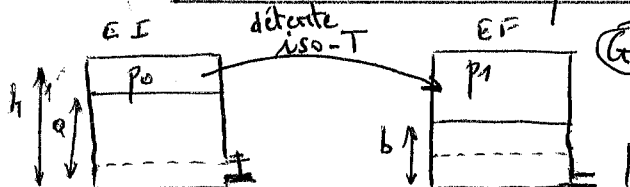


M1F114 - Prélèvement d'un liquide dans un récipient



$$nRT = p_0(h-a)S = p_1(h-b)S$$

$$\rightarrow p_0(h-a) = p_1(h-b)$$

$$p_0 + \rho g b = p_1 \quad \parallel \rightarrow \frac{p_1}{p_0} = \frac{h-a}{h-b}$$

$$\rightarrow \frac{p_1}{p_0} + \frac{\rho g b}{p_0} = 1 \rightarrow \frac{h-a}{h-b} + \frac{\rho g b}{p_0} = 1$$

$$h-a + \frac{\rho g b}{p_0}(h-b) = h-b \rightarrow -\frac{\rho g b^2}{p_0} + \left(1 + \frac{\rho g h}{p_0}\right)b - a = 0$$

$$b = \frac{-p_0}{\rho g} \left[-1 + \left(\frac{\rho g h}{p_0}\right) + \sqrt{\left(1 + \frac{\rho g h}{p_0}\right)^2 - 4 \frac{\rho g a}{p_0}} \right] \quad b = 0,679 \text{ m.}$$

$$V = (a-b)S = 1,71 \text{ L}$$