ME 323: Mechanics of Materials ***Homework Set H27***

Summer 2024 ***Assigned/Due: July 18/July 22***

The Mohr's circle for a state of stress is presented above.

a) Determine the values for σ_x, σ_y and τ_{xy} for this stress state.

b) What counterclockwise in-plane rotation of the stress element produces the principal stress σ_{P1}?

c) What counterclockwise in-plane rotation of the stress element produces the principal stress σ_{P2}?

d) What is the smallest counterclockwise in-plane rotation of the stress element produces $|\tau|_{max,in-plane}$?

e) Determine the *absolute* maximum shear stress.