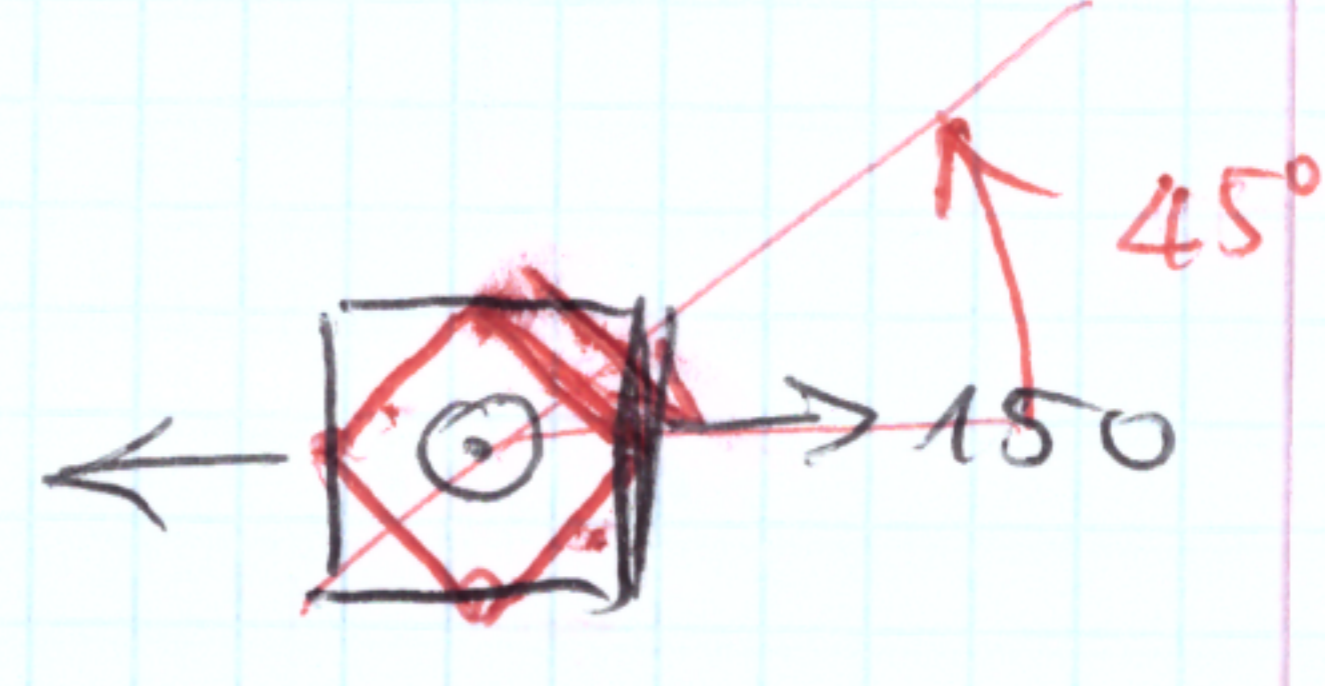
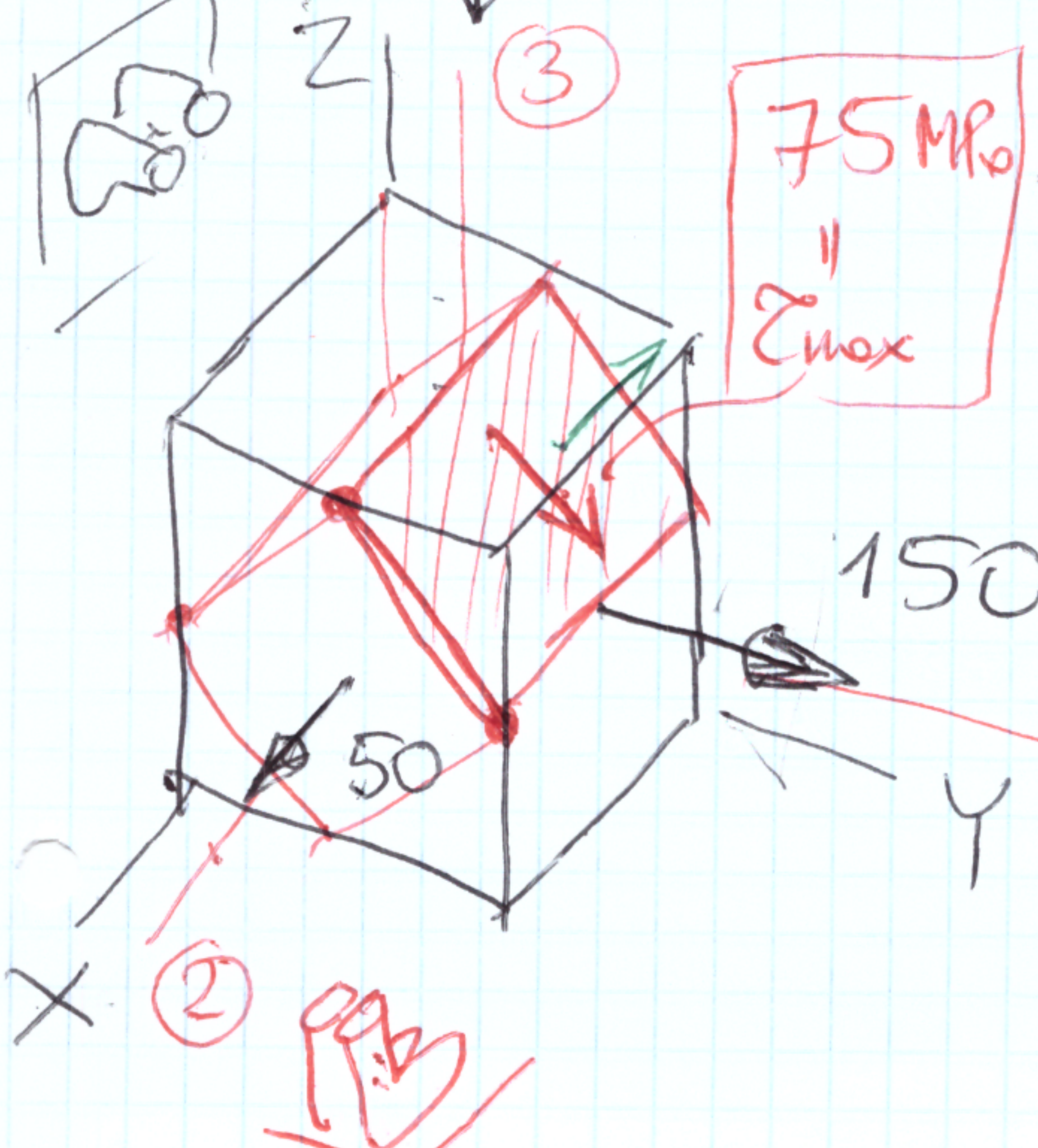
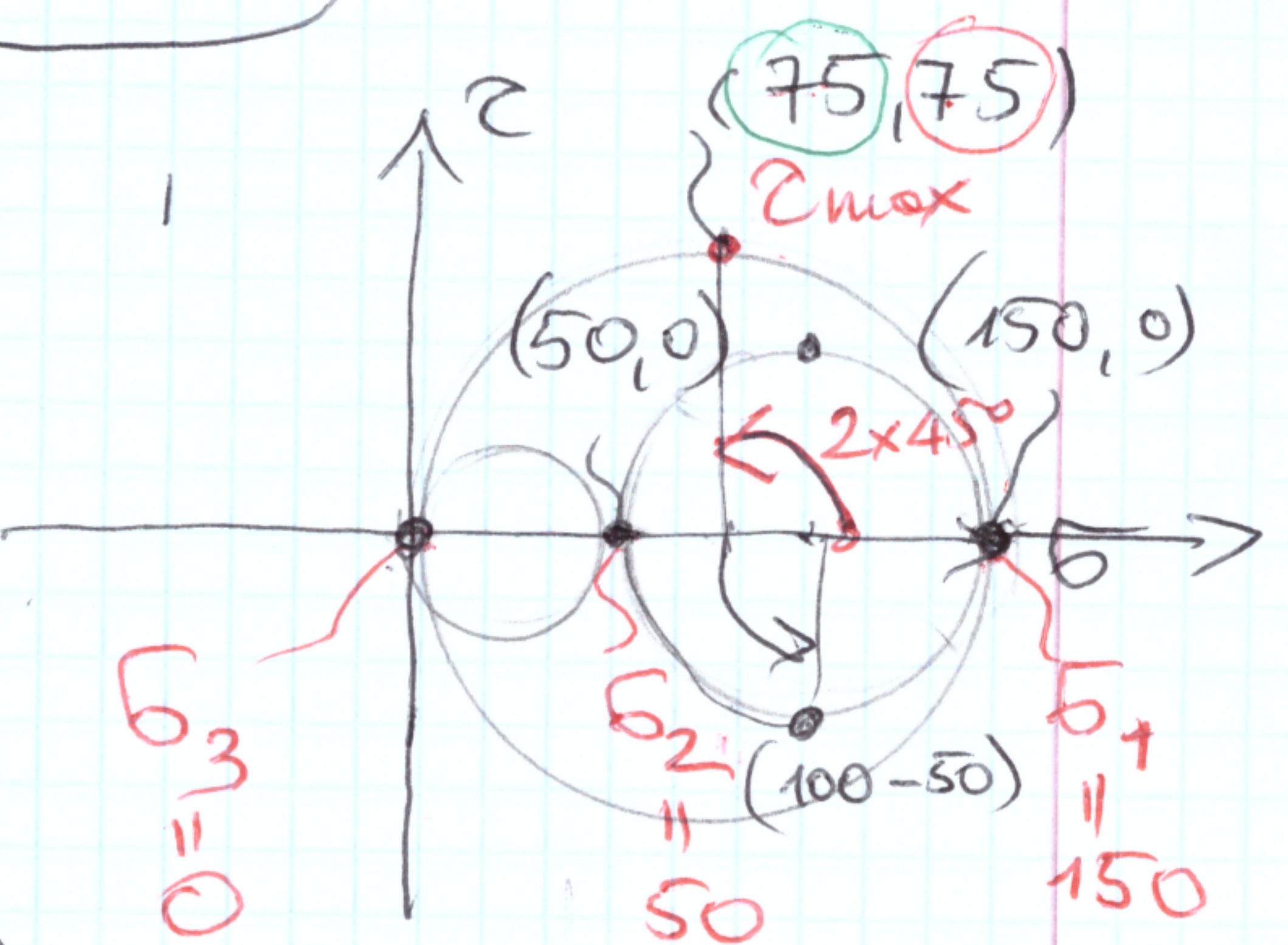
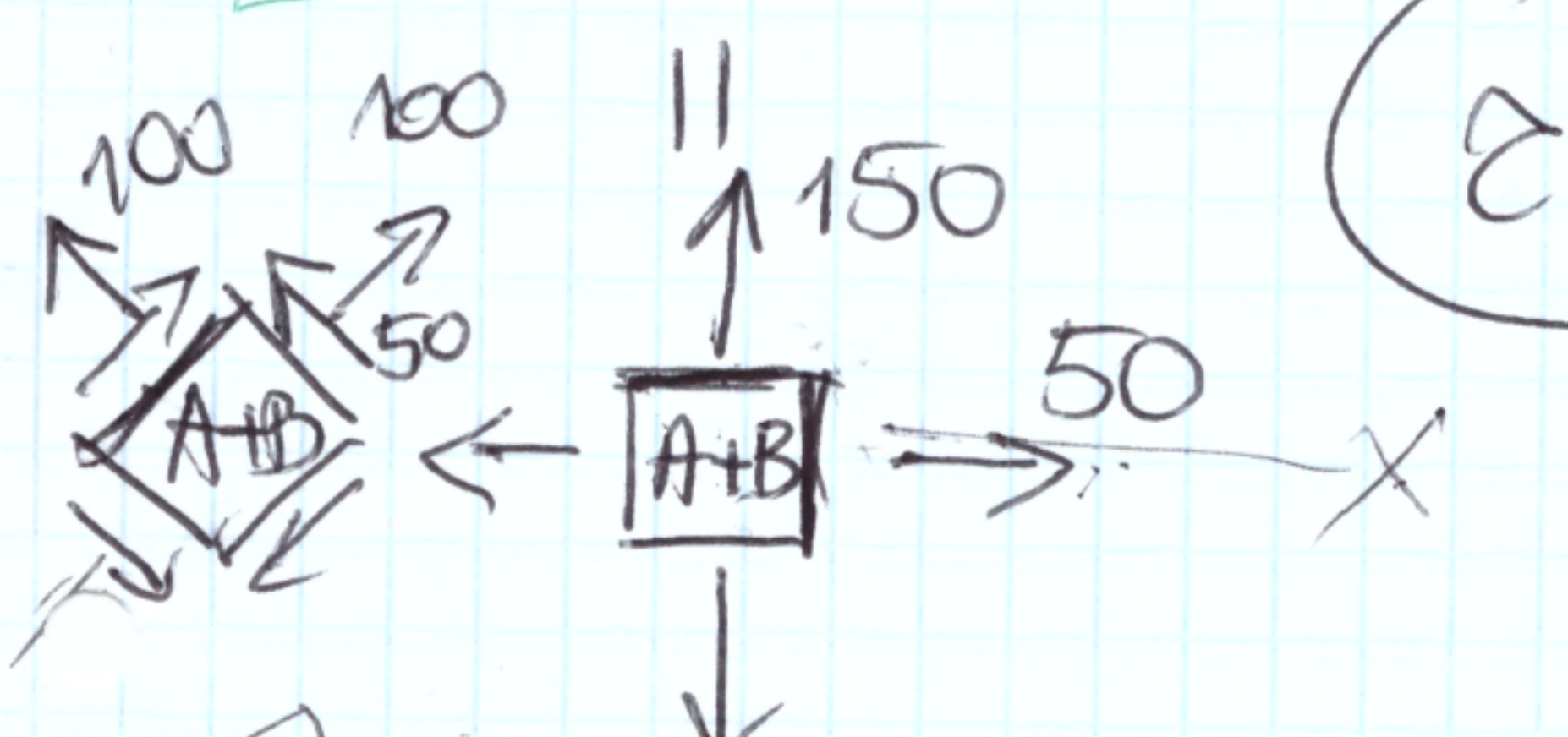
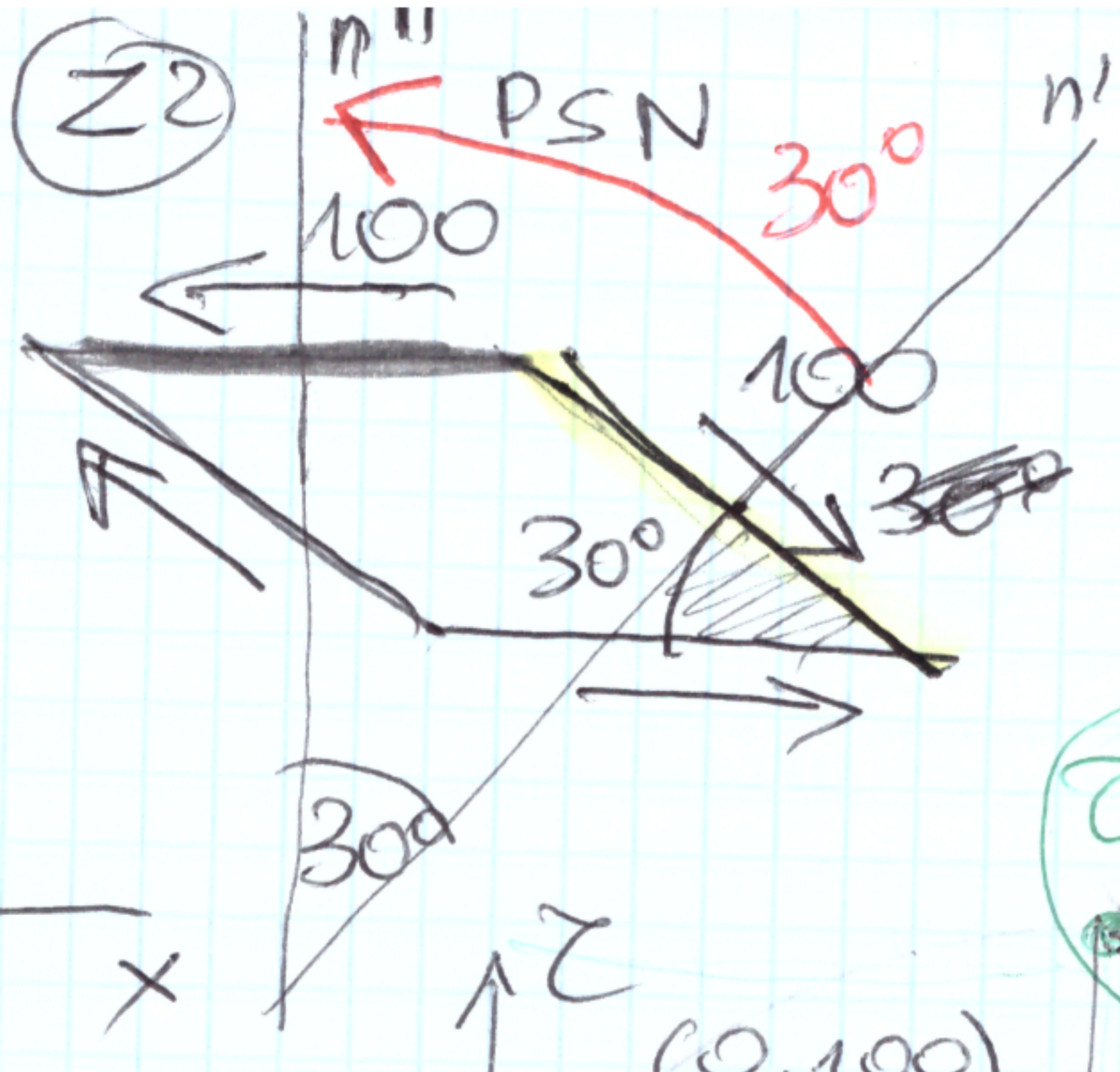


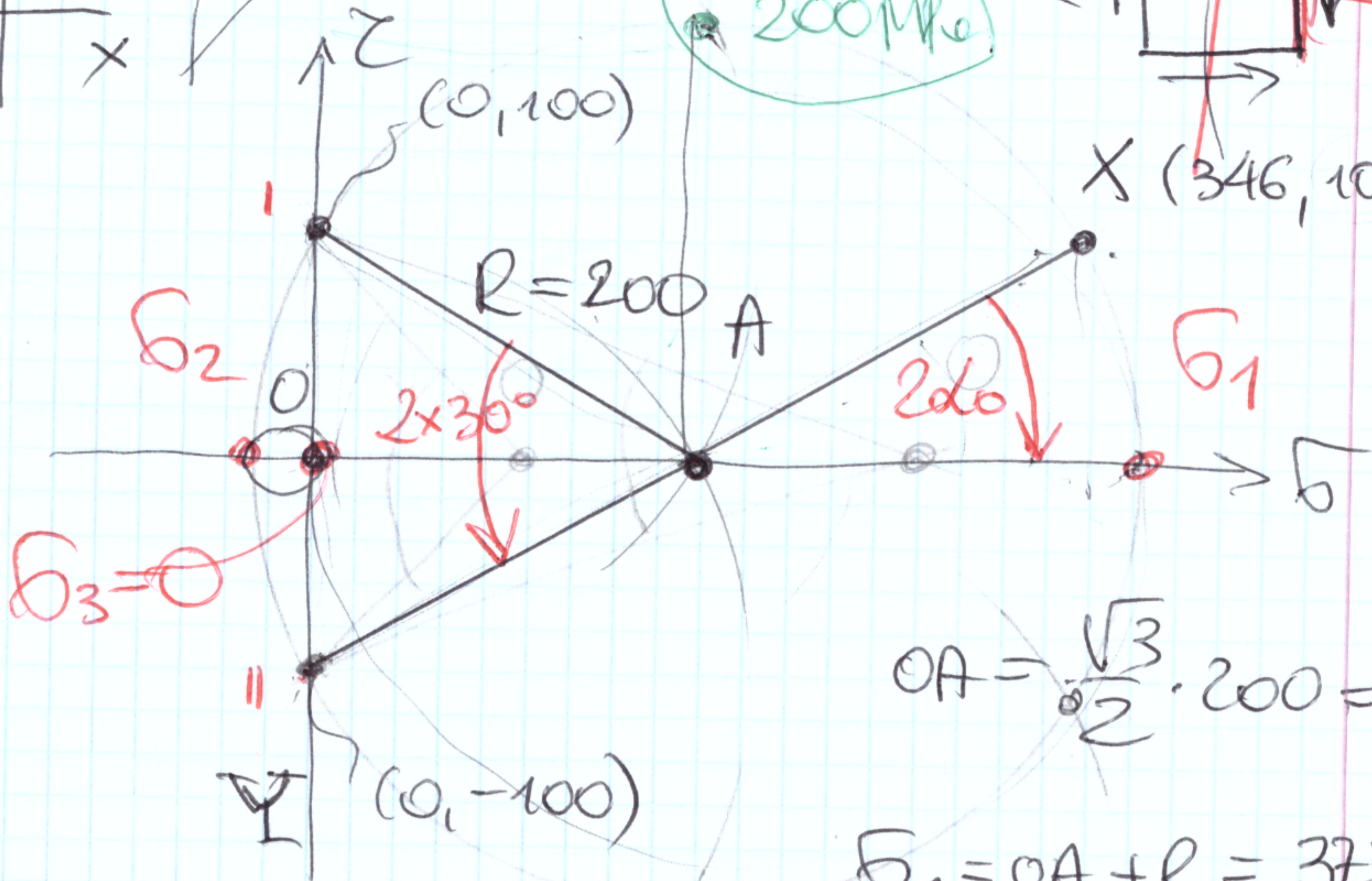
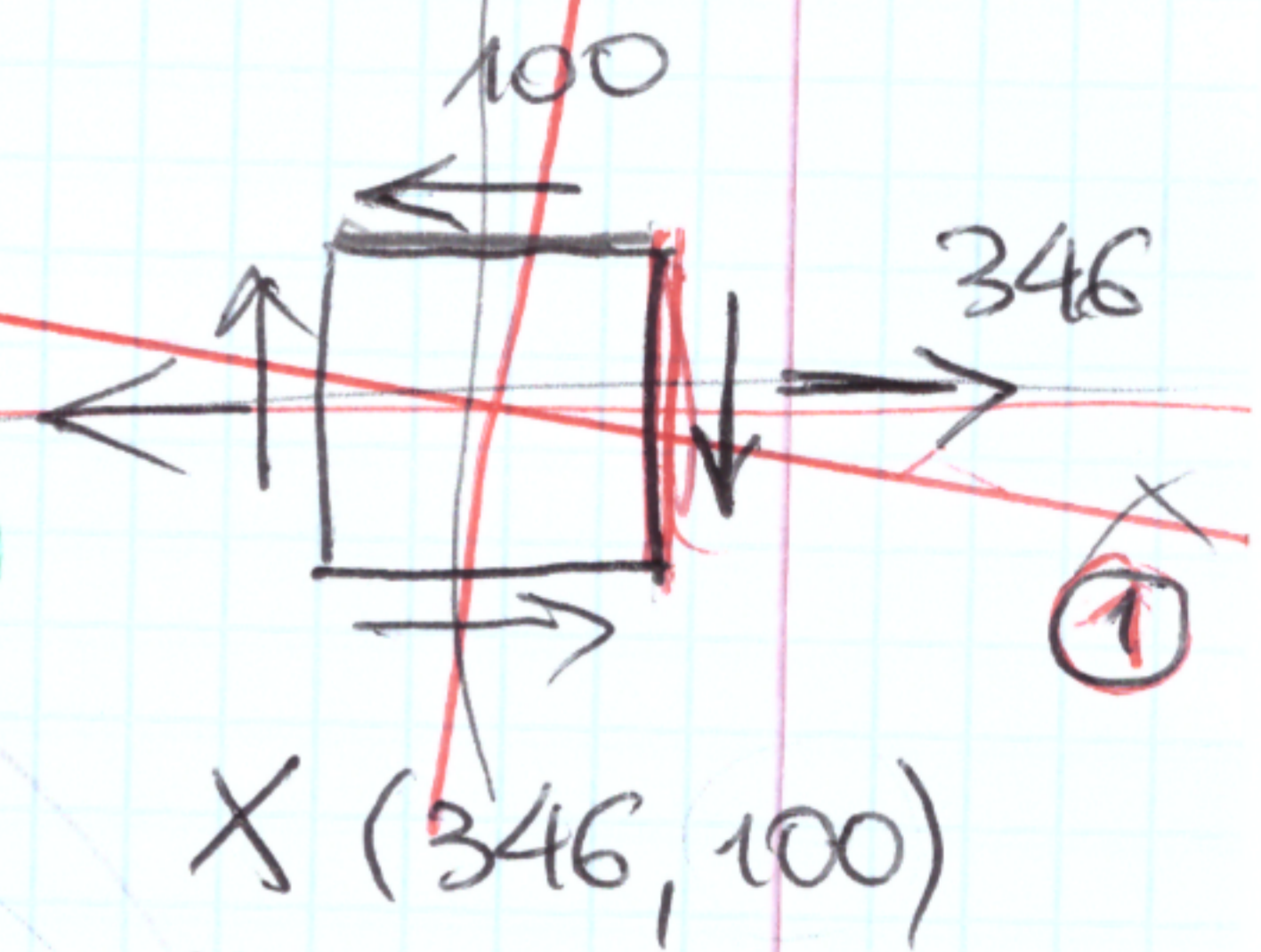
$\sigma_{max} = ?$





- 1) $\sigma_1, \sigma_2, \alpha_0$?
- 2) τ_{max} ?

$\tau_{max} = 200 \text{ MPa}$



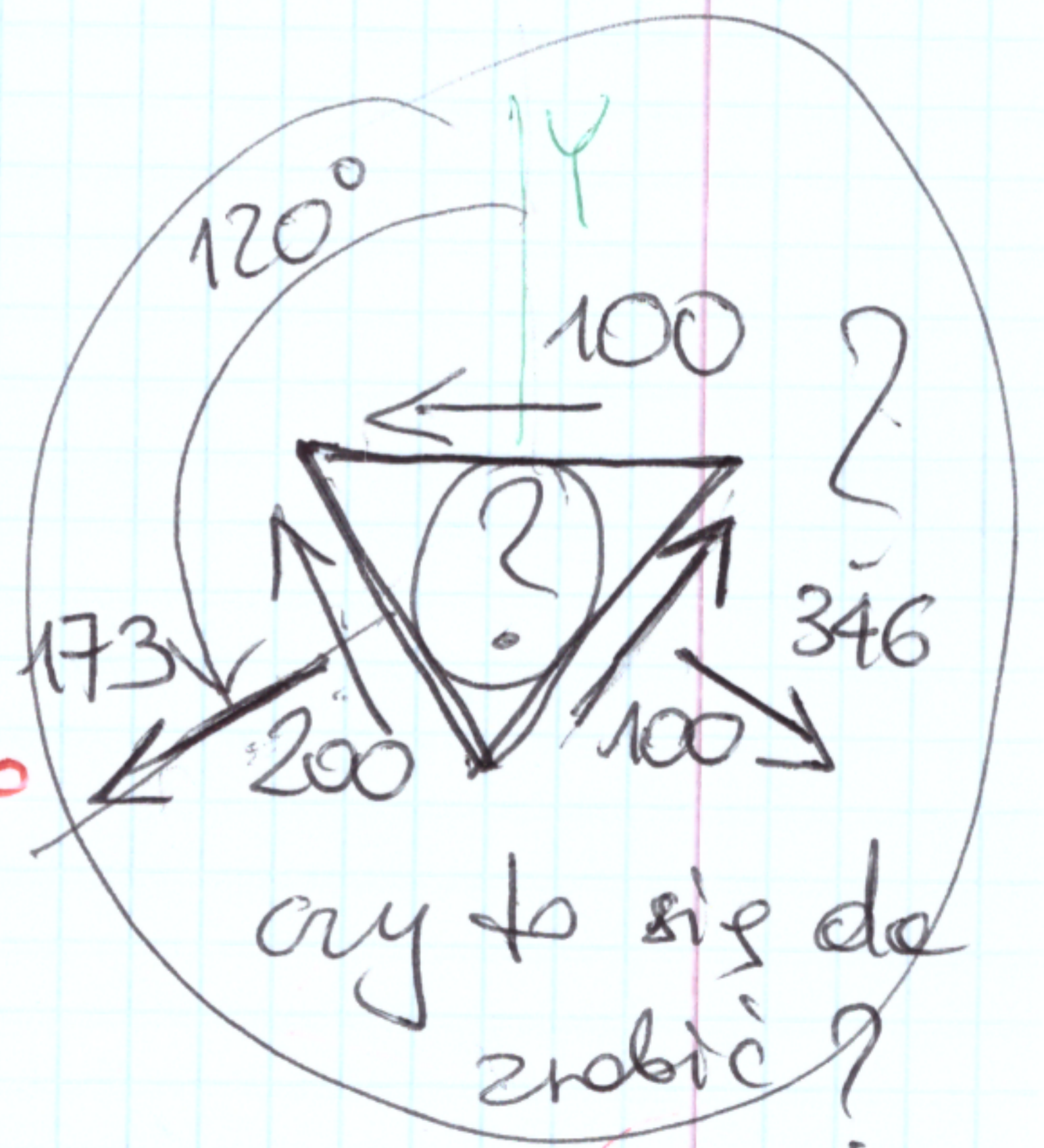
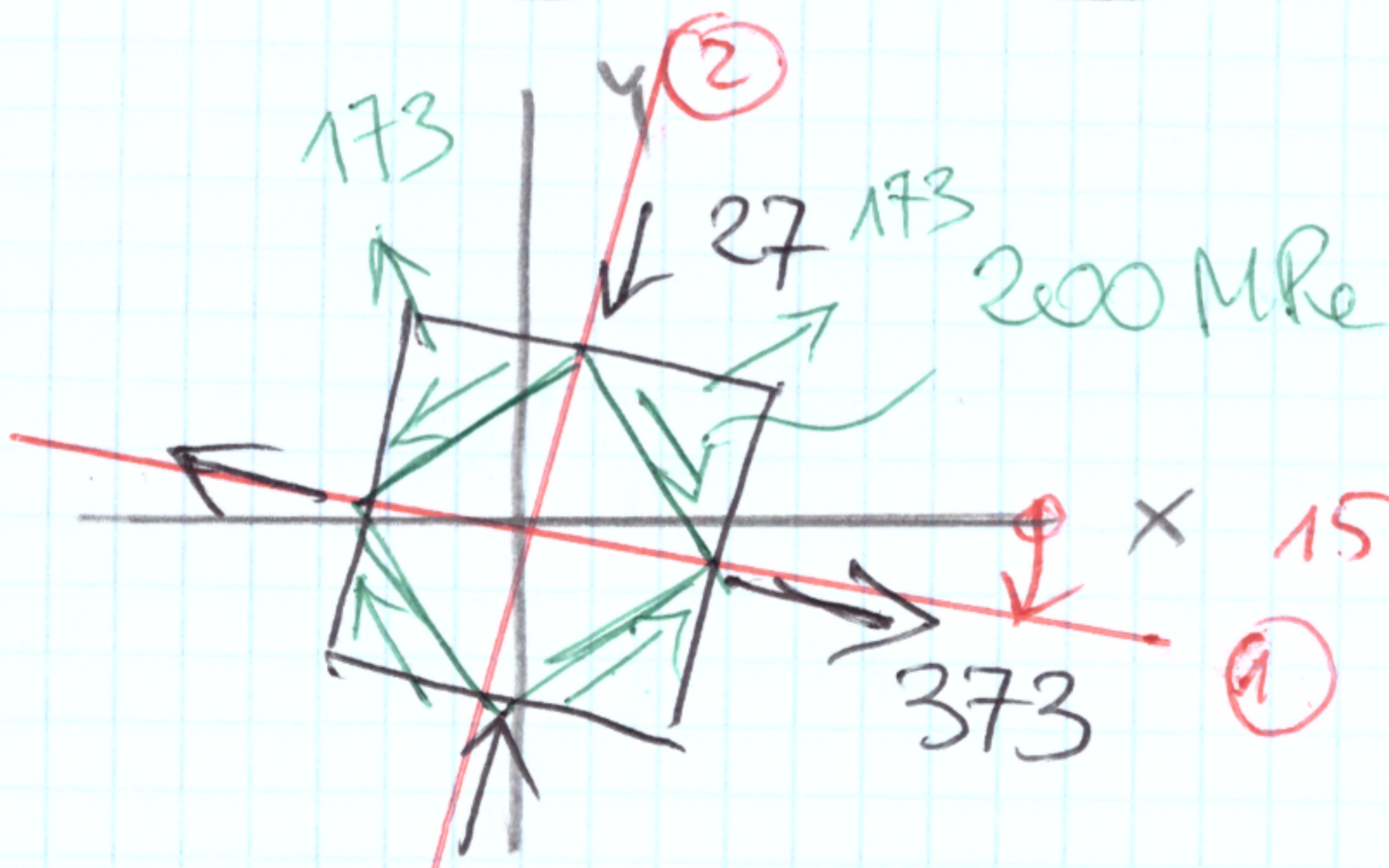
$$OA = \frac{\sqrt{3}}{2} \cdot 200 = 173$$

$$\sigma_1 = OA + R = 373 \text{ MPa}$$

$$\sigma_2 = OA - R = -27 \text{ MPa}$$

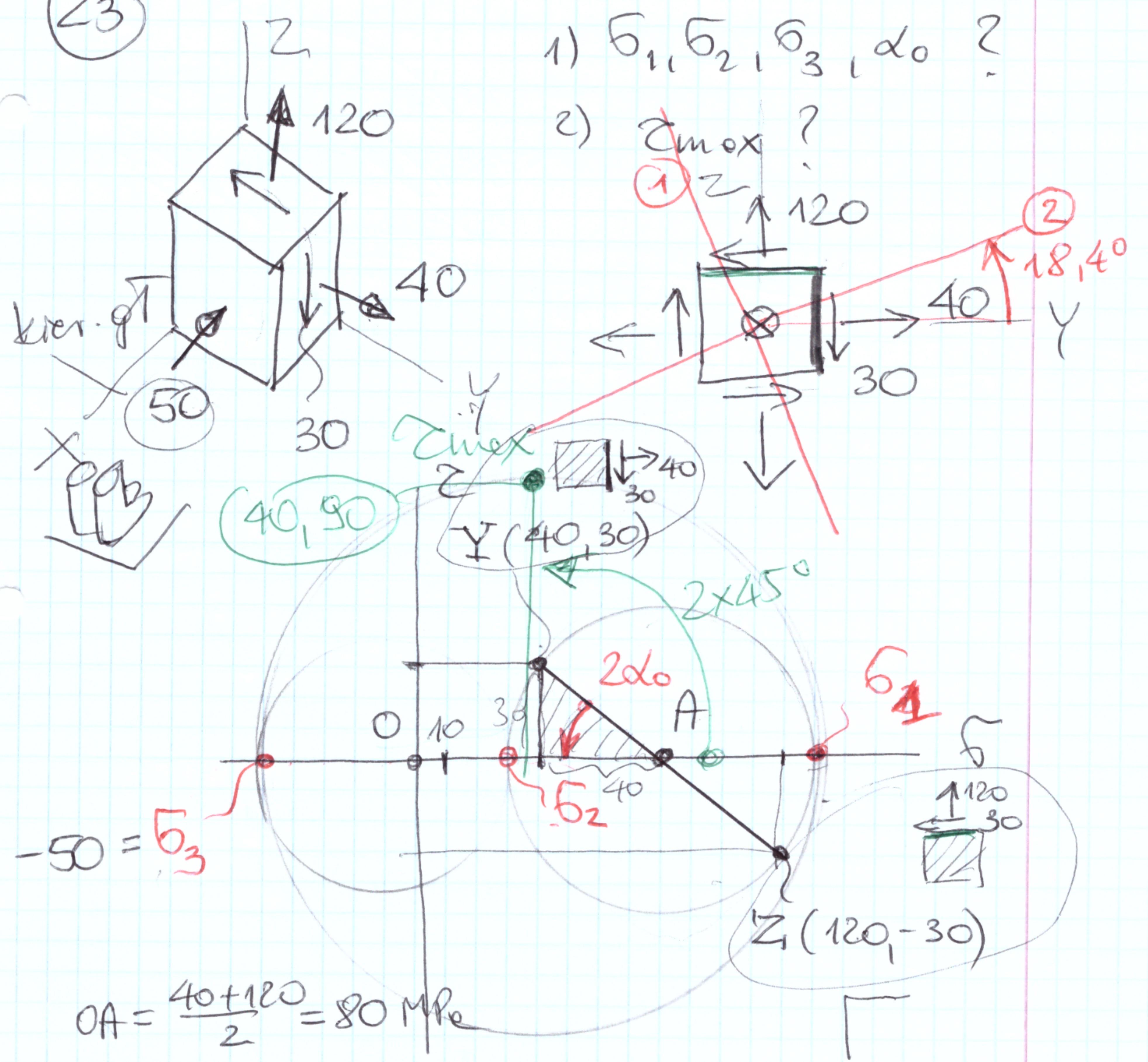
$$\tan 2\alpha_0 = \frac{100}{173}$$

$$\alpha_0 = 15^\circ$$



Z3

- 1) $\sigma_1, \sigma_2, \sigma_3, \alpha_0$?
- 2) τ_{max} ?



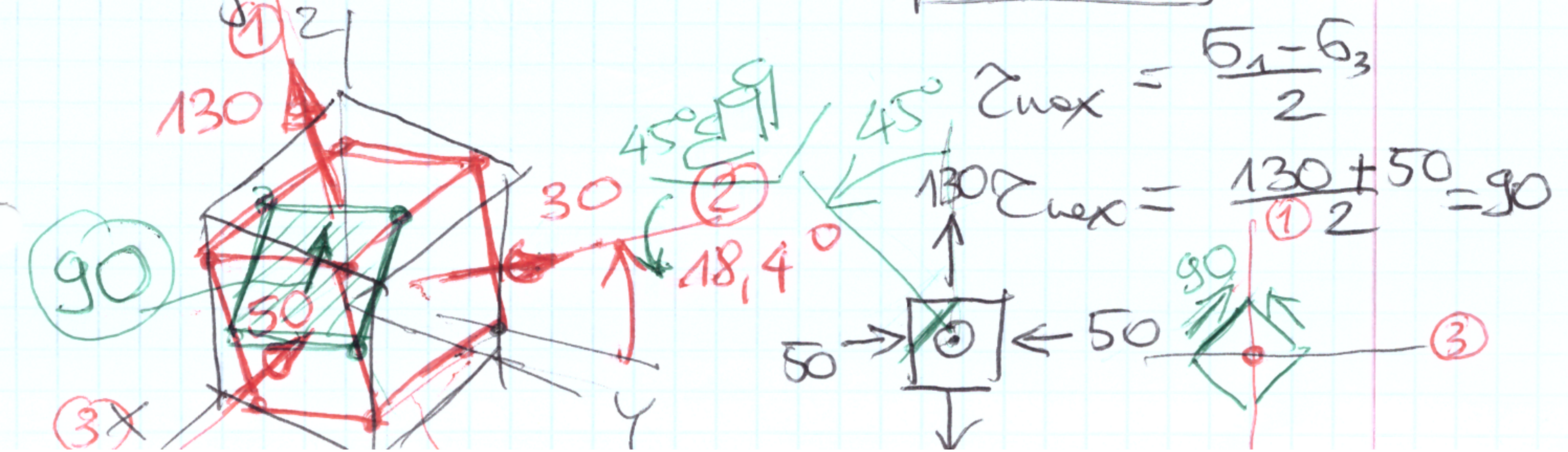
$$OA = \frac{40 + 120}{2} = 80 \text{ MPa}$$

$$R = \sqrt{\left(\frac{\sigma_y - \sigma_z}{2}\right)^2 + \tau_{yz}^2} = \sqrt{40^2 + 30^2} = 50 \text{ MPa}$$

$$\sigma_1 = OA + R = 130 \text{ MPa}$$

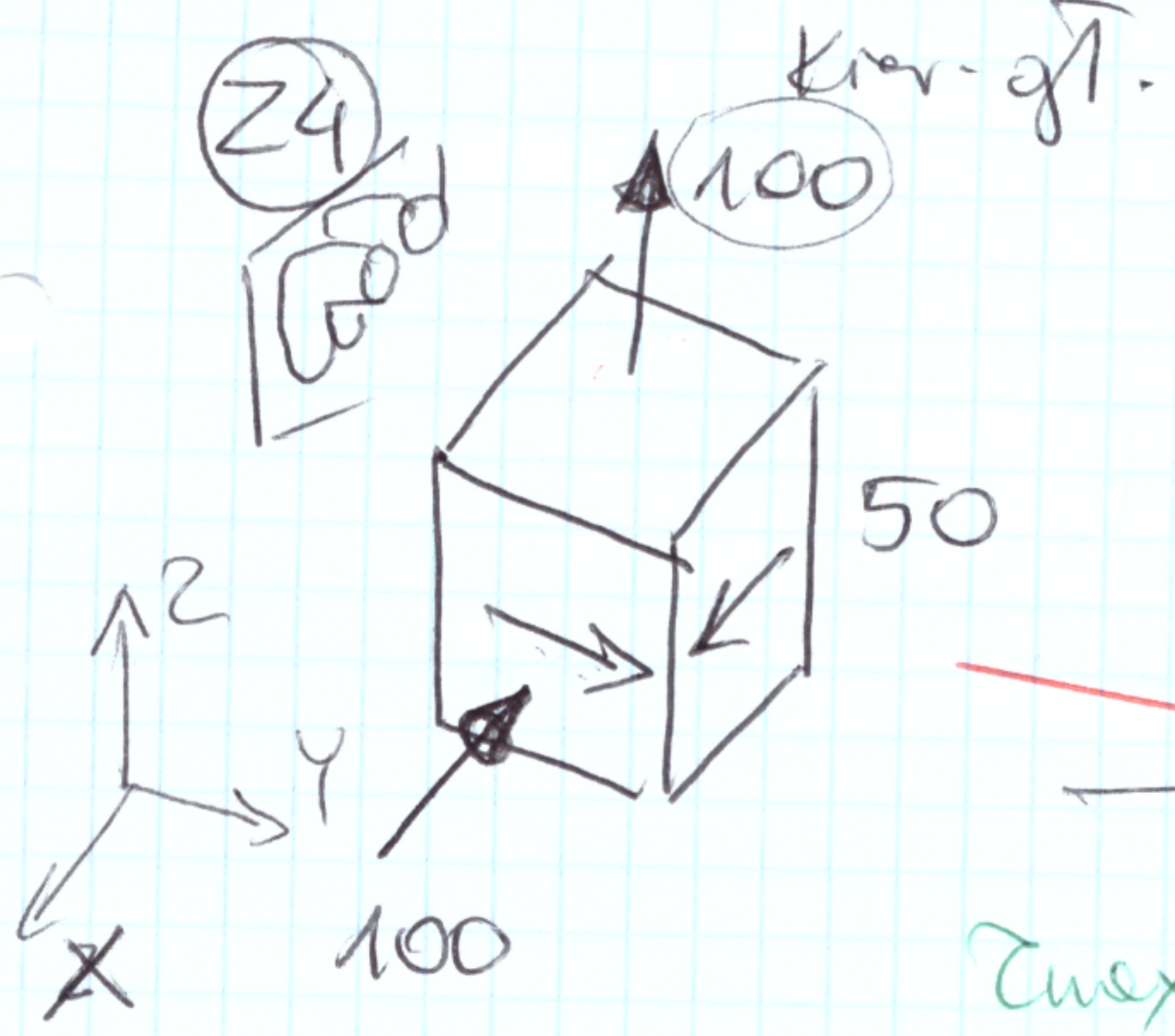
$$\sigma_2 = OA - R = 30 \text{ MPa}$$

$$\tan 2\alpha_0 = \frac{30}{40} = 0.75 \rightarrow \alpha_0 = 18,4^\circ$$

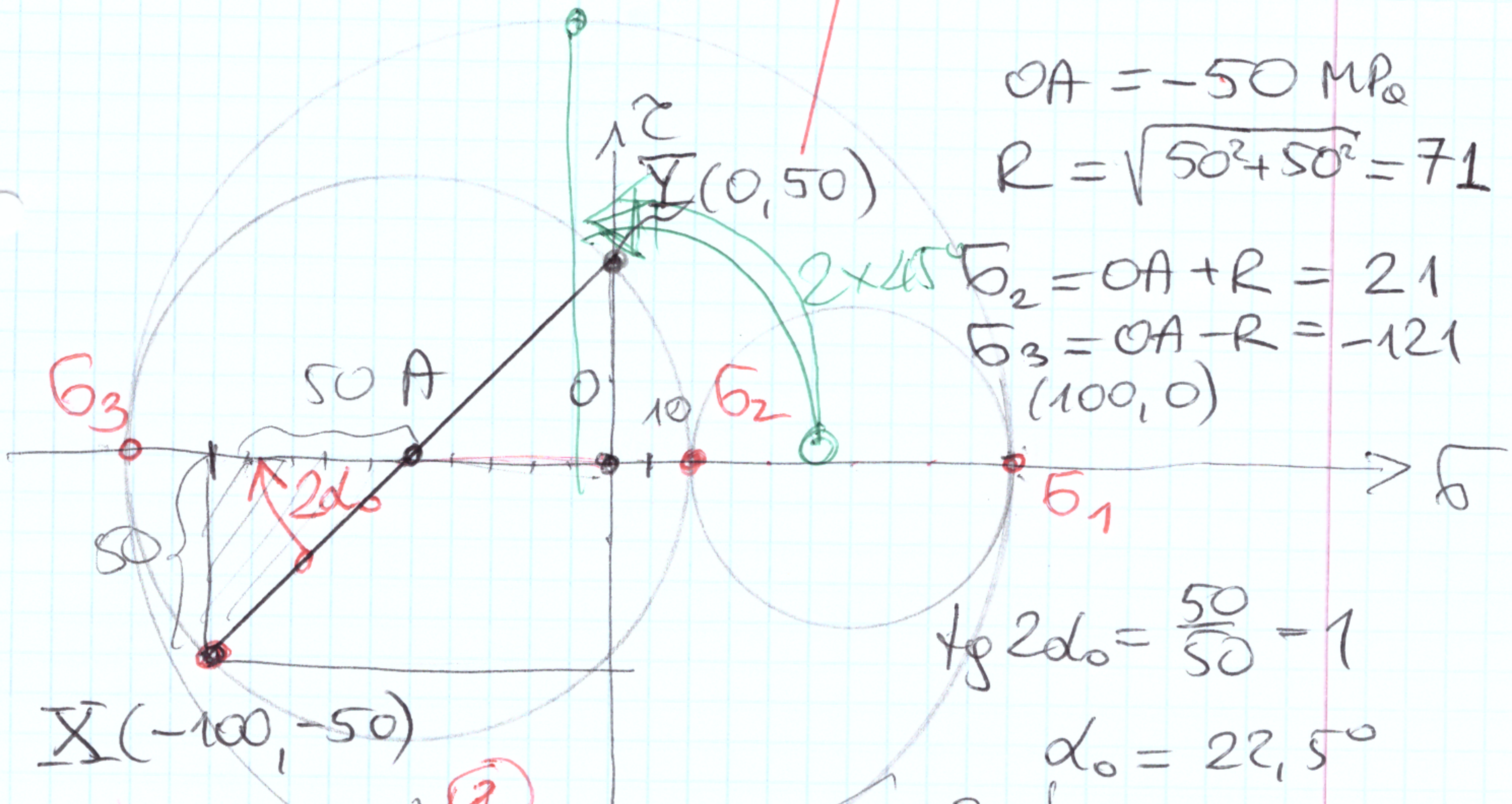
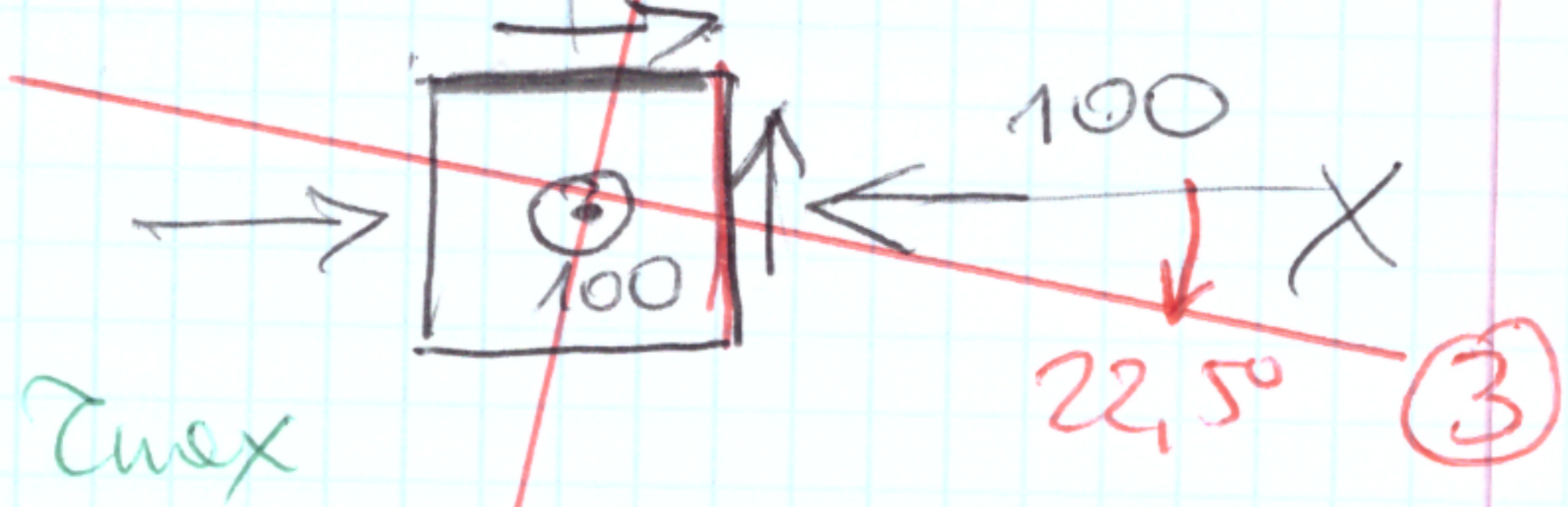


$$\tau_{max} = \frac{\sigma_1 - \sigma_3}{2}$$

$$\tau_{max} = \frac{130 + 50}{2} = 90$$



- 1) $\sigma_1, \sigma_2, \sigma_3$, do?
- 2) τ_{max} ?



$OA = -50 \text{ MPa}$

$R = \sqrt{50^2 + 50^2} = 71$

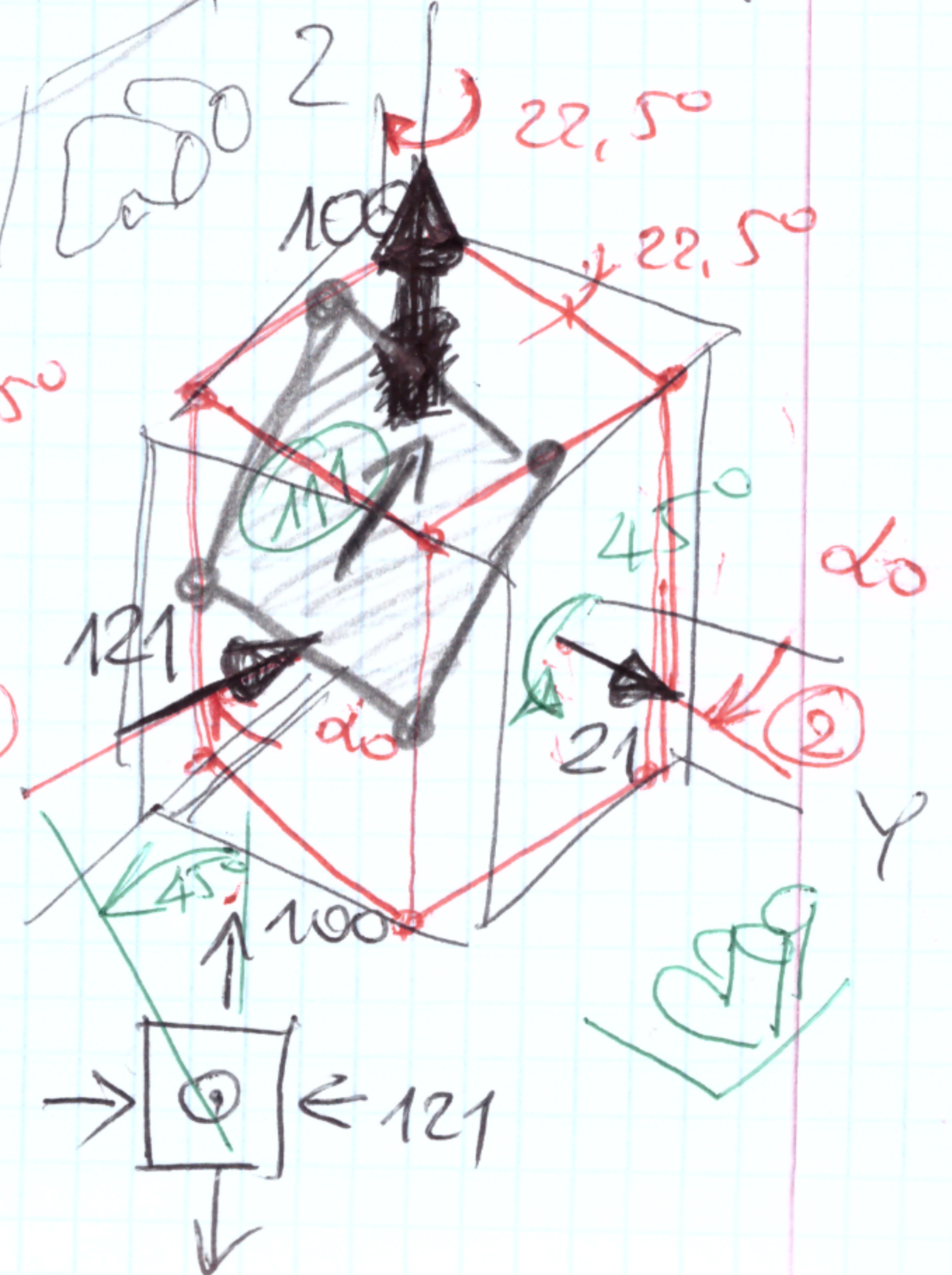
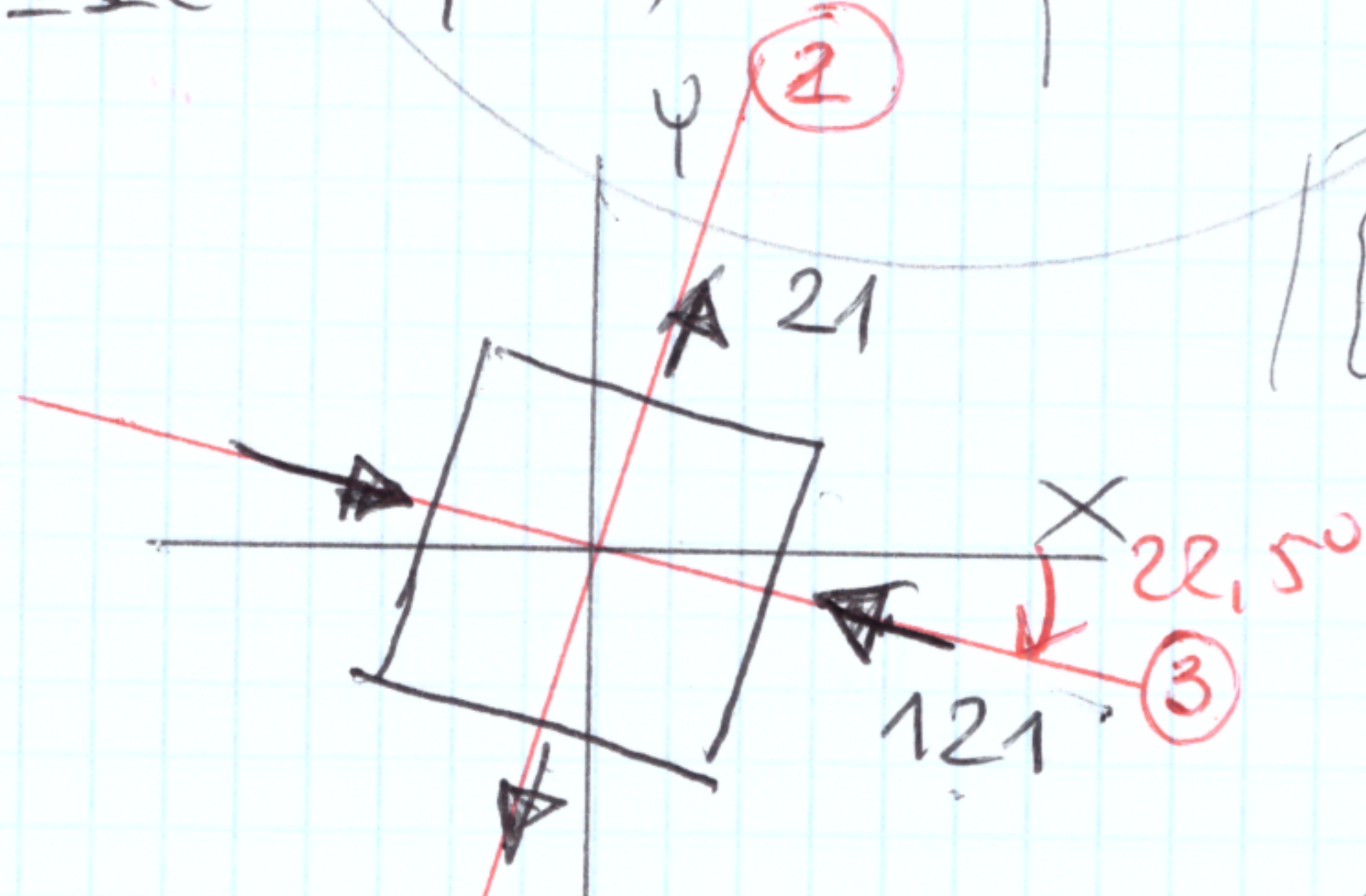
$\sigma_2 = OA + R = 21$

$\sigma_3 = OA - R = -121$

$(100, 0)$

$\text{tg } 2\alpha_0 = \frac{50}{50} = 1$

$\alpha_0 = 22,5^\circ$



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

$= \frac{100 + 121}{2} = 111 \text{ MPa}$

