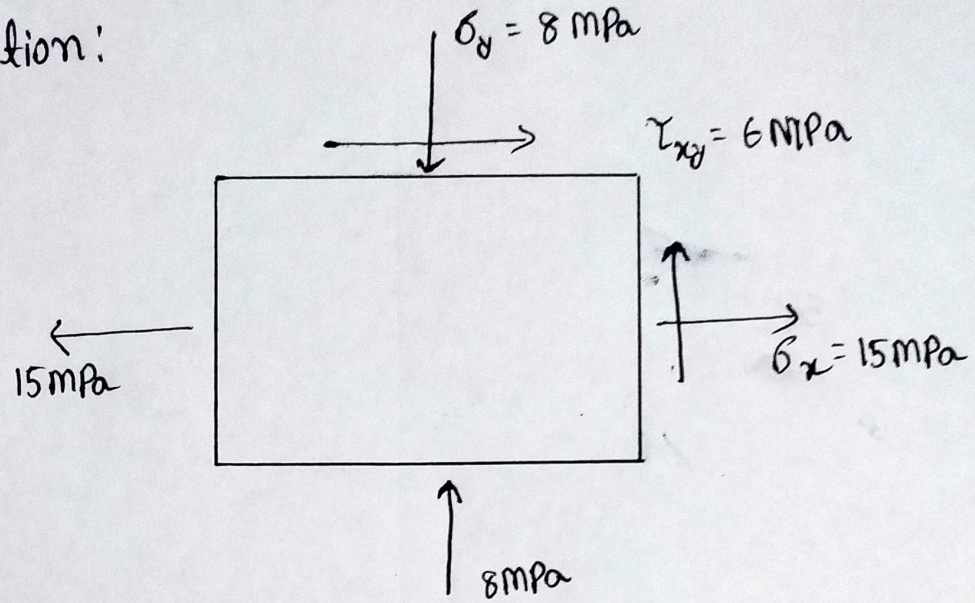
Aznaf Taohid Akib
202330044

Solution:



Using the plotted graph,

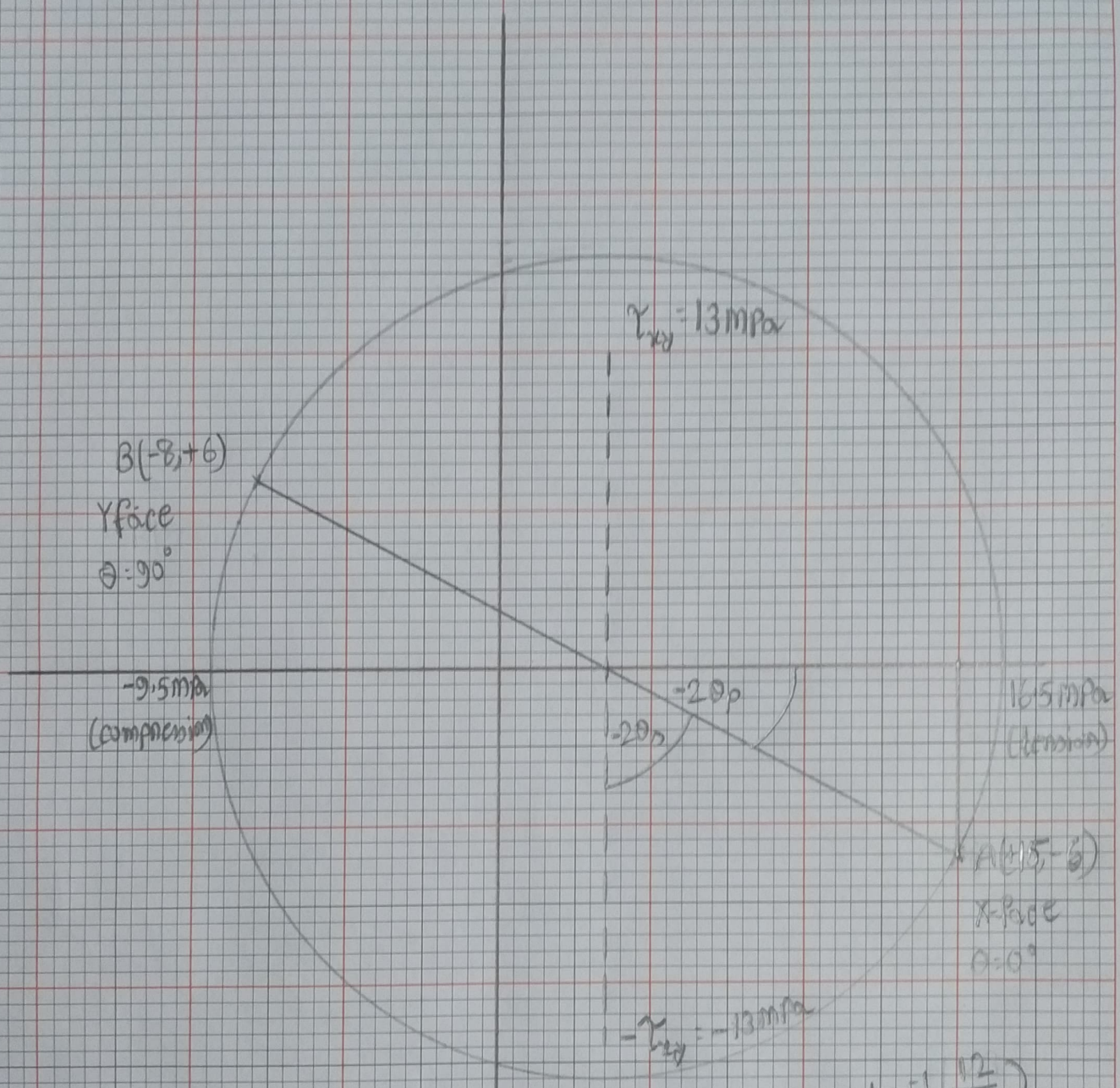
1) Principal stresses, σ_1 = ~~+~~16.5 MPa and

σ_2 = -9.5 MPa

2) Orientation of principal plane, θ_p = -13.78° ~~and~~

~~θ_p = -13.23° + 31.23°~~

3) Maximum shear stress, τ_{max} = 13 MPa



$$-2\theta_p = \tan^{-1}\left(\frac{12}{23}\right)$$

$$= 27.55^\circ$$

$$\theta_p = -13.78^\circ$$

$$-2\theta_s = 90^\circ - 27.55^\circ$$

$$= 62.45^\circ$$

$$\theta_s = -31.23^\circ$$