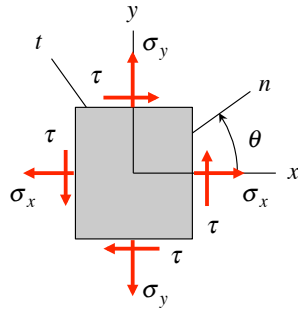


## Stress transformations and Mohr's circle (for a state of plane stress)



- What is a stress element?
- Why are we interested in stress transformations?
- There are the *three important parameters* that we need to represent a state of stress (and, therefore needed to draw Mohr's circle) – what are they?
- Where is the center of Mohr's circle? What is the radius of Mohr's circle? Where is the x-axis?
- Why do we choose the “positive” direction of  $\tau$  as downward?
- Why does a rotation of  $\theta$  in the physical world correspond to a rotation of  $2\theta$  in Mohr's circle?
- What are principal stresses? How are these related to the two parameters mentioned in c) above?
- What are the maximum in-plane shear stress and the absolute maximum shear stress? How are these found from Mohr's circle?
- How can we use Mohr's circle to find the rotations of the stress element that correspond to the principal components of stress and the maximum in-plane shear stress?
- Consider the three special states of stress on page 13:20 of the lecture book. Do these makes sense to you? We will return to these again later on in the course.