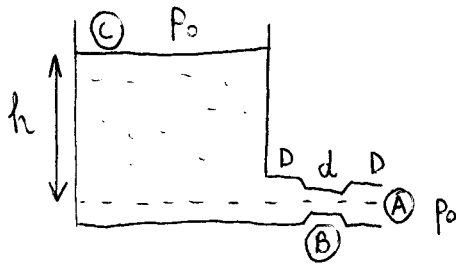


8.)

$$h = 1\text{m} \quad D = 5\text{cm} \quad d = 4\text{cm} \quad \rho = 1000 \frac{\text{kg}}{\text{m}^3}$$



a) (i) $v_A = ?$ b) $p_B = ?$

(ii) $\frac{\Delta V}{\Delta t} = ?$

$$p + \frac{1}{2} \rho v^2 + \rho g h = \text{'all'}$$

$$A v = \text{'all'}$$

a) (i)

$$p_A + \frac{1}{2} \rho v_A^2 + \rho g h_A = p_C + \frac{1}{2} \rho v_C^2 + \rho g h_C \quad p_A = p_B = p_0 \quad v_C \approx 0$$

$$p_0 + \frac{1}{2} \rho v_A^2 + 0 = p_0 + 0 + \rho g h$$

$$v_A = \dots$$

(ii) $\frac{\Delta V}{\Delta t} = \frac{A v \Delta t}{\Delta t} = A v \quad A_A v_A = \frac{D^2}{4} \pi v_A = \dots$

b)

$$A_A v_A = A_B v_B$$

$$v_B = \frac{A_A}{A_B} v_A = \dots$$

$$p_0 + \frac{1}{2} \rho v_A^2 = p_B + \frac{1}{2} \rho v_B^2$$

$$p_B = p_0 - \frac{1}{2} \rho (v_B^2 - v_A^2)$$

$$p_B = \dots$$