第１問の解答

$$\sigma_{1,}\sigma_2 = \frac{1}{2}(\sigma_x + \sigma_y) \pm \frac{1}{2}\sqrt{(\sigma_x - \sigma_y)^2 + 4\tau_x^2} = \frac{1}{2}(6-10) \pm \frac{1}{2}\sqrt{(6+10)^2 + 4\times 4^2} =$$

$$-2 \pm \frac{1}{2}\times 17.9 = +6.95, -10.95$$

$$2\alpha_0 = ATAN\,\frac{2\tau_x}{\sigma_x - \sigma_y} = ATAN\,\frac{2\times(-4)}{6+10} \qquad \therefore\ 2\alpha_0 = -26.6^\circ \quad \alpha_0 = -13.3^\circ$$