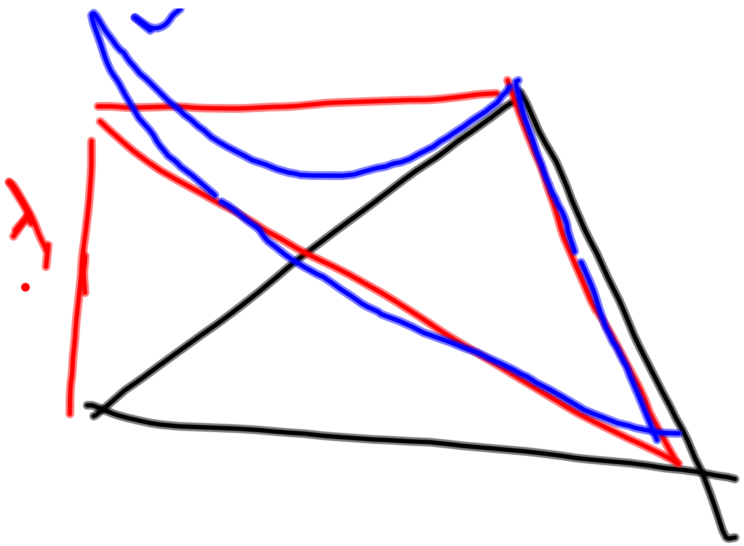


$$\operatorname{div} \underline{\underline{\sigma}} = \sigma_{ij,j} = \frac{\partial \sigma_{ij}}{\partial x_j}$$

$$\left[H_0^1(\Omega)\right]^3 = \underbrace{H_0^1(\Omega)}_{X} \times \underbrace{H_0^1(\Omega)}_{Y} \times \underbrace{H_0^1(\Omega)}_{Z}$$

$$\underline{u} = \begin{pmatrix} u_x \\ u_y \\ u_z \end{pmatrix}$$

$$\sigma_{ij} = \frac{1}{2}\left(\sigma_{ij} + \sigma_{ji}\right)$$

$$\sigma_{ij}\, v_{i,j} = \frac{1}{2}\left(\sigma_{ij}\, v_{i,j} + \underbrace{\sigma_{ij}\, v_{i,j}}_{\sigma_{ji}\, v_{j,i}}\right)$$

$$a_k b_k = \sum_{k=1,3} a_k b_k$$

$$\sigma_{ij} v_{i,j} = \sum_{i=1,3} \sum_{j=1,3} \sigma_{ij} v_{i,j}$$

$$= \sum_{m=1,3} \sum_{n=1,3} \sigma_{mn} v_{m,n}$$

$$= \sum_{j=1,3} \sum_{i=1,3} \sigma_{ji} v_{j,i}$$

$$\int_\Gamma \sigma_{ij} n_j v_i \, d\Gamma = \int_{\Gamma_t} \smile + \cancel{\int_{\Gamma_u} \smile}$$

$$v_i\Big|_{\Gamma_u} = 0$$

$$\sigma_{ij} n_j\Big|_{\Gamma_t} = t_i$$

$$\delta_{ij}\,\varepsilon_{ij} = \delta_{ij}\,\frac{1}{2}\left(u_{i,j} + u_{j,i}\right)$$

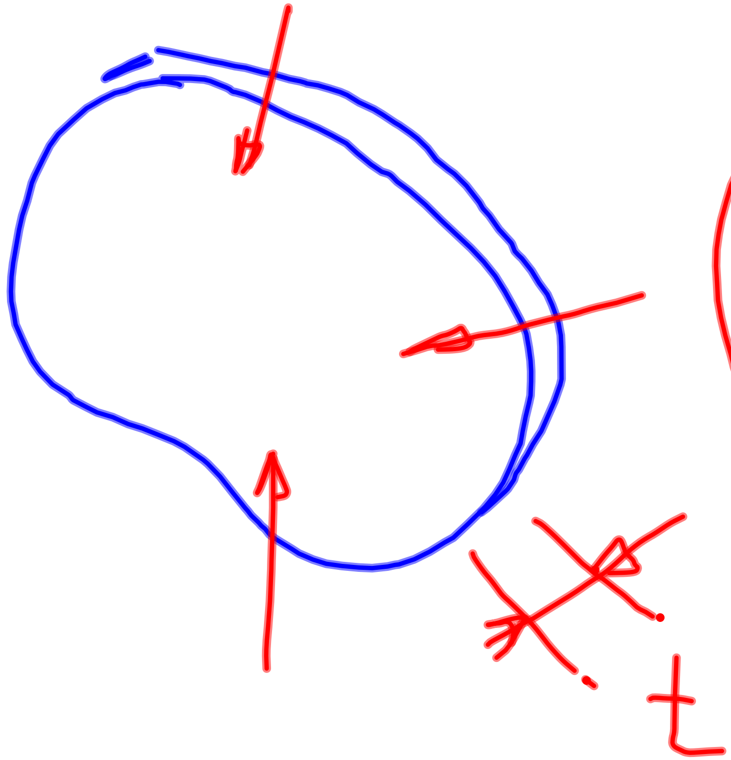
$$= \frac{1}{2}\left(u_{i,i} + u_{i,i}\right) = \underbrace{u_{i,i}}_{\operatorname{div} \underline{u}}$$

$$\underline{\underline{\varepsilon}} = \begin{bmatrix} \varepsilon_{xx} & \varepsilon_{xy} \\ \varepsilon_{yx} & \varepsilon_{yy} \end{bmatrix} \iff$$

$$\underline{\varepsilon} = \begin{Bmatrix} \varepsilon_{xx} \\ \varepsilon_{yy} \\ 2\varepsilon_{xy} \end{Bmatrix}$$

$$\sigma_{ij} \quad , \quad \varepsilon_{kl}$$

$$\underset{O(2)}{\sigma_{ij}} = \underset{O(4)}{C_{ijkl}}\ \underset{O(2)}{\varepsilon_{kl}}$$



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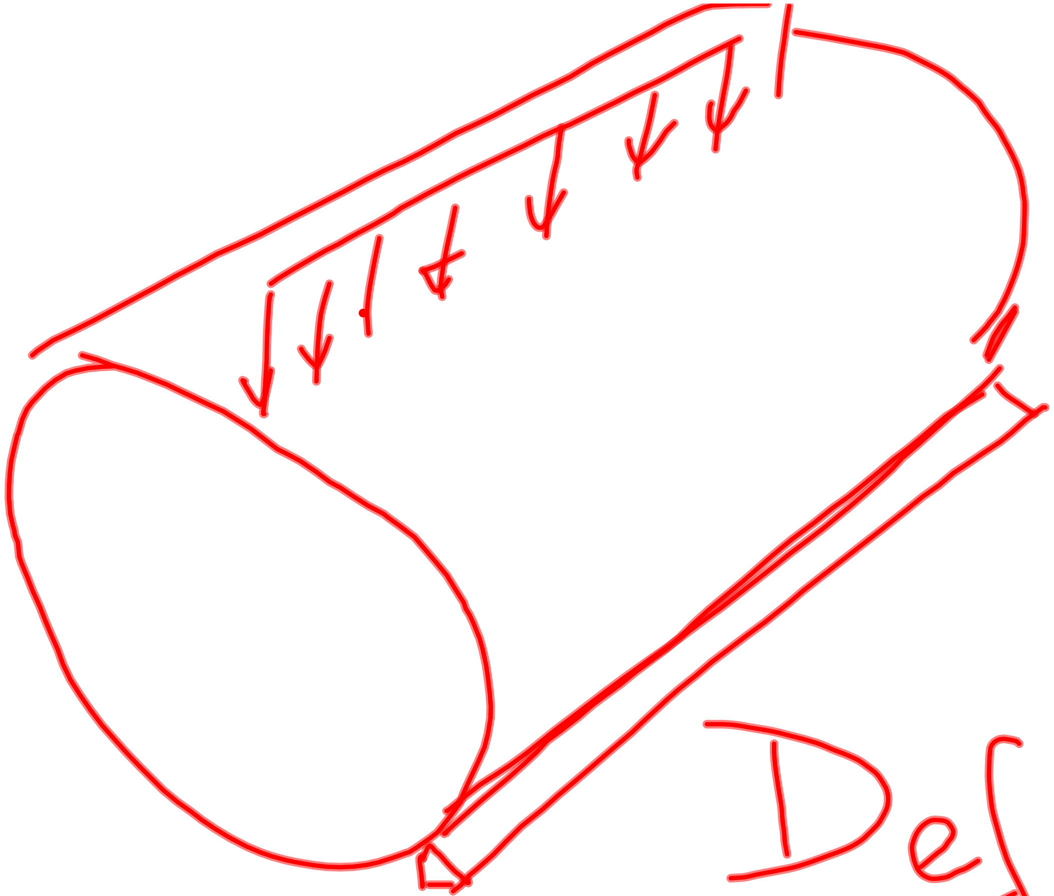

Deform

[illegible]

$D =$

$$\sigma_{ij,j} + f_i = 0 \qquad -p\,\delta_{ij}$$

$$\sigma_{ij} = 2\mu \tfrac{1}{2}\left(u_{i,j} + u_{j,i}\right)$$

$$\sigma_{ij,j} = \mu\left(u_{i,jj} + \underbrace{u_{j,ji}}_{0}\right)$$

$$u_{j,j} = 0 \qquad -p_{,j}\,\delta_{ij}$$

$$\sigma_{ij,j} = \mu \underbrace{u_{i,jj}}_{\Delta u_i} - \underbrace{p_{,j}\,\delta_{ij}}_{p_{,i}}$$

$$v = \begin{pmatrix} \partial\psi / \partial x_2 \\ -\partial\psi / \partial x_1 \end{pmatrix} = \operatorname{rot} \psi$$

$$\operatorname{div} \underline{v} = \frac{\partial}{\partial x_1}\left(\frac{\partial\psi}{\partial x_2}\right) + \frac{\partial}{\partial x_2}\left(-\frac{\partial\psi}{\partial x_1}\right)$$

$$= 0$$