

Tutorial : 1

- ① Determine the normal and shear stresses at a point on the plane: $2x + 3y + \sqrt{3}z = 0$, The state of stress at a point w.r.t xyz co-ordinate system is given by

$$\sigma = \begin{bmatrix} 2 & -1 & 1 \\ -1 & 0 & 1 \\ 1 & 1 & 2 \end{bmatrix} \text{ MPa}$$

- ② The state of stress at a point w.r.t $x-y-z$ co-ordinate system is given by

$$[\sigma] = \begin{bmatrix} 4 & -4 & 0 \\ -4 & 0 & 0 \\ 0 & 0 & 3 \end{bmatrix} \text{ mPa}$$

Determine the principal stresses at the point and find the principal plane for the maximum principal stress.

- ③ Prove Normal To Plane of maximum shear stress makes 45° with max principal stress axes.