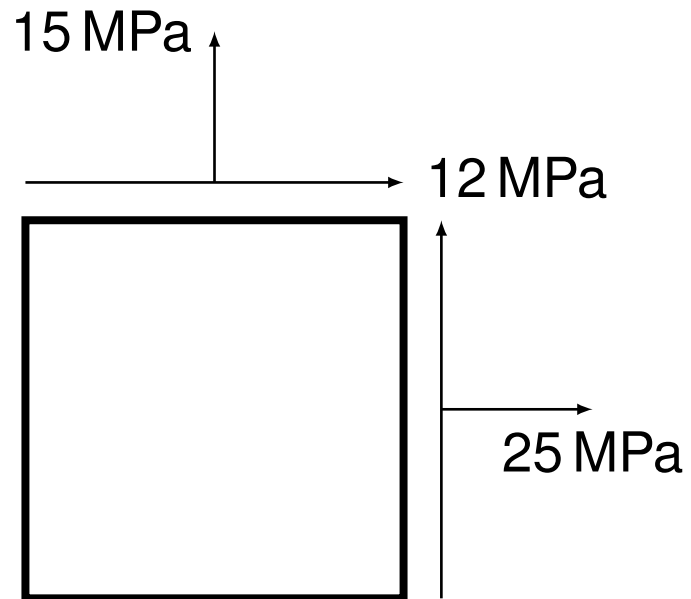
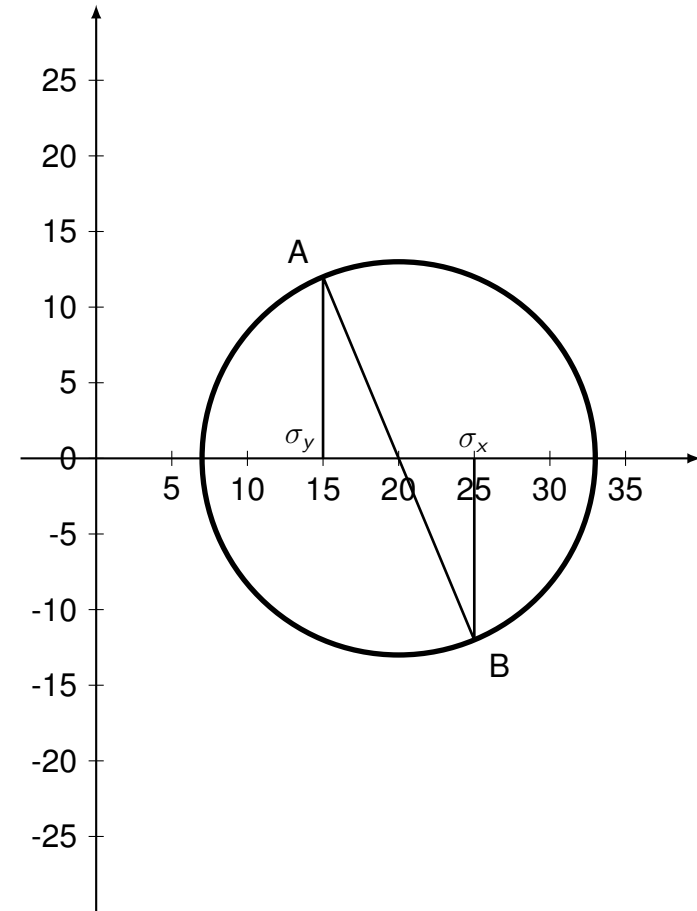
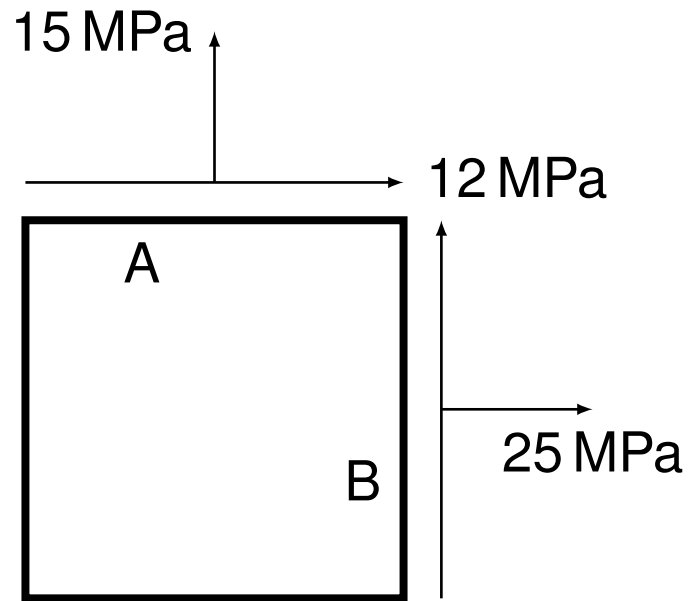


Příklad 1:



1. Sestrojte Mohrovu kružnici.
2. Určete hlavní napětí.
3. Určete hlavní roviny.
4. Určete τ_{max} .

Řešení 1:



Řešení 1:

$$S = \frac{\sigma_x + \sigma_y}{2} = \frac{25 + 15}{2} = 20 \text{ MPa}$$

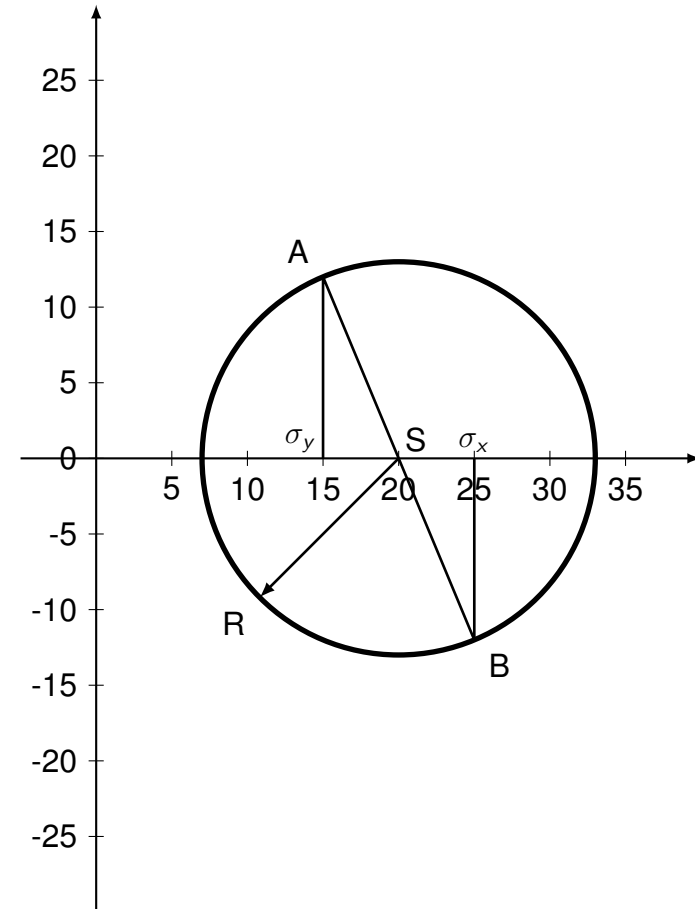
$$R = \sqrt{\left(\frac{\sigma_x - \sigma_y}{2}\right)^2 + \tau_{xy}^2} =$$

$$= \sqrt{\left(\frac{25 - 15}{2}\right)^2 + 12^2} =$$

$$R = \sqrt{5^2 + 12^2} = 13 \text{ MPa}$$

$$S + R = 33 \text{ MPa}$$

$$S - R = 7 \text{ MPa}$$





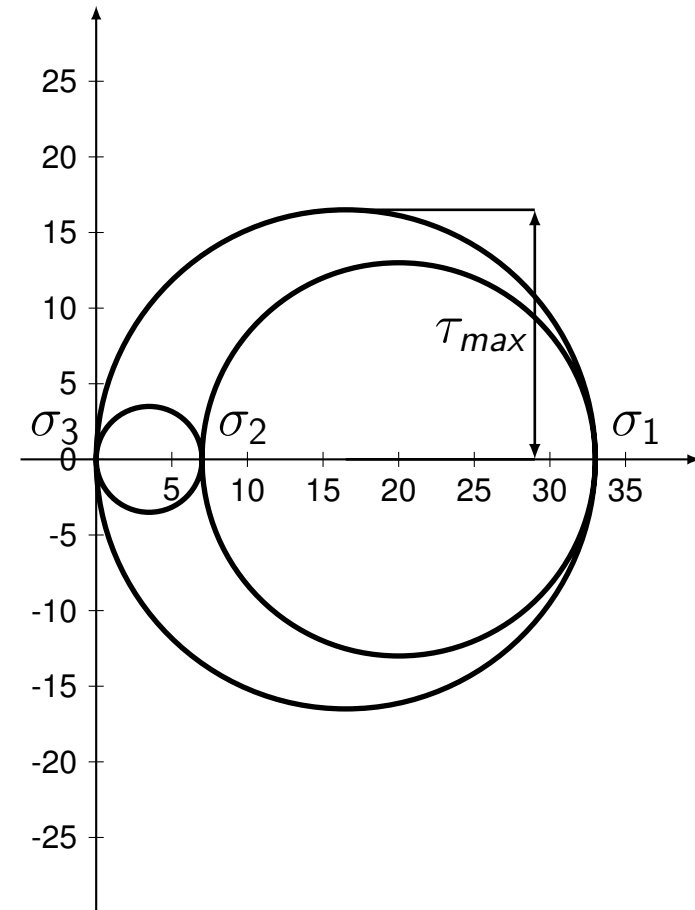
Řešení 1:

$$\sigma_1 = 33 \text{ MPa}$$

$$\sigma_2 = 7 \text{ MPa}$$

$$\sigma_3 = 0 \text{ MPa}$$

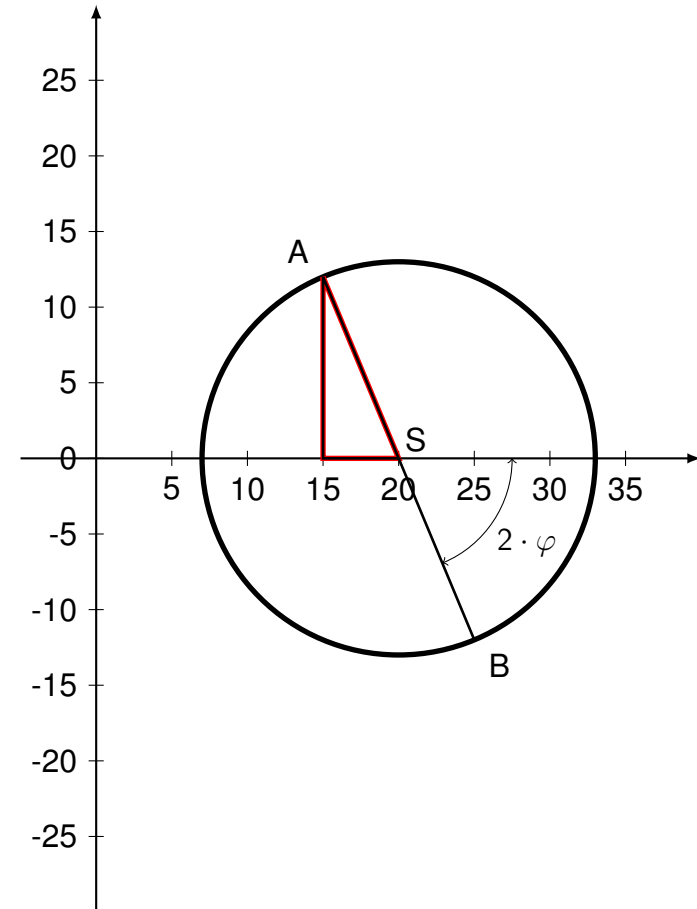
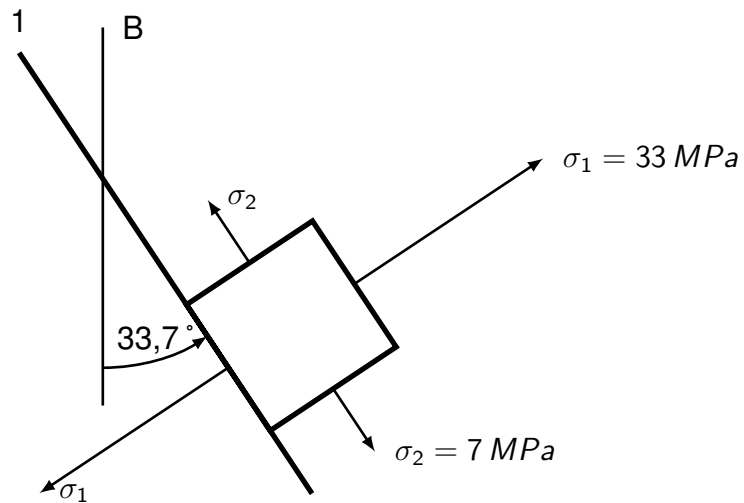
$$\tau_{max} = \frac{\sigma_1 - \sigma_3}{2}$$



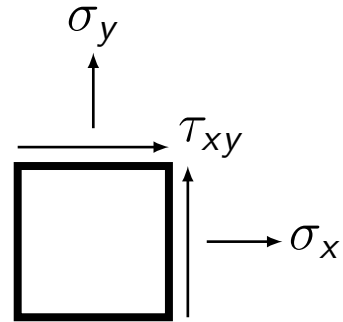
Řešení 1:

$$\tan(2 \cdot \varphi) = \frac{|\tau_{xy}|}{\left| \frac{\sigma_x - \sigma_y}{2} \right|} = \frac{12}{5}$$

$$\varphi = \frac{1}{2} \cdot \arctan \frac{|\tau_{xy}|}{\left| \frac{\sigma_x - \sigma_y}{2} \right|} \approx 33,7^\circ$$



Příklady na řešení Mohrových kružnic:



1. Sestrojte Mohrovu kružnici.
2. Určete hlavní napětí.
3. Určete hlavní roviny.
4. Určete τ_{max} .

σ_x	σ_y	τ_{xy}	σ_1	σ_2	σ_3
25	21	50			
0	-20	15			
-20	-10	5			
4	9	6			
-4	-16	8			
45	-45	0			
0	0	45			