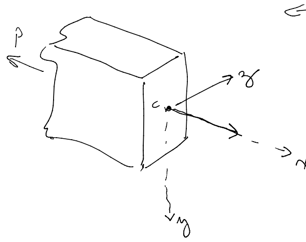
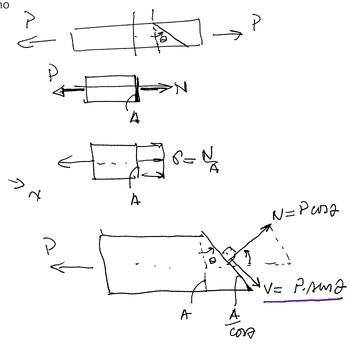
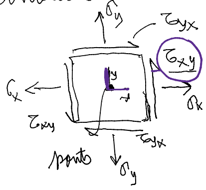
Análise de tensões - Introdução ao estado plano

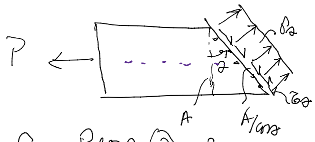
Friday, May 29, 2020 7:11 AM





Convenções de sinais



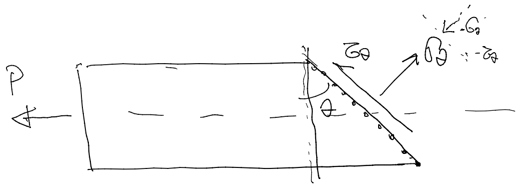


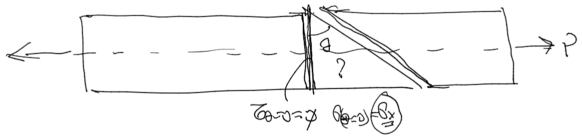
$$\sigma_\theta = \frac{P\cos\theta}{A/\cos\theta} = \frac{P}{A}\cos^2\theta$$

* $\sigma_\theta = \sigma_x \cdot \cos^2\theta$

$$\tau_\theta = -\frac{P\sin\theta}{A/\cos\theta} = -\frac{P}{A}\sin\theta\cos\theta$$

** $\tau_\theta = -\sigma_x \cdot \sin\theta \cdot \cos\theta$





com $\cos^2\theta = \frac{1}{2}(1 + \cos 2\theta)$ $\qquad$ $\sigma_\theta = \sigma_x \cdot \cos^2\theta$

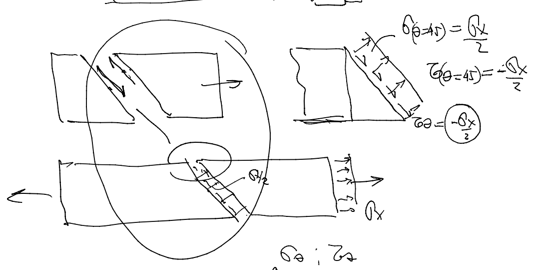
$$\sin\theta\cos\theta = \frac{1}{2}\sin 2\theta$$

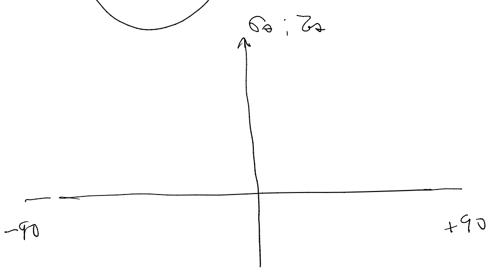
$$\sigma_\theta = \frac{\sigma_x}{2}(1 + \cos 2\theta)$$

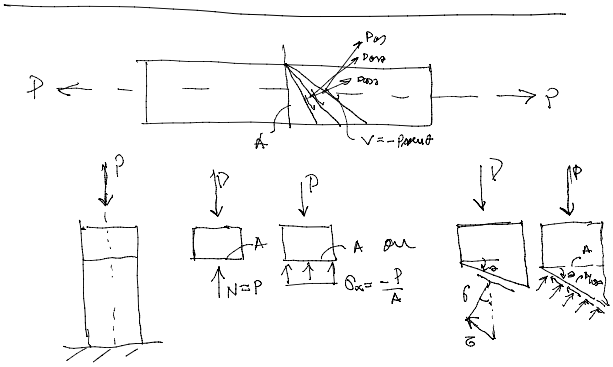
$$\tau_\theta = -\frac{\sigma_x}{2}\sin 2\theta$$

$\sigma_\theta = \sigma_x$ e $\tau = \varnothing$

para $\sigma(\theta = 0) = \sigma_x$

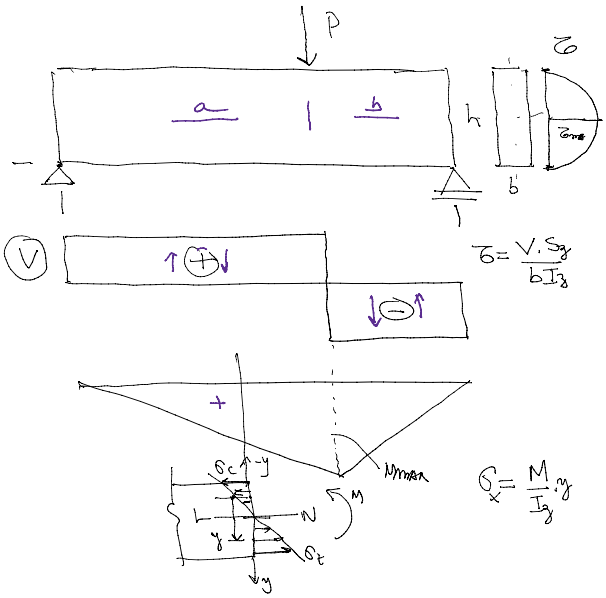


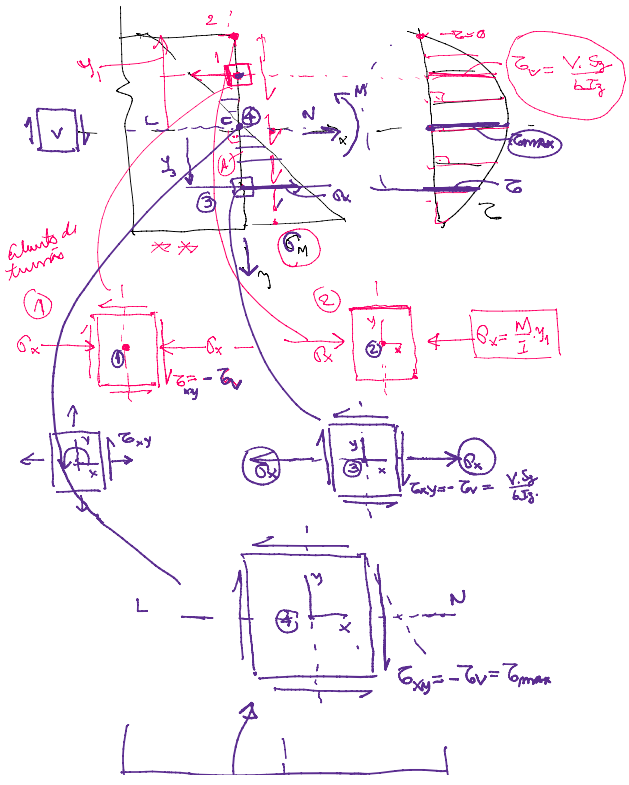


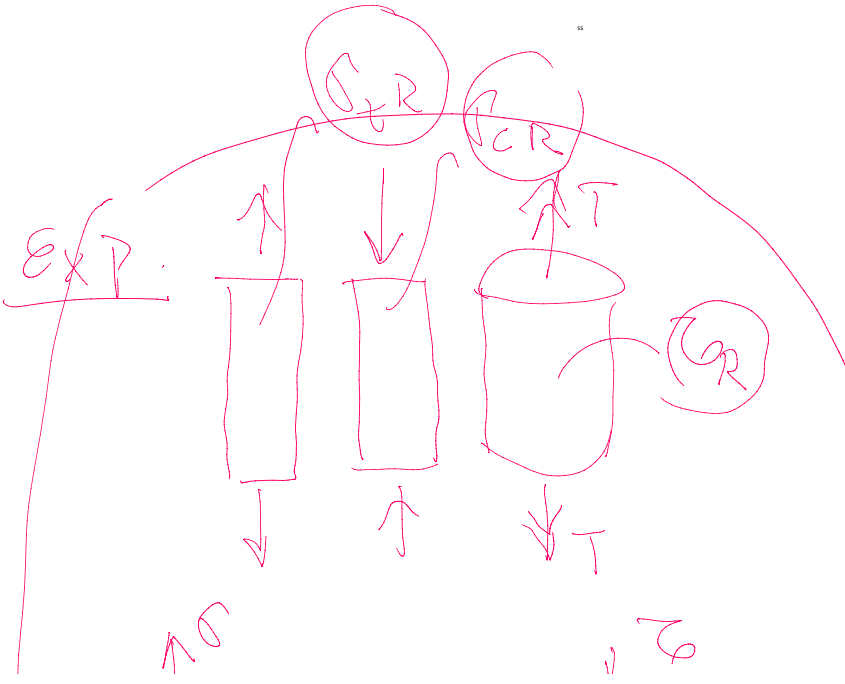


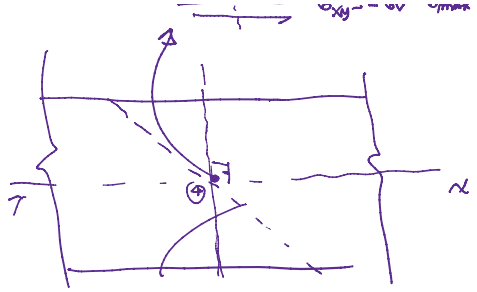
$$\sigma_\theta = \frac{\sigma_x}{2}(1+\cos 2\theta) \qquad \tau_{x\theta} = -\frac{\sigma_x}{2}\sin 2\theta$$

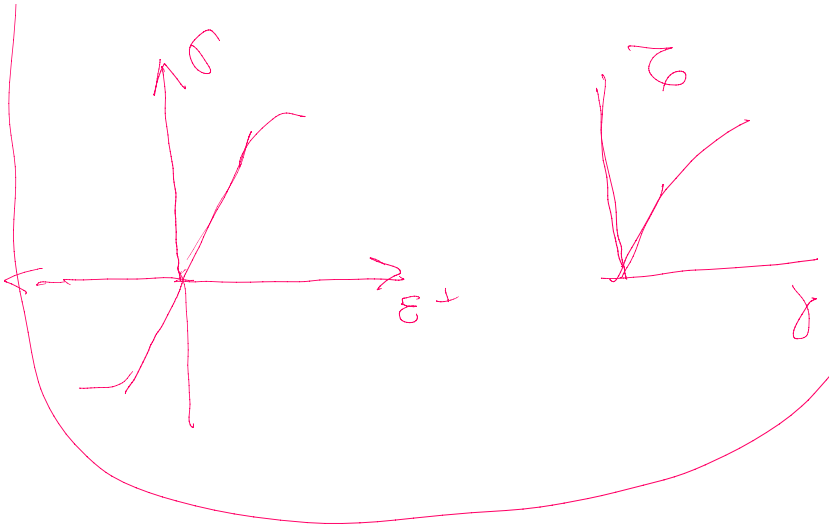
Vigas de vigas en flexión simple pura



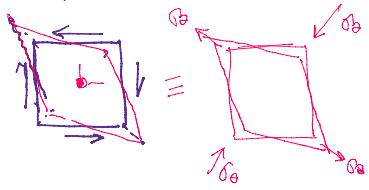




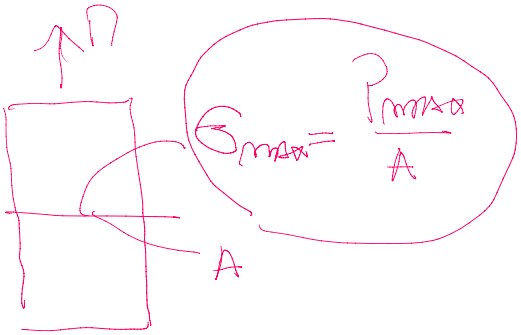


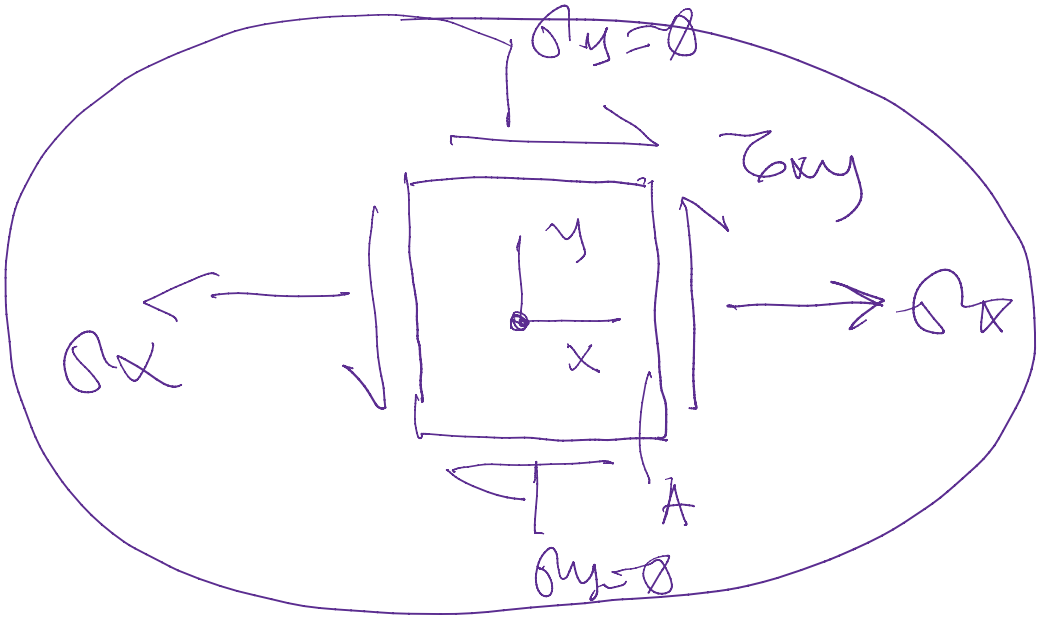


Cisallamento puro.



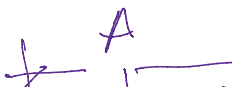
$\sigma_{ott} \leq \frac{\sigma_{rup}}{\gamma_{coef.sicur}}$ exp.

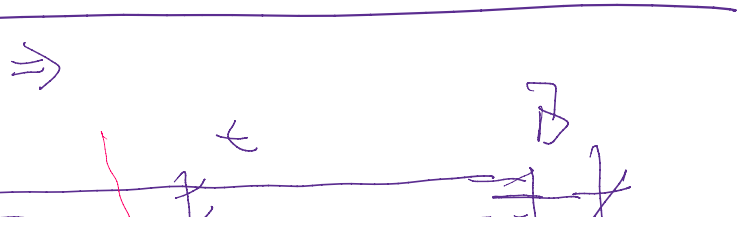


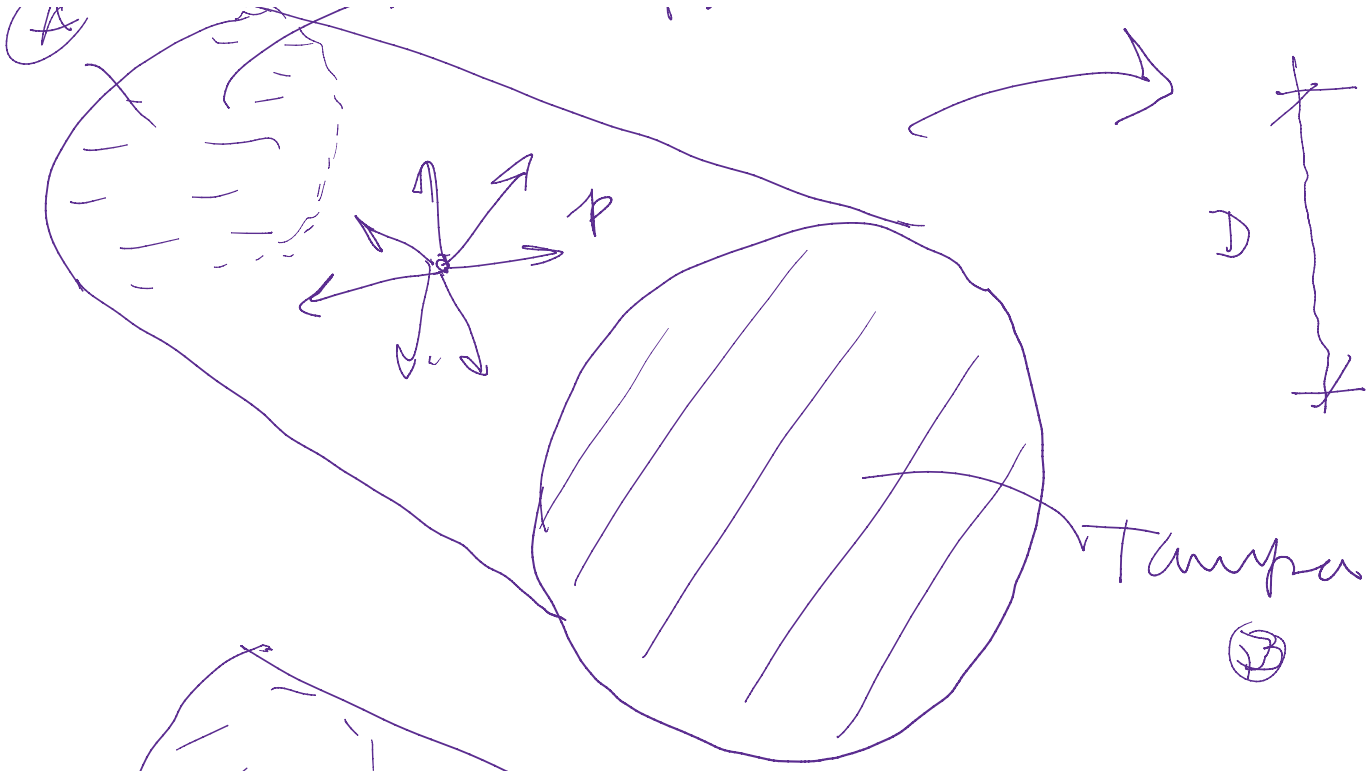


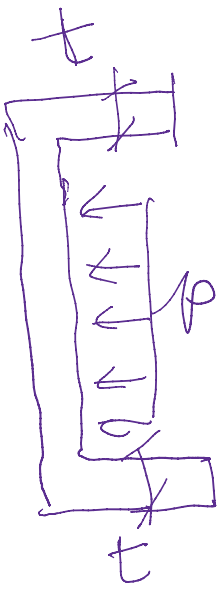
Tampa

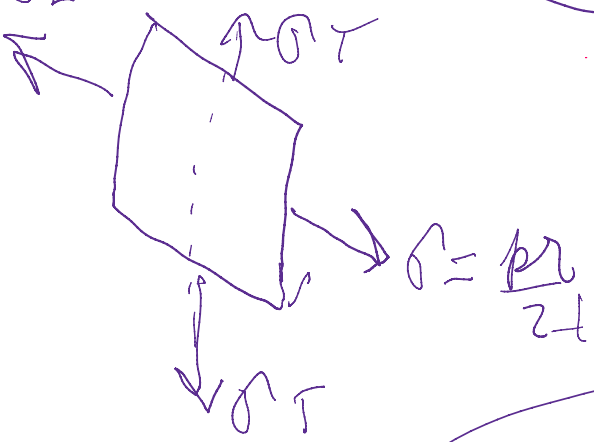
$t \ll D$







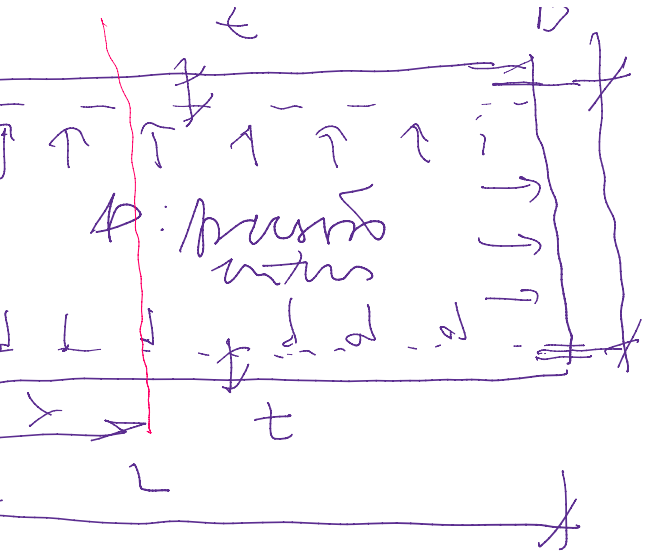




$\sigma_L \cdot \pi D t = p \cdot$

$\sigma_L = \frac{p \cdot D}{4t} = \frac{p \cdot}{4}$

$\sigma_L =$



A da parede

$\sigma_L(\pi D t)$

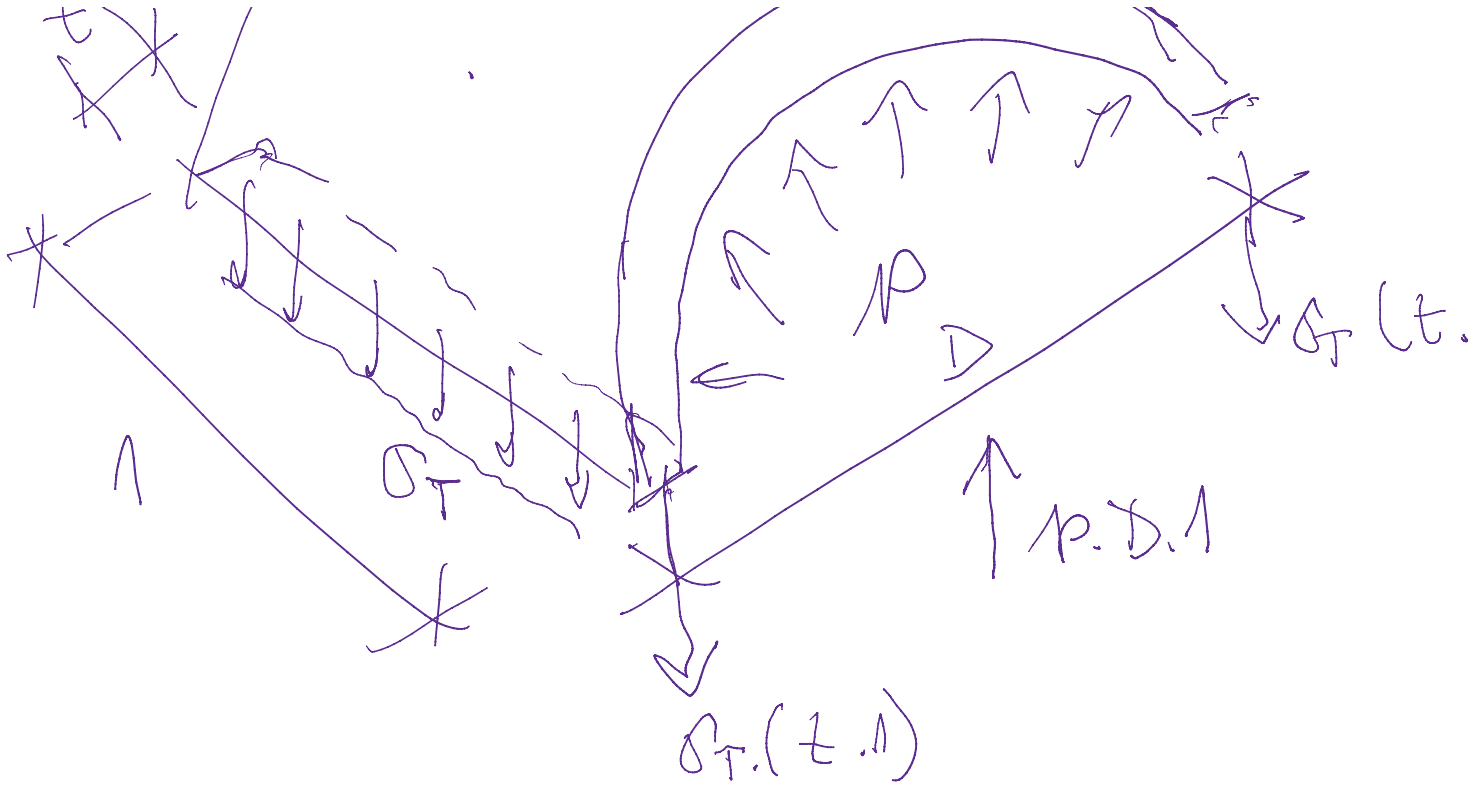
$p \cdot \frac{\pi D^2}{4} = p \pi r^2$

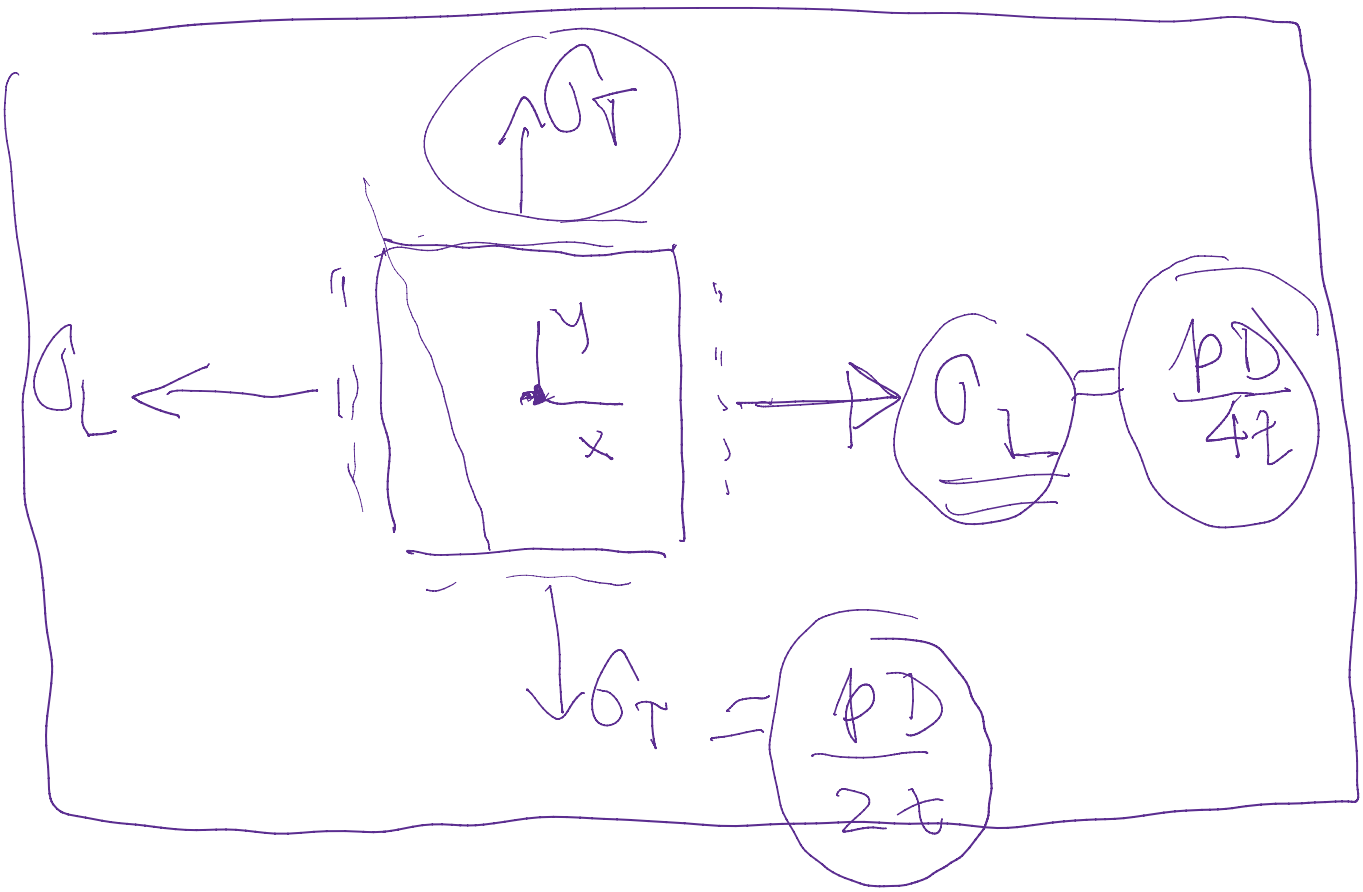
$\frac{\pi D^2}{4}$

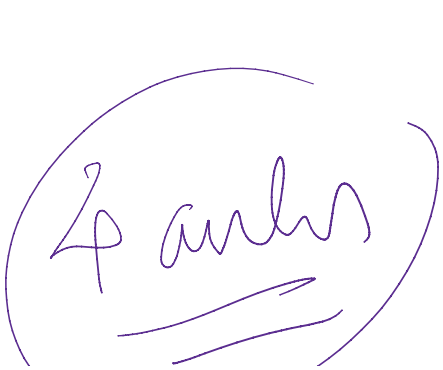
$2\pi r = \frac{p r}{2t}$ ou $\boxed{\sigma_L = \frac{p \cdot r}{2t}}$

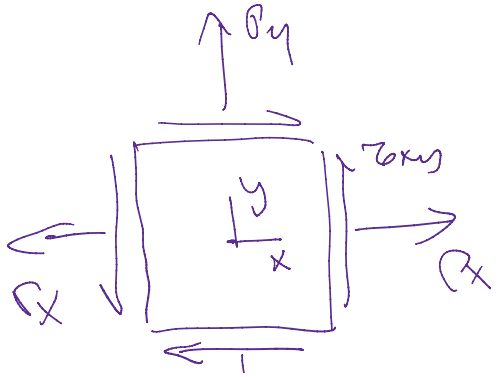
$\frac{p \cdot D}{4}$

$2(\sigma_T \cdot t) = p \cdot D$


p
D
p.D.1


y
x
pD/4t
pD/2t

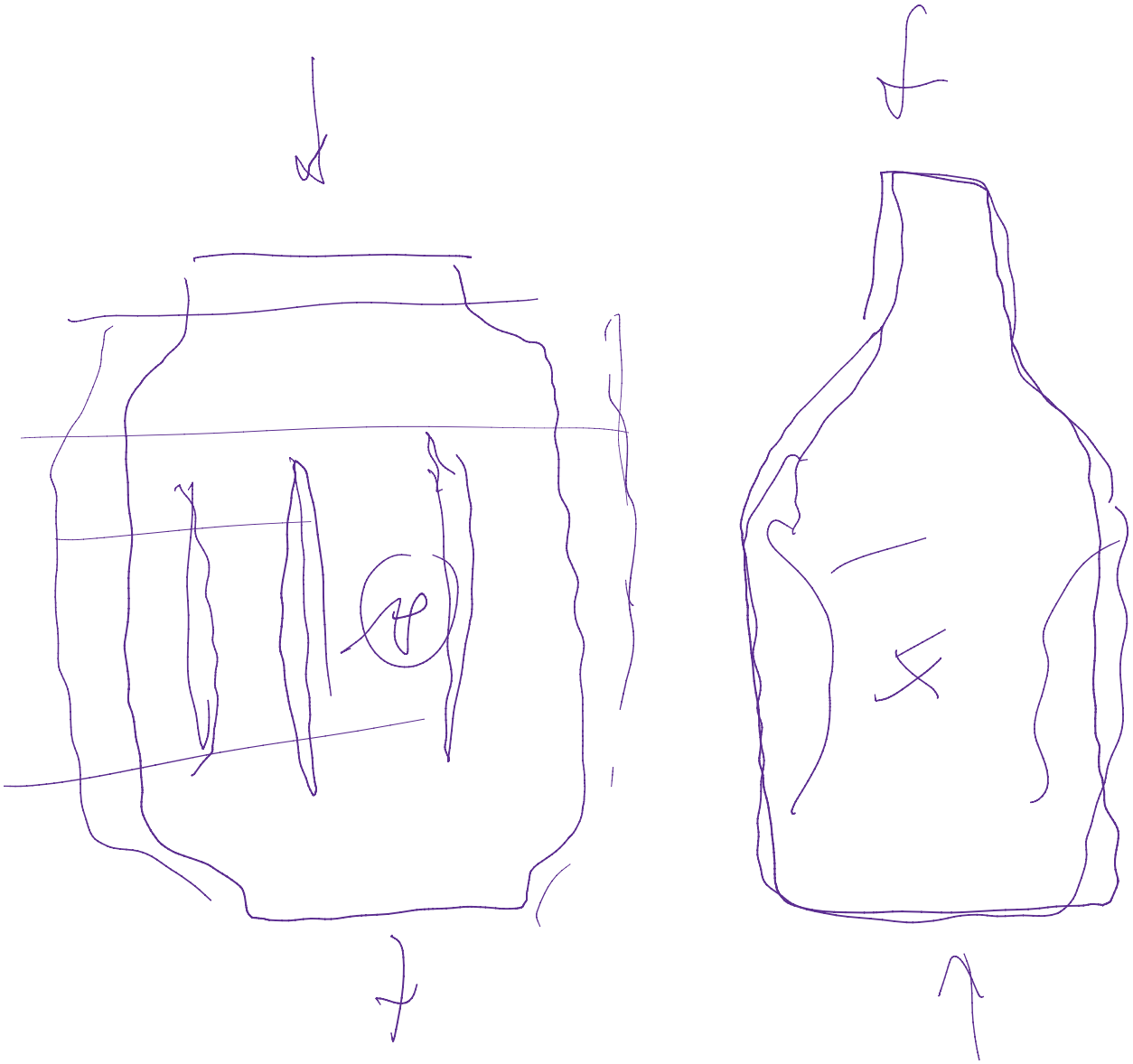

4 anclas

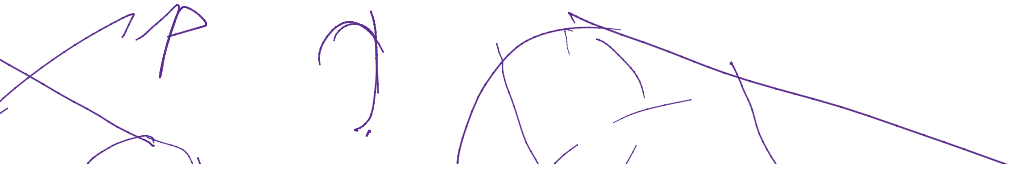

y
x

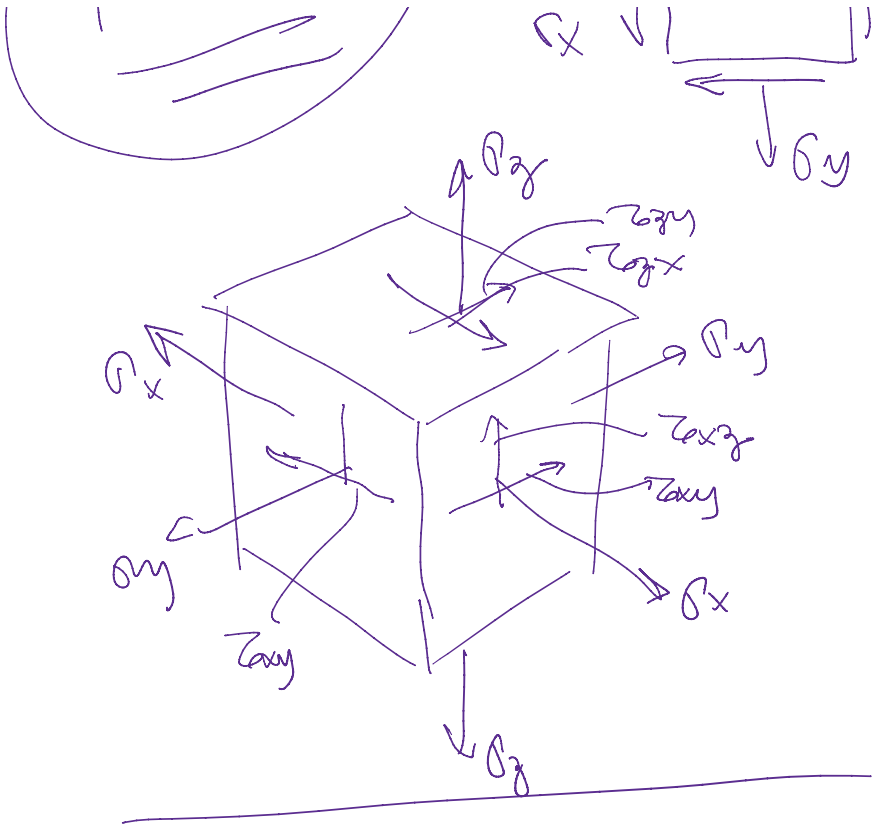
$$2(\sigma_T \cdot t) = p \cdot D$$

$$\boxed{\sigma_T = \frac{p \cdot D}{2t}}$$ Tensão normal axial

1)






σz
τzyx
τzxy
σx
σy
τxzy
τxyz
σy
σx
τxyz
σz