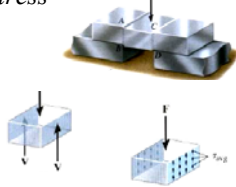


Stress

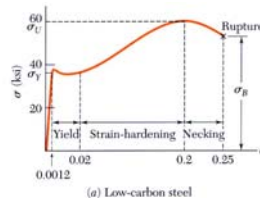
Normal Stress



Shear Stress



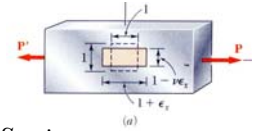
Material Properties



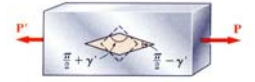
E – Modulus of Elasticity
 ν – Poisson's ratio

Strain

Normal Strain

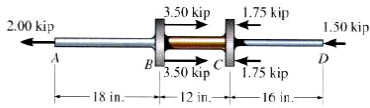


Shear Strain

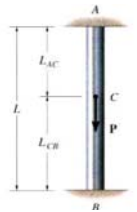


Axial Load

Determinate



Indeterminate

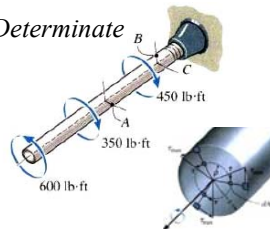


$$\sigma = \frac{P}{A}$$

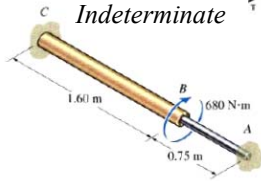
$$\delta = \frac{PL}{AE}$$

Torsion

Determinate



Indeterminate

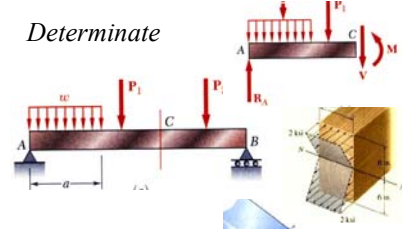


$$\tau = \frac{Tr}{J}$$

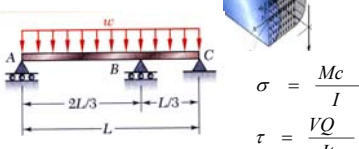
$$\phi = \frac{TL}{JG}$$

Bending

Determinate



Indeterminate

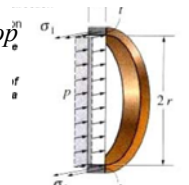


$$\sigma = \frac{Mc}{I}$$

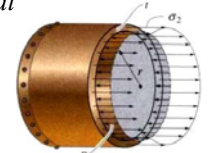
$$\tau = \frac{VQ}{It}$$

Pressure

Hoop



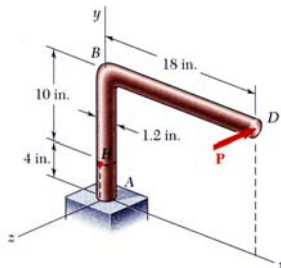
Axial



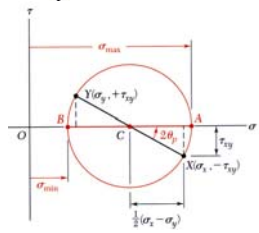
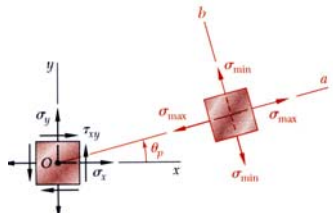
$$\sigma_1 = \frac{pr}{t}$$

$$\sigma_2 = \frac{pr}{2t}$$

Combined Loading

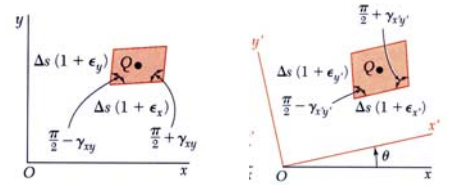


STRESS TRANSFORMATION



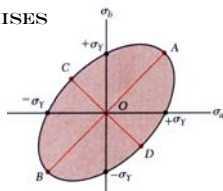
MOHR'S CIRCLE

STRAIN TRANSFORMATION

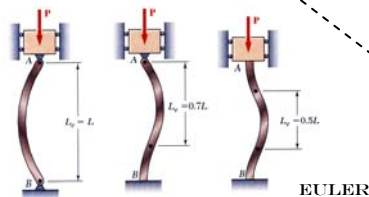


Failure Theories

VON MISES



Buckling



EULER

Strain Gages

