{E}\sigma_{33} \\ \varepsilon_{33} = -\dfrac{\nu}{E}\sigma_{11} - \dfrac{\nu}{E}\sigma_{22} + \dfrac{1}{E}\sigma_{33} \\ \varepsilon_{12} = \dfrac{1+\nu}{E}\sigma_{12},\ \varepsilon_{23} = \dfrac{1+\nu}{E}\sigma_{23},\ \varepsilon_{13} = \dfrac{1+\nu}{E}\sigma_{13} \end{cases}$$

$$G = \frac{E}{2(1+\upsilon)}$$

$$\delta = \sum_i \frac{P_i\ L_i}{A_i E_i}$$

$$\varphi = \sum_i \frac{T_i\ L_i}{J_i G_i}$$

$$J = \frac{1}{2}\pi c^4$$

$$\varepsilon_{xx} = -\frac{y}{\rho}$$

$$\sigma_{xx} = -\frac{M_z y}{I_z}$$

$$\sigma_{xx} = (\sigma_{xx})_{centric} + (\sigma_{xx})_{bending}$$

$$\sigma_{xx} = -\frac{M_z y}{I_z} + \frac{M_y z}{I_y}$$

$$I_z = \frac{1}{12} b h^3$$

$$q = \frac{VQ_z}{I_z}, \qquad \tau_{ave} = \frac{VQ_z}{I_z t}$$

$$-\tau_{xy\,max} = \frac{3}{2}\frac{V}{A}$$

$$M(x) = EI\frac{d^2y}{dx^2}$$

$$\det(\boldsymbol{\sigma} - \boldsymbol{I}\tilde{\sigma}) = 0$$

$$C_I = \frac{\sigma_{II} + \sigma_{III}}{2}, \qquad R_I = \frac{\sigma_{II} - \sigma_{III}}{2}$$