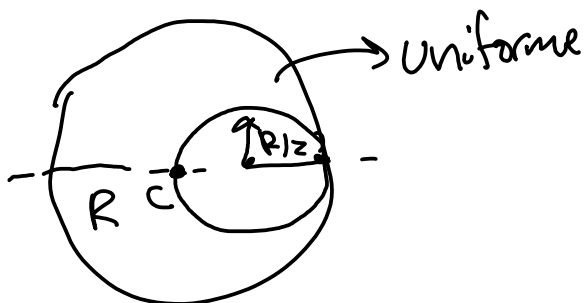# TALLER3

Ej4

M

→ uniforme

R C $(R/2)$ · m

M

d

Contribución original

$$F_0 = G\frac{Mm}{d^2}$$

$$\boxed{F_T = F_0 - F_A}$$

Contribución del Agujero.

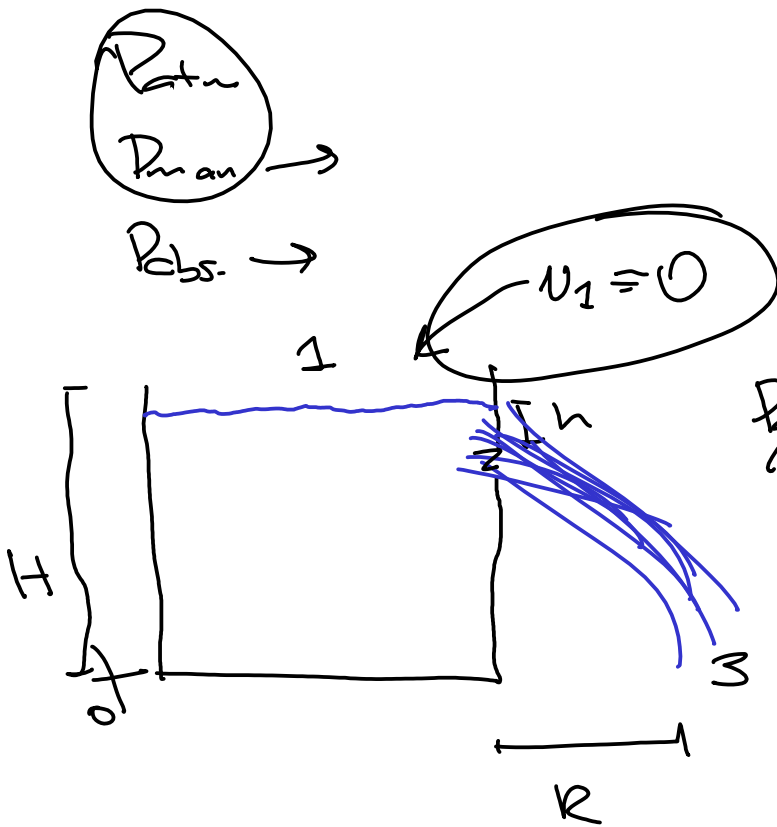$$F_A = G\frac{M^* m}{(d-R/2)^2} \longrightarrow ?$$

$$\rho_T = \rho_A \longrightarrow \frac{M}{\frac{4}{3}\pi R^3} = \frac{M^*}{\frac{4}{3}\pi\left(\frac{R}{2}\right)^3}$$

$$M^* = M\left(\frac{R^3}{8}\right)\cdot\frac{1}{R^3} \longrightarrow \boxed{M^* = \frac{M}{8}}$$

$$F_T = G\frac{Mm}{d^2} - G\frac{(M/8)m}{d^2(1-R/2d)^2}$$

$$\boxed{F_T = G\frac{Mm}{d^2}\left[1 - \frac{1}{8(1-R/2d)^2}\right]}$$

$$P + \rho g h + \frac{1}{2}\rho v^2 = cte$$

P_{atm}

P_{man} →

$P_{abs.}$ →

$v_1 = 0$

1

H

0

h

2

3

R

Bernoulli:

$$P_{atm} + \rho g H + \frac{1}{2}\rho v_1^2 = P_{atm} + \rho g(H-h)$$
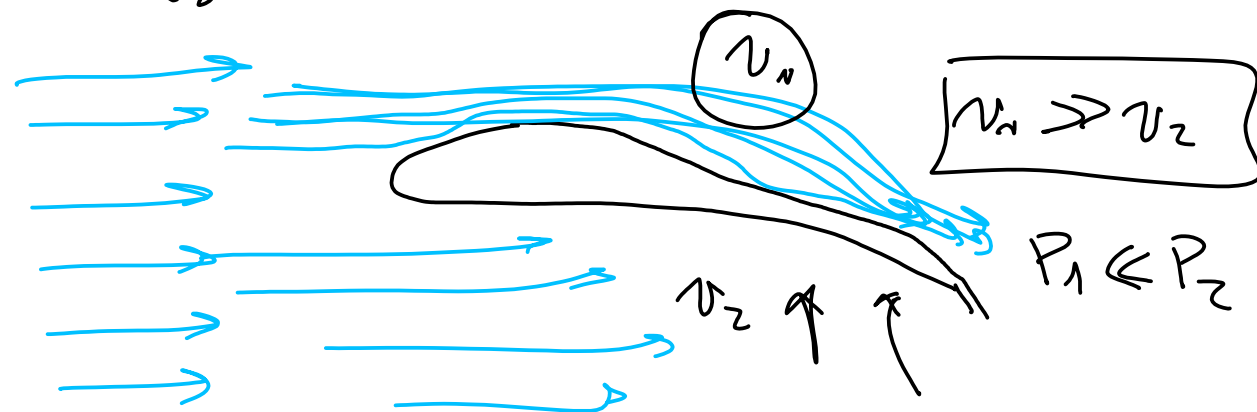$$+ \frac{1}{2}\rho v_2^2$$

0

$$\rho g h = \frac{1}{2}\rho v_2^2$$
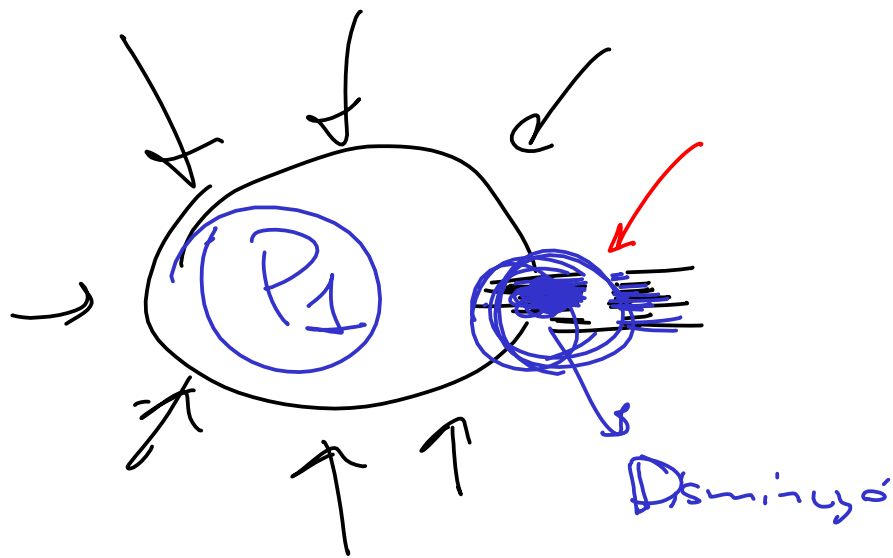
$$v_2 = \sqrt{2gh}$$

Caída Libre

$x:$
$$v_2 t = R$$

$y:$
$$0 = H - h - \frac{1}{2}g t^2 \rightarrow \sqrt{\frac{2(H-h)}{g}} = t$$

v_n

$v_n \gg v_2$

v_2

$P_1 \ll P_2$

$$\frac{F}{A} = P$$

no es bernoulli

$$P_{atm}$$

$$P_S > P_{atm}$$

Disminuyó

$$P_1 + P_{atm} = P_{abs}$$

$$P_1 + \frac{1}{2}\rho v_1^2 = P_2 + \frac{1}{2}\rho v_2^2 = cte$$

$$v_1 < v_2$$

Cap. 9 y 10 de Z.