Consider the three states of stress given below in a), b) and c). For each state of stress, do the following:

- Draw the in-plane *Mohr's circle*.
- Determine the two principal components of stress.
- Locate the *x-axis* on the in-plane Mohr's circle.
- Determine the rotation angle for the stress element that produces the principal stress of σ_{P1}.
- Determine the maximum *in-plane* shear stress.

a) $(\sigma_x, \sigma_y, \tau_{xy})$ = (-7, -13, -4) MPa

b) $(\sigma_x, \sigma_y, \tau_{xy})$ = (15, -15, 20) MPa

c) $(\sigma_x, \sigma_y, \tau_{xy})$ = (88, 40, 32) MPa