

Exercice 6

1) R F H entre D et B

$$P_B - P_D = \rho_H g (z_D - z_B)$$

$$P_B = \rho_H g (z_D - z_B) + P_D$$

$$P_B = \rho_H g \Delta h$$

$$\begin{cases} P_D = P_{\text{atm}} = 0 \\ z_D - z_B = \Delta h \end{cases}$$

R F H entre A et B

$$P_A - P_B = \rho_0 g (z_B - z_A)$$

$$P_A = \rho_0 g (z_B - z_A) + P_B$$

$$z_B - z_A = -y$$

$$P_A = -\rho_0 g y + P_B$$

$$P_A = -\rho_0 g y + \rho_H g \Delta h$$

$$P_A = \rho_H g \Delta h - \rho_0 g y$$

$$P_A = g (\rho_H \Delta h - \rho_0 y)$$

$$\begin{cases} g = 9,81 \text{ m s}^{-2} \\ \rho_H = 13600 \text{ kg m}^{-3} \\ \rho_0 = 1000 \text{ kg m}^{-3} \\ \Delta h = 0,6 \text{ m} \\ y = 1,6 \text{ m} \end{cases}$$

2) AN: $P_A = 64\,353,6 \text{ Pa}$
 $= 0,64 \text{ bar}$