Mechanics of materials: a course of study regarding the description & prediction of conditions of elastic bodies under the action of balanced force system.

Stress: force per unit area

Normal stress: stress \( \perp \) to the surface, \( \sigma \) (\( \text{sign} \))
Shearing stress: stress // to the surface, \( \tau \) (\( \tan \))

\[
\sigma = \frac{F}{A}
\]

\[
\tau = \frac{P \sin \theta}{A}
\]

Skills in statics needed in solving problems in MoM.

\[\sigma_{G} = ? \quad d_{cg} = 0.75 \, \text{in}. \quad \frac{F_{AB}}{B} \rightarrow \frac{F_{BC}}{F_{BF}} \]

\[+ \sum F_y = 0 : \quad - \frac{3}{5} F_{BF} = 0 \quad \therefore F_{BF} = 0\]

\[+ \sum M_c = 0 : \quad 3 F_{BC} - 4(3600) = 0 \quad \therefore F_{BC} = 0\]

\[\frac{4}{5} F_{CG} - F_{BC} = 0 \quad \therefore F_{CG} = 0\]

\[\sigma_{CG} = \frac{F_{CG}}{A_{CG}} = \frac{0}{\pi \left(\frac{0.75}{2}\right)^2} = 0\]

\[\sigma_{CG} = 0 \, \text{lb/\text{in}^2} \]