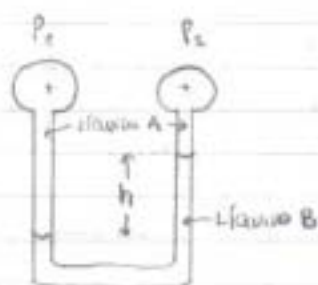


PÁG. 1 PROBLEMA 1, EJERCICIO 1



$$SG_A = 0,88$$

$$SG_B = 2,95$$

$$SG_A = 0,88 \Rightarrow \frac{\rho_A}{\rho_{H_2O}} = 0,88 \Rightarrow \rho_A = 0,88 \cdot \rho_{H_2O} = 880 \frac{kg}{m^3}$$

$$SG_B = 2,95 \Rightarrow \frac{\rho_B}{\rho_{H_2O}} = 2,95 \Rightarrow \rho_B = 2,95 \cdot \rho_{H_2O} = 2950 \frac{kg}{m^3}$$

$$P = \rho \cdot g \cdot h$$

$$P_1 - P_2 = 870 [Pa]$$

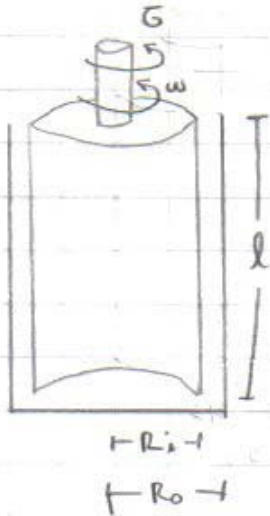
$$\Rightarrow P_1 + \rho_A g h - (P_2 + \rho_B g h) = 0$$

$$\Rightarrow P_1 - P_2 = \rho_B g h - \rho_A g h \Rightarrow h (\rho_B - \rho_A) = 870 Pa$$

$$\Rightarrow h = \frac{870 Pa}{(2950 - 880) \frac{kg}{m^3} \cdot 9,8 \frac{m}{s^2}} \Rightarrow h = \frac{870 \frac{N}{m^2}}{20286 \frac{kg}{m^3} \cdot \frac{m}{s^2}} = 4,289 \cdot 10^{-2} \frac{N}{m^2} \cdot \frac{s^2}{kg} \cdot \frac{m}{N}$$

$$\Rightarrow h = 4,289 \cdot 10^{-2} \frac{kg \cdot m}{s^2} \cdot \frac{s^2}{kg} \Rightarrow h = 4,289 [cm]$$

PAUTA PROBLEMA 2, EJERCICIO 1



$$P = T \omega$$

$$\tau = \mu \frac{\partial u}{\partial y}$$

$$u = a \cdot y + b \quad (\text{PERFIL DE VELOCIDAD LINEAL})$$

CONDICIONES DE BORDE:

$$u(R_o) = 0 \Rightarrow a \cdot R_o + b = 0$$

$$u(R_i) = \omega_i \cdot R_i \Rightarrow a \cdot R_i + b = \omega_i \cdot R_i$$

$$\Rightarrow a(R_i - R_o) = \omega_i R_i \Rightarrow a = \frac{-\omega_i R_i}{R_o - R_i}$$

$$\Rightarrow b = \frac{\omega_i R_i \cdot R_o}{(R_o - R_i)}$$

LUEGO:

$$u = \frac{-\omega_i R_i}{R_o - R_i} y + \frac{\omega_i (R_i \cdot R_o)}{R_o - R_i}$$

$$\Rightarrow \frac{\partial u}{\partial y} = \frac{-\omega_i R_i}{R_o - R_i} \Rightarrow \tau = \mu \cdot \frac{-\omega_i R_i}{R_o - R_i}$$

$$F = \tau \cdot A = \frac{-\mu \omega_i R_i}{R_o - R_i} l \cdot 2\pi R_i^2$$

$$T = F \cdot R_i \Rightarrow T = \frac{-\mu \omega_i l 2\pi R_i^3}{R_o - R_i}$$

$$\Rightarrow \mu = \frac{-(R_o - R_i) T}{\omega_i l \cdot 2\pi R_i^3}$$