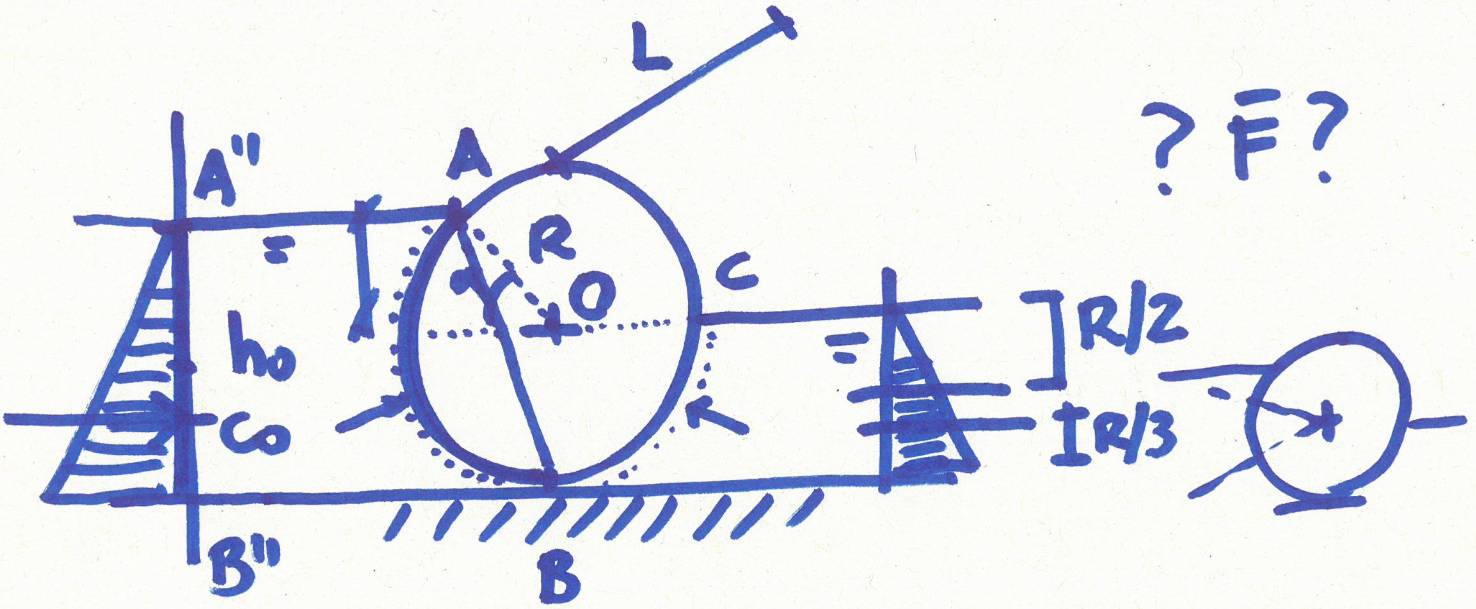
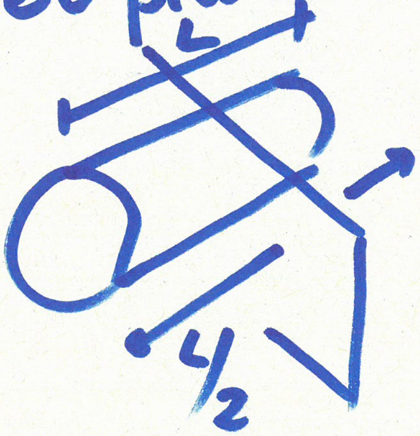
? F ?



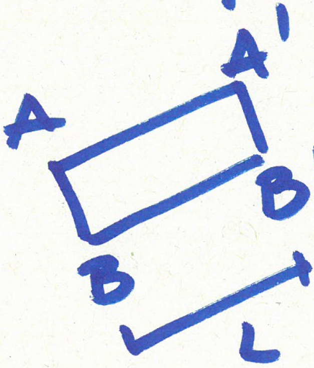
F nel piano medio



$$\xi_{GOM} = \frac{h_0}{2}$$

$$\xi_{COM} = \frac{2}{3} h_0$$

F passa per O



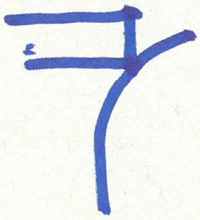
$$\overline{A''B''} = \underbrace{R + R\sin\alpha}_{h_0}$$

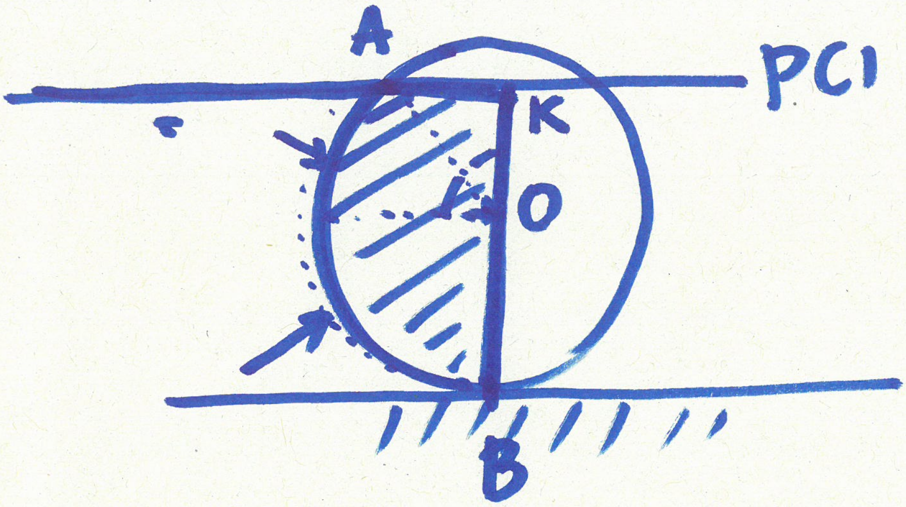
$$F_{Mx} = \gamma \underbrace{\frac{h_0}{2}}_{\xi_{GOM}} \underbrace{(h_0 \cdot L)}_{\Omega_{OM}}$$

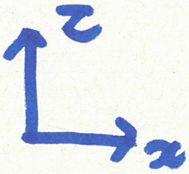
(→) $F_{Mx} = \frac{1}{2} \gamma L h_0^2$

← $F_{Vx} = \frac{1}{2} \gamma L R^2$ $h_V = R$

(⟶) $F_x = F_{Mx} - F_{vx}$







$\beta = \frac{\pi}{2} - \alpha$

(↑) $F_{Mz} = \gamma L A_{▨}$

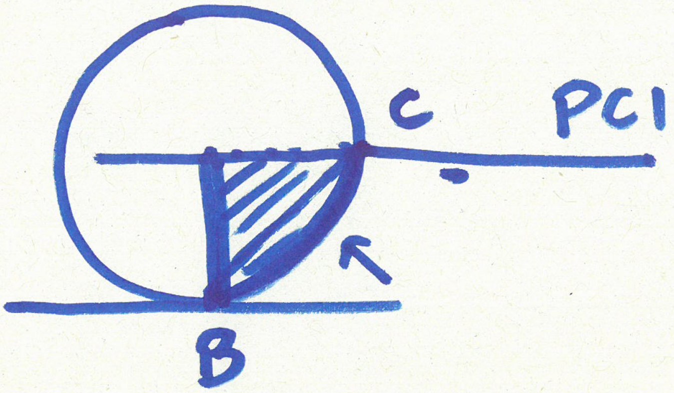
AOB : sett. circ. amp. $\frac{\pi}{2} + \alpha$
e raggio R

AKO : triang. rett.

$$A_{▨} = \left(\frac{\pi}{2} + \alpha\right)\frac{R^2}{2} + \frac{1}{2} R^2 \sin\beta \cos\beta$$

$$\alpha_r = \alpha^{\circ} \frac{\pi}{180^{\circ}}$$

~~A~~

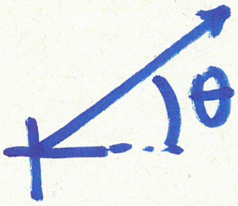


BB'C'C

$$(\uparrow)\ F_{vz} = \gamma \overbrace{L A}^{V}$$

$$\gamma L \boxed{\frac{\pi R^2}{4}}$$

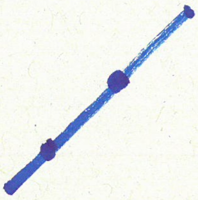
$$F_z = F_{Mz} + F_{vz}$$



$$\gamma L^3$$

$$\frac{N}{m^3}\cdot m$$

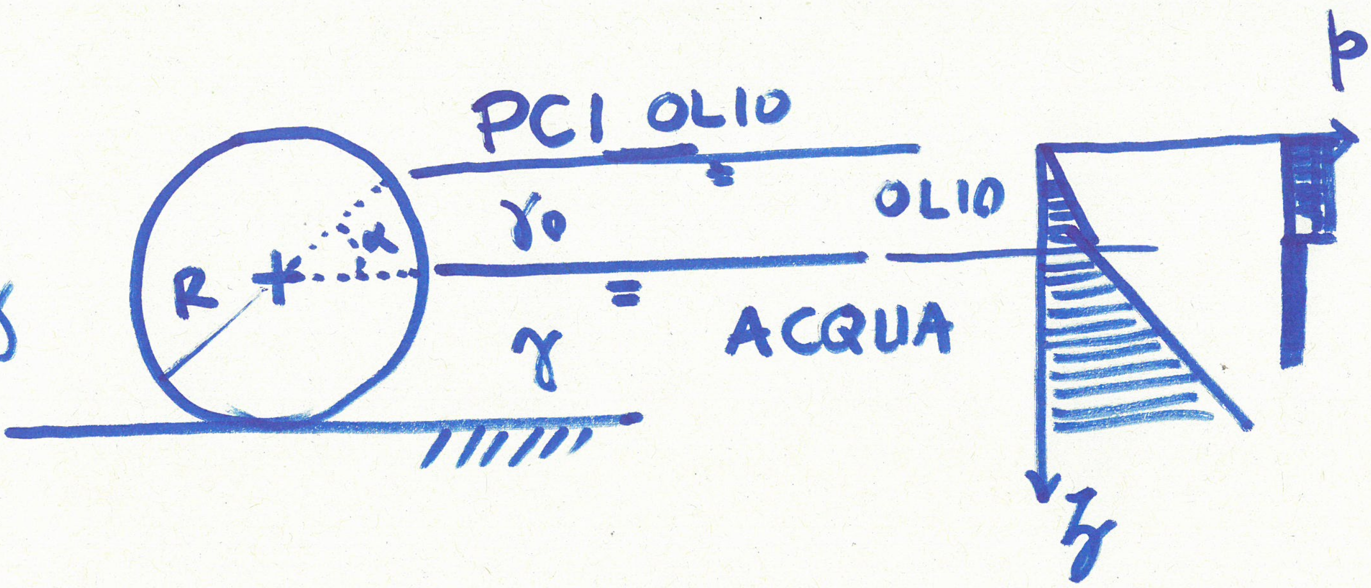
$$F = \sqrt{F_x^2 + F_z^2}$$



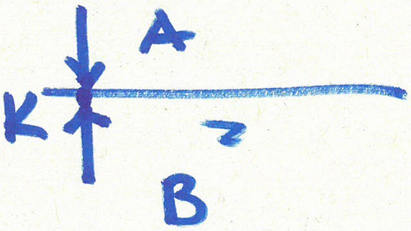
$$\theta = \operatorname{arctg}\left(\frac{F_z}{F_x}\right)$$

$\alpha = \frac{\pi}{4}$

$\gamma_0 < \gamma$



PRINC. DI CONTINUITA' delle AZ. MECC

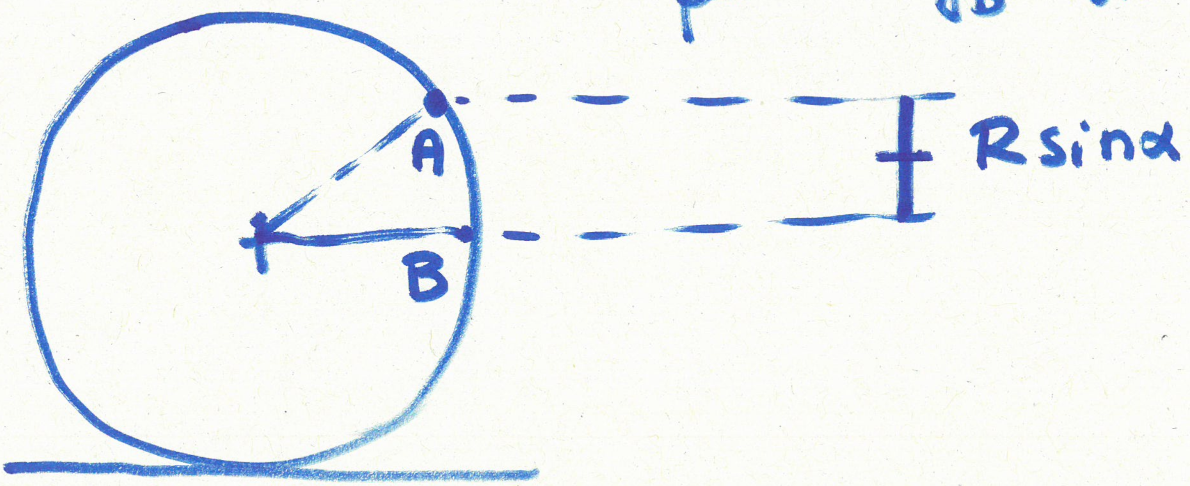


$dF = p\, dA\, \bar{n}$

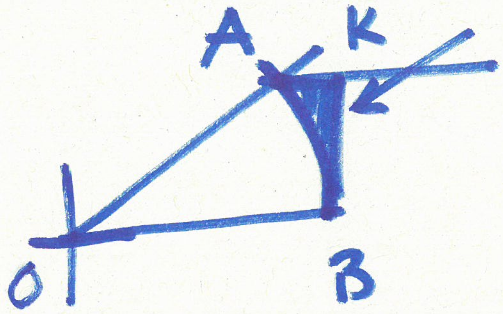
p_K = 1 solo valore

$h_B < h_A$

perchè $\gamma_B > \gamma_A$

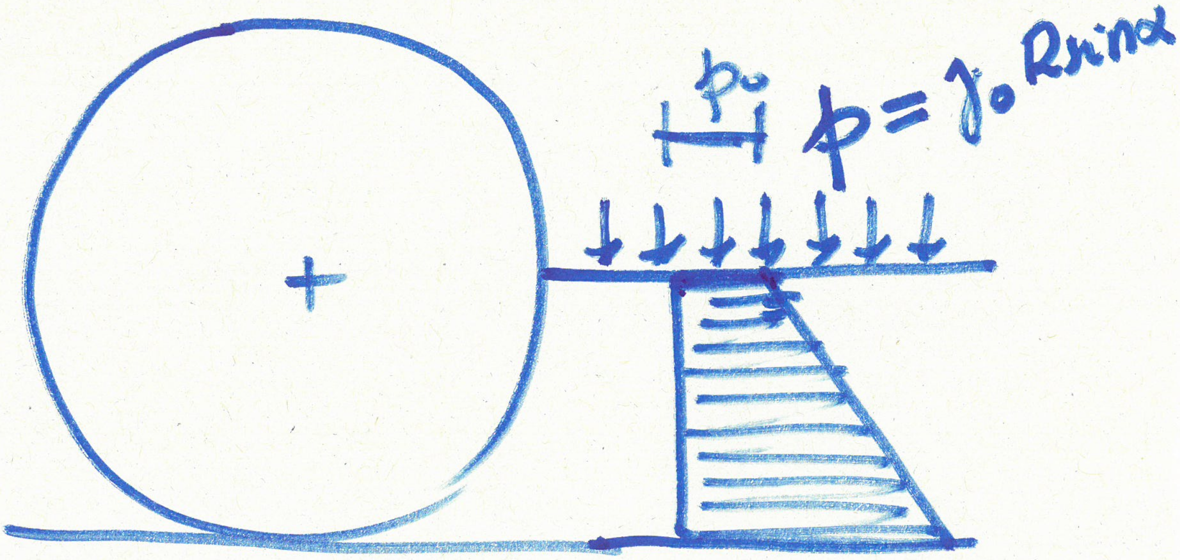


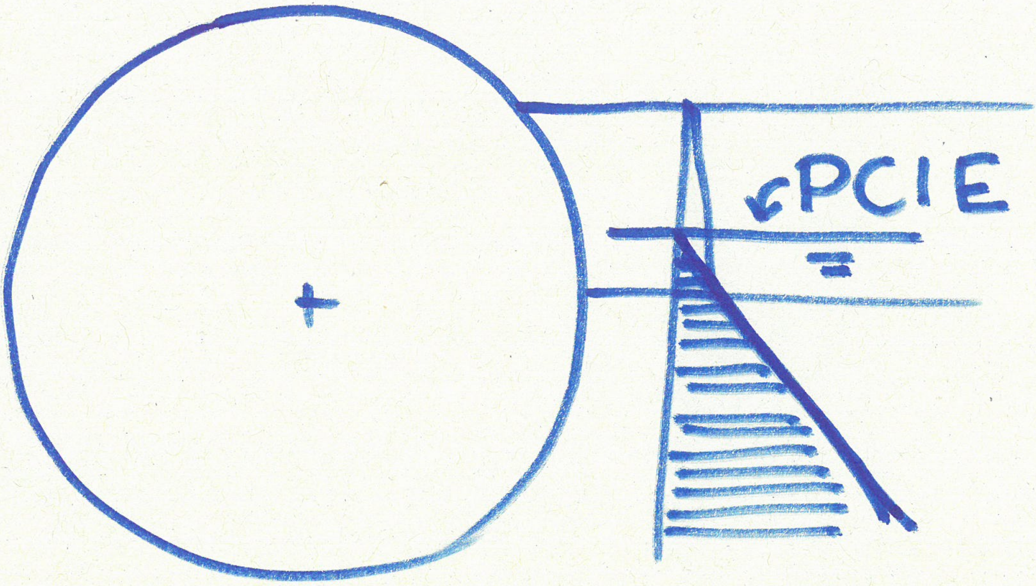
$$(\leftarrow)\ F_{ox} = \gamma (L\, R \sin\alpha) \frac{R \sin\alpha}{2} = \frac{1}{2} \gamma L R^2 \sin^2\alpha$$



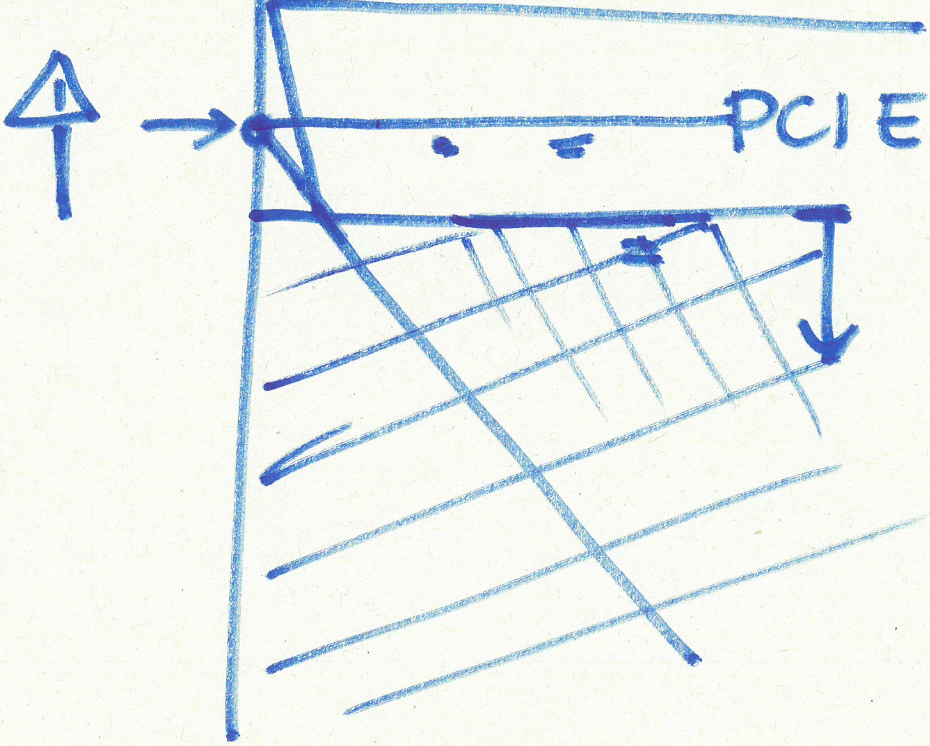
$$(\downarrow)\ F_{0z} = \gamma L A_{\blacktriangledown}$$

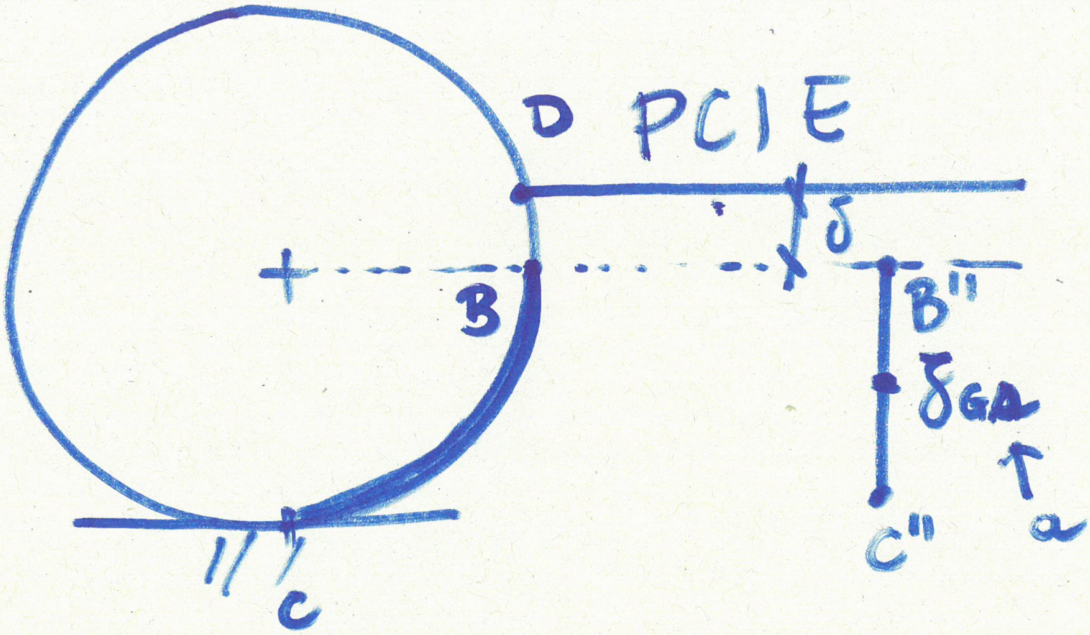
$$A_{\blacktriangledown} = \underbrace{A_{tr}}_{OBKA} - \underbrace{A_{sc}}_{A_{BOA}}$$





COSTRUISCO UN PIANO DEI CARI IDROSTATICI <u>EQUIVALENTE</u> PER L'ACQUA



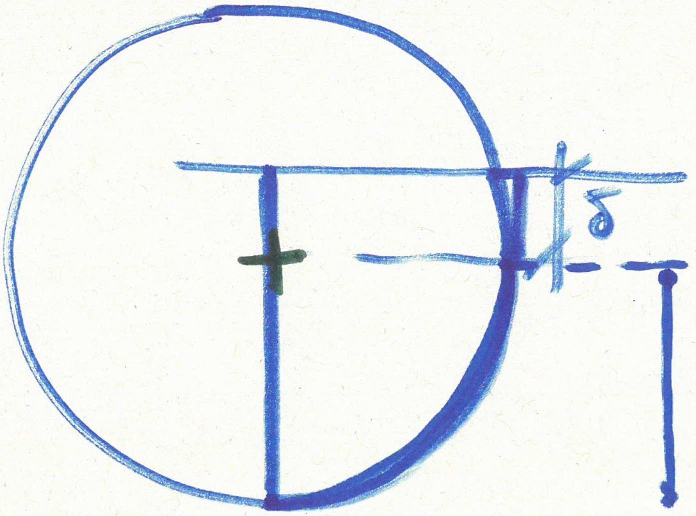


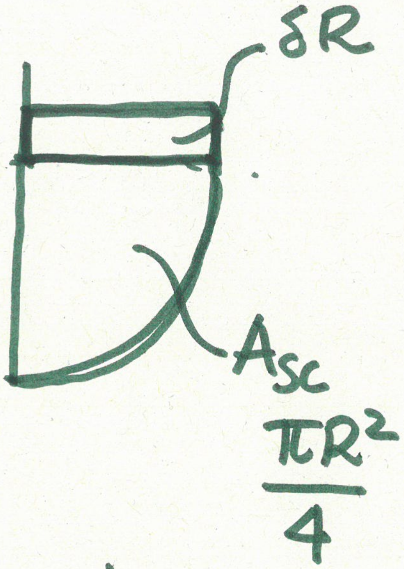
$$\gamma \delta = \gamma_0 \underset{R\sin a}{h_0}$$

$$\boxed{\delta = \frac{\gamma_0}{\gamma} h_0}$$

$$\delta_{Ga} = \delta + \frac{R}{2} \qquad \Omega = RL$$

$$(\leftarrow)\quad F_{ax} = \gamma \left(\overset{\downarrow}{\delta} + \frac{R}{2} \right) RL$$





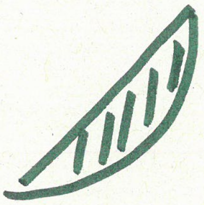
(↑) $F_{az} = \gamma L \left(\frac{\pi R^2}{4} + \delta R\right)$

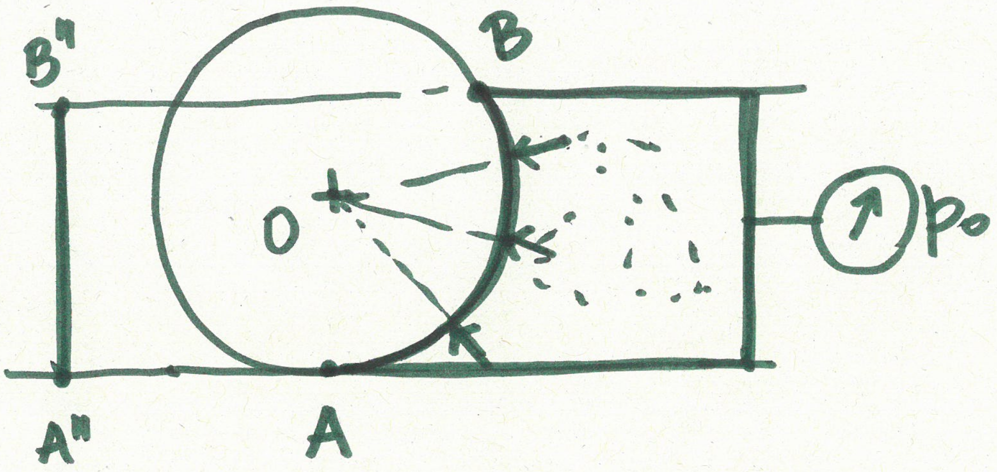
← $F_x = F_{0x} + F_{ax}$

↑ $F_z = F_{az} - F_{0z}$

$F = \sqrt{\dots}$ $\theta = \text{arctg} \, —$

$\underline{\underline{\bar{F} \text{ per } O}}$





$\bar{F}$ per O

FL INC. $z+\frac{p}{\gamma} = 0$

GAS a $\boxed{p=cost}$

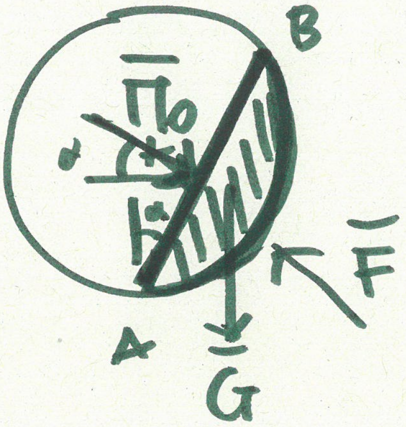
$p + \cancel{\gamma z} = cost$

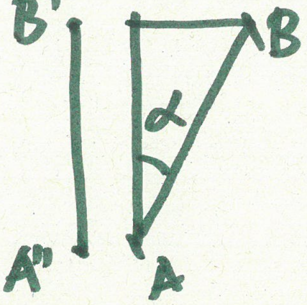
~~PCI~~ ?

$\leftarrow \quad p_0 \cdot \overline{A''B''} \cdot L$

$$F_x = \int dF_x = \int (p_0 \, dA)_x \quad /\!/ \leftarrow$$

$$= p_0 \int_A (dA)_x$$





$$|\Pi_{0x}| = |F_x|$$

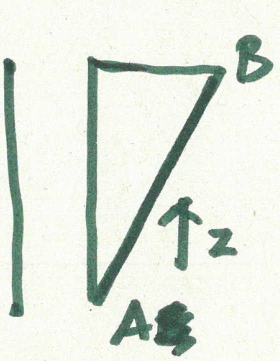
$$|\bar{\Pi}_0| \quad p_0 \left(\overline{AB} \cdot L\right)$$

grazie

$$|\Pi_{0x}| = |\bar{\Pi}_0| \overset{\cos\alpha}{\checkmark} = p_0 L \boxed{\overline{AB} \cos\alpha}$$

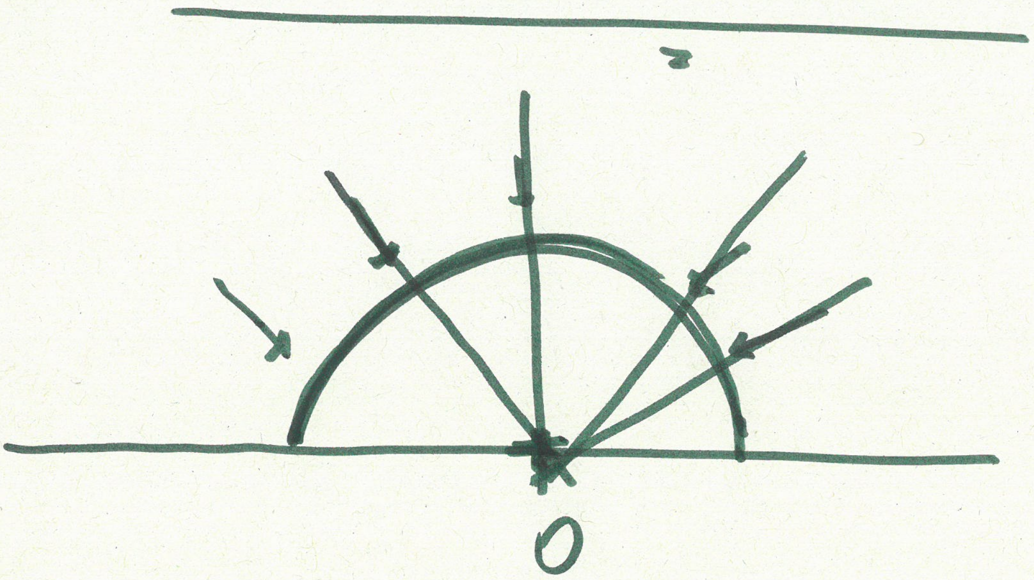
$$|\Pi_{0z}| + \cancel{|G_z|} = |F_z|$$

$$|F_z| = |\Pi_{0z}|$$



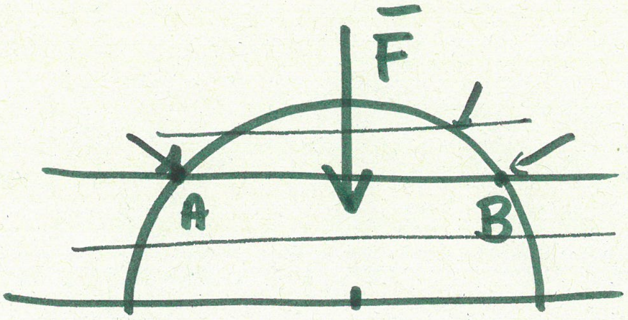
$$|\bar{\Pi}_0| \sin\alpha$$

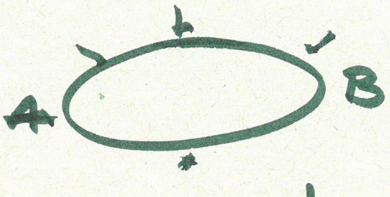
$$= p_0 \cdot L \cdot \overline{AB} \sin\alpha$$



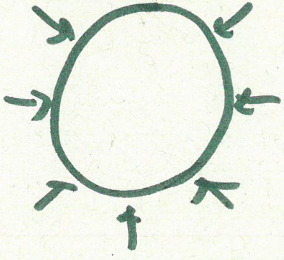
$\bar{F}$ per O

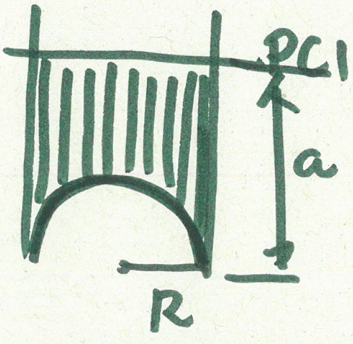
$\bar{F}$ ∈ piano diam

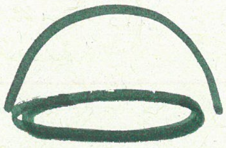




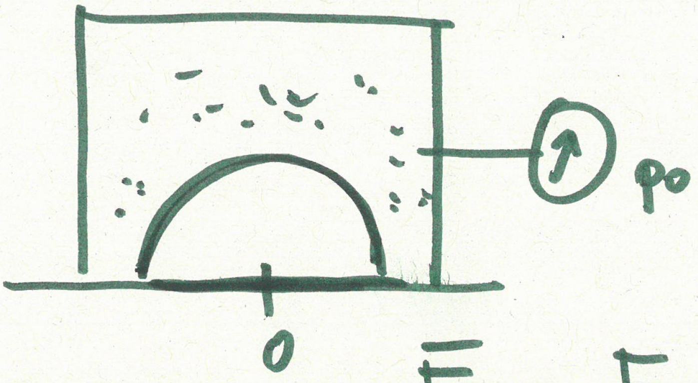
$p\,dA$







$$F_z = \gamma V = \gamma\left[\pi R^2 \cdot a - \frac{2}{3}\pi R^3\right]$$

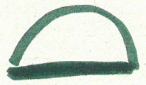


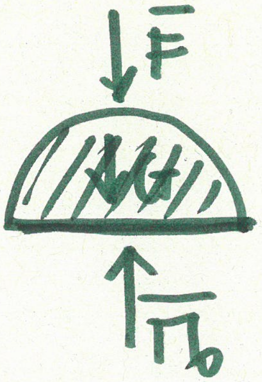
$\downarrow \bar{e}_z$

$$\bar{F} = F_z \bar{e}_z$$

$$F_z = p_0 (\pi R^2)$$

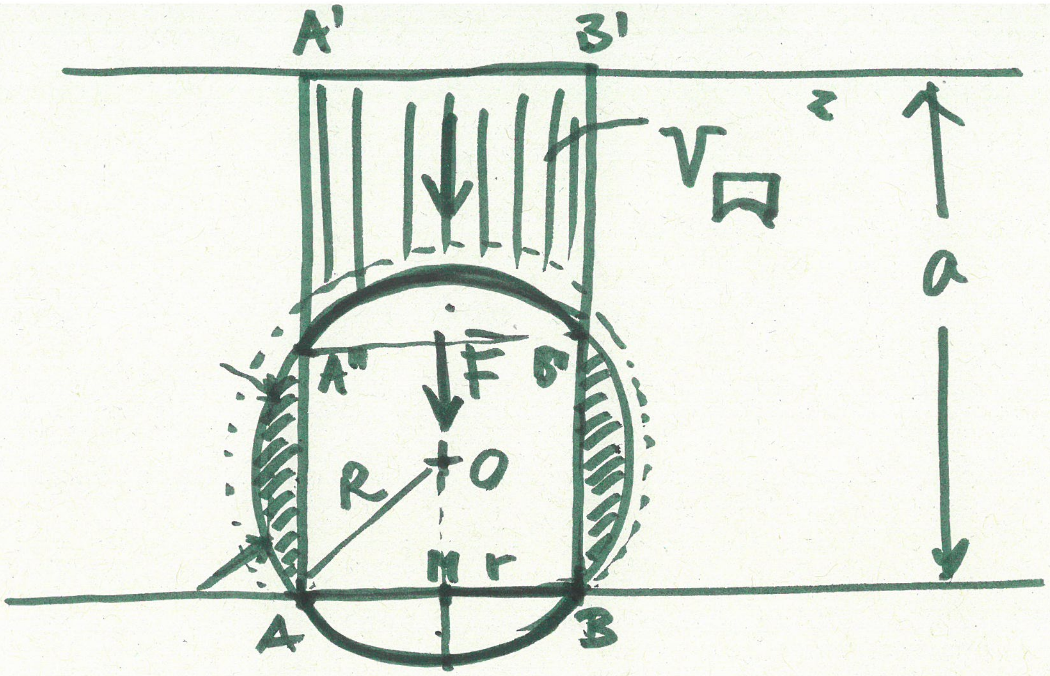
$$F_z = \int_A (p_0 \, dA)_z = \cancel{\int} p_0 \underbrace{\int_A (dA)_z}$$

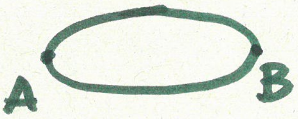




$$|F_z| + \cancel{|G_z|} = |\Pi_{0z}|$$

cerchio = sup. semisfera
proiettata in direz
⊥ a z





$$(\uparrow)\ V_{◐} = V_{sfera} - 2V_{cal} - V_{cil}$$

$\downarrow$ calotta piccola

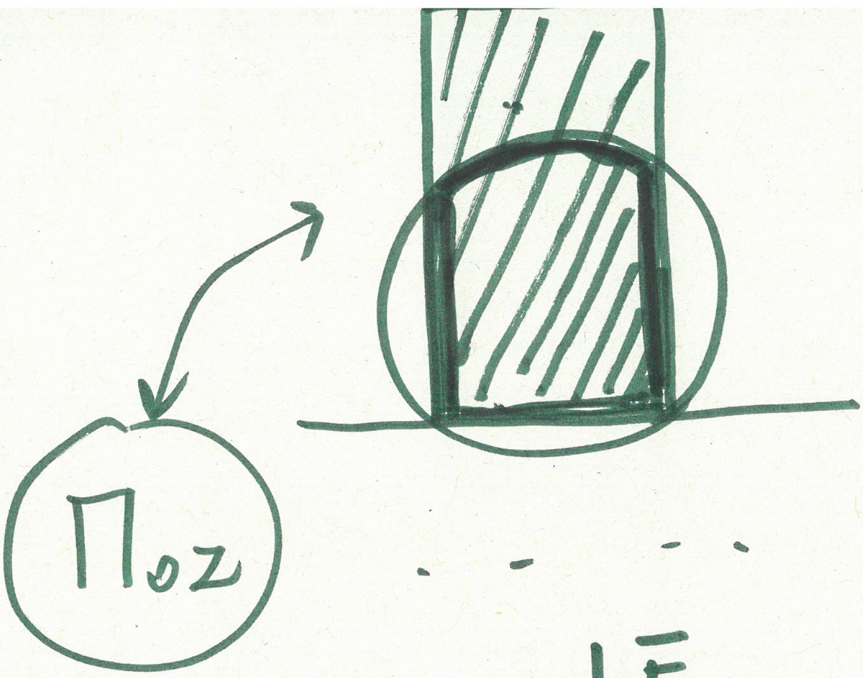
$cil = \overline{AB\,A'B'}$

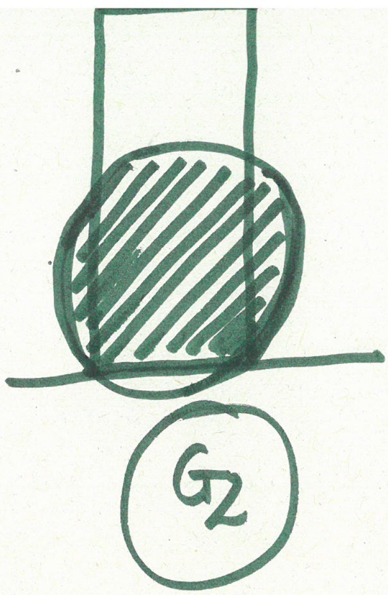
R, r

$$\overline{OM} = \sqrt{R^2 - r^2}$$

$$h_c = R - \overline{OM}$$

$$(\downarrow)\ F_z = \gamma\left(V_{\sqcap} - V_{◐}\right)$$





$$|F_z| + |G_z| = |\Pi_{oz}|$$

$$|F_z| = |\Pi_{oz}| - |G_z|$$