

Aula - 5 E.P. - 2

a) $H = h - 2m$

$$H = 2,7468m - 2m$$

$$H = 0,7468m$$

b) $P_B = \rho_{H_2O} \cdot h_1$

sendo $h_1 =$

$$h_1 = h + 3m$$

$$h_1 = 2,7468m + 3m$$

$$h_1 = 5,7468m$$

$$P_B = 10000 \frac{N}{m^3} \cdot 5,7468m$$

$$P_B = 57468 \frac{N}{m^2}$$

$$P_B = 0,5858 \text{ kgf/cm}^2$$

$$P_A = 0,28 \text{ kgf/cm}^2$$

$$\rho_{H_2O} = 10000 \text{ N/m}^3$$

$$P_A = \rho_{H_2O} \cdot h$$

$$h = \frac{P_A}{\rho_{H_2O}} \Rightarrow h = \frac{0,28 \text{ kgf/cm}^2}{10000 \text{ N/m}^3}$$

transformando

$$0,28 \text{ kgf/cm}^2 \Rightarrow \text{N/m}^2$$

$$\text{sendo } 1 \text{ kgf} = 9,81 \text{ N}$$

$$0,28 \frac{\text{kgf}}{\text{cm}^2} \cdot \frac{9,81 \text{ N}}{1 \text{ kgf}} \cdot \frac{10000 \text{ cm}^2}{1 \text{ m}^2}$$

$$1 \text{ m}^2 \text{ decm}^2 \cdot \text{cm}^2$$

$$2 \times 2 = 4$$

$$0,28 \frac{\text{kgf}}{\text{cm}^2} = 27468 \frac{\text{N}}{\text{m}^2}$$

Assim temos:

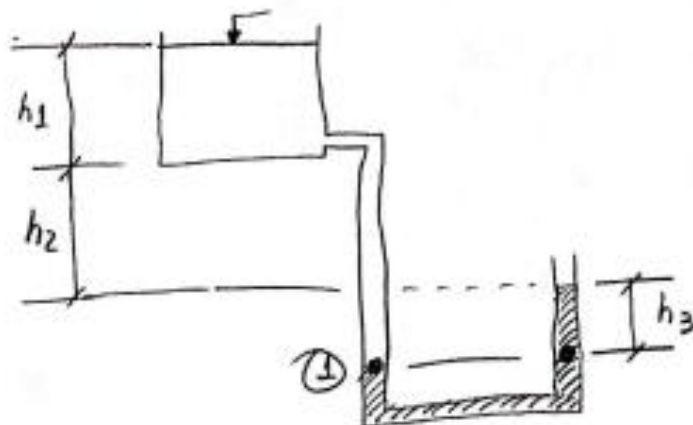
$$h = \frac{27468 \frac{\text{N}}{\text{m}^2}}{10000 \frac{\text{N}}{\text{m}^3}} \Rightarrow h = 2,7468m$$

Aula 5 - E.P. - 3

$$\gamma_{Hg} = 136000 \frac{N}{m^3}$$

$$\rho_{Hg} = 13600 \text{ kg/m}^3$$

$$\gamma_{H_2O} = 10000 \frac{N}{m^3}$$



Vindo pelo lado do mercúrio

$$P_1 = \gamma_{Hg} \cdot h_3$$

$$P_1 = 136000 \frac{N}{m^3} \cdot 1,3 \text{ m}$$

$$P_1 = 176800 \frac{N}{m^2}$$

sendo:

$P_1 = (\text{interface})$
igual para H_2O e Hg

$$P_1 = \gamma_{H_2O} \cdot h_T$$

$$h_T = \frac{P_1}{\gamma_{H_2O}}$$

$$h_T = \frac{176800 \frac{N}{m^2}}{10000 \frac{N}{m^3}}$$

$$h_T = 17,68 \text{ m}$$

$$h_T = h_1 + h_2 + h_3$$

$$h_1 = h_T - h_2 - h_3$$

$$h_1 = 17,68 \text{ m} - 15,0 \text{ m} - 1,3 \text{ m}$$

$$h_1 = 1,38 \text{ m}$$

Aula 5 - E.P. - 4

$$\rho_{\text{Liq}} = [\text{N/m}^3]$$

$$P_{(1)} = \rho_{\text{H}_2\text{O}} \cdot h$$

$$P_{(1)} = 10000 \frac{\text{N}}{\text{m}^3} \cdot 2,72 \text{ m}$$

$$P_{(1)} = 27200 \frac{\text{N}}{\text{m}^3}$$

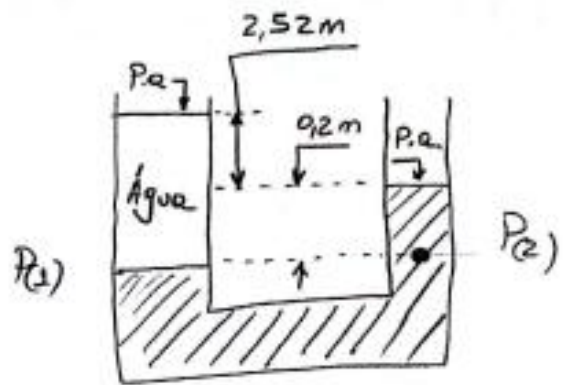
$$P_{(1)} = P_{(2)} = 27200 \frac{\text{N}}{\text{m}^3}$$

$$P_{(2)} = \rho_{\text{Liq}} \cdot h$$

$$\rho_{\text{Liq}} = \frac{P_{(2)}}{h}$$

$$\rho_{\text{Liq}} = \frac{27200 \frac{\text{N}}{\text{m}^3}}{0,2 \text{ m}}$$

$$\rho_{\text{Liq}} = 136000 \frac{\text{N}}{\text{m}^3}$$



$$\rho_{\text{Liq}} = 136000 \frac{\text{N}}{\text{m}^3} = \rho_{\text{Hg}}$$