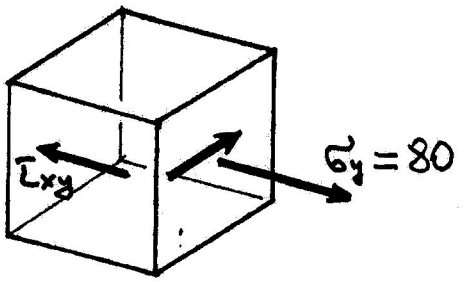
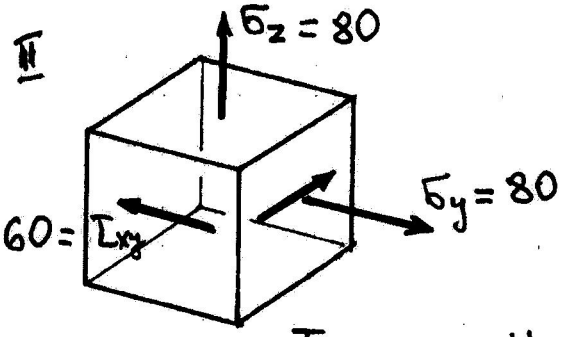
I



II



Porównać naprężenia zredukowane σ_{red}^{τ} i σ_{red}^{H} pokazanych powyżej dwóch stanów.

stan I

$p\tau.xy: \quad s = \frac{\sigma_y}{2} = \frac{80}{2} = 40$

$r = \sqrt{\left(\frac{\sigma_y}{2}\right)^2 + \tau_{xy}^2} = \sqrt{\left(\frac{80}{2}\right)^2 + 60^2} = 72$

$\sigma_1 = s - r = 40 - 72 = -32$

$\sigma_2 = s + r = 40 + 72 = 112$

$\sigma_3 = 0$

$\sigma_{red}^{\tau} = \sigma_2 - \sigma_1 = 112 - (-32) = 144$

stan II

$p\tau.xy: \quad s = 40$

$r = 72$

$\sigma_1 = -32$

$\sigma_2 = 112$

$\sigma_3 = 80$

$\sigma_{red}^{\tau} = \sigma_2 - \sigma_1 = 144$

$\sigma_{red}^{H} = \sqrt{\frac{1}{2}\left[\sigma_y^2 + \sigma_y^2\right] + 3\tau_{xy}^2}$

$\sigma_{red}^{H} = \sqrt{\sigma_y^2 + 3\tau_{xy}^2}$

$\sigma_{red}^{H} = \sqrt{80^2 + 3 \cdot 60^2}$

$\sigma_{red}^{H} = 131.15 \approx 131$

$\sigma_{red}^{H} = \sqrt{\frac{1}{2}\left[\sigma_y^2 + \sigma_z^2 + (\sigma_y - \sigma_z)^2\right] + 3\tau_{xy}^2}$

$\sigma_{red}^{H} = \sqrt{\frac{1}{2}\left[80^2 + 80^2 + (80 - 80)^2\right] + 3 \cdot 60^2}$

$\sigma_{red}^{H} = \sqrt{80^2 + 3 \cdot 60^2}$

$\sigma_{red}^{H} = 131.15 \approx 131$