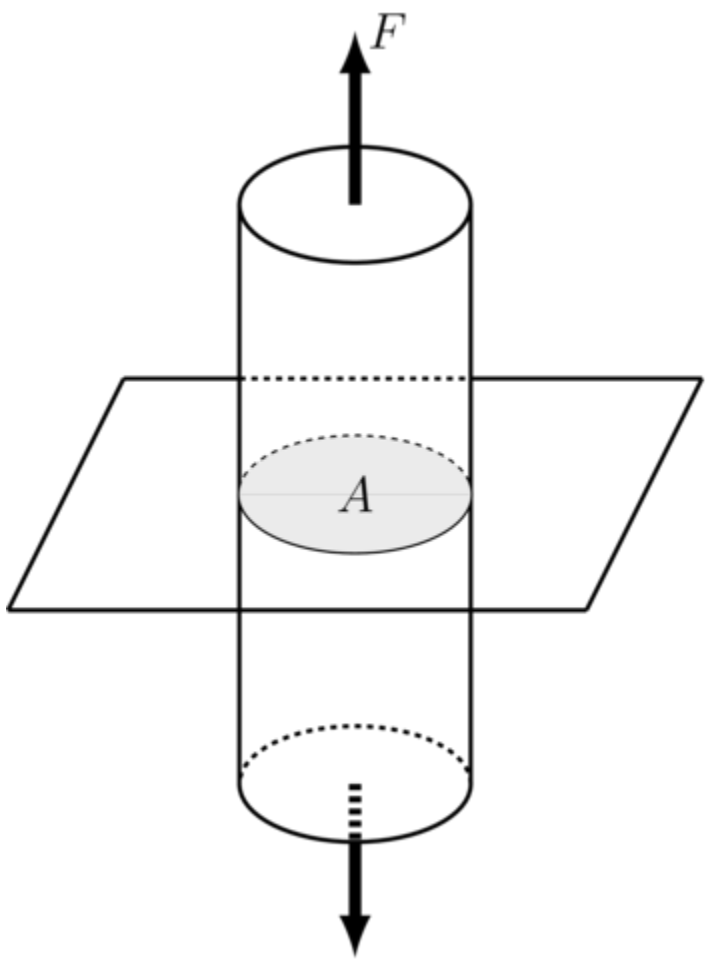
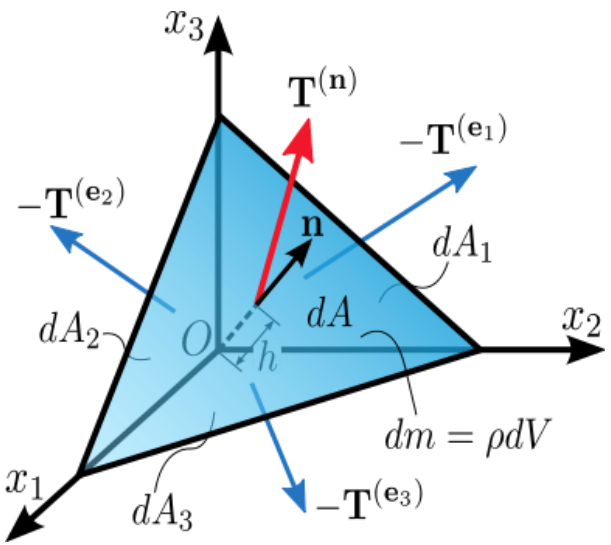
Stress



$$\sigma = \frac{F}{A}$$

Cauchy tetrahedron



"Cauchy tetrahedron" by Sanpaz - Own work.
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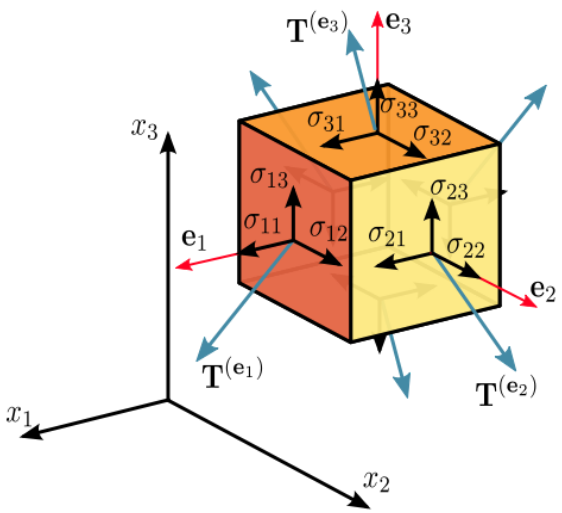
Stress tensor

$$\sigma = \begin{bmatrix} \sigma_{11} & \sigma_{12} & \sigma_{13} \\ \sigma_{21} & \sigma_{22} & \sigma_{23} \\ \sigma_{31} & \sigma_{32} & \sigma_{33} \end{bmatrix}$$

Visual definition



"Components stress tensor cartesian" by Sanpaz - Own work.
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- First subscripted index refers to the index of the unit vector that is normal to the face.
- Second subscripted index refers to the component of traction vector.