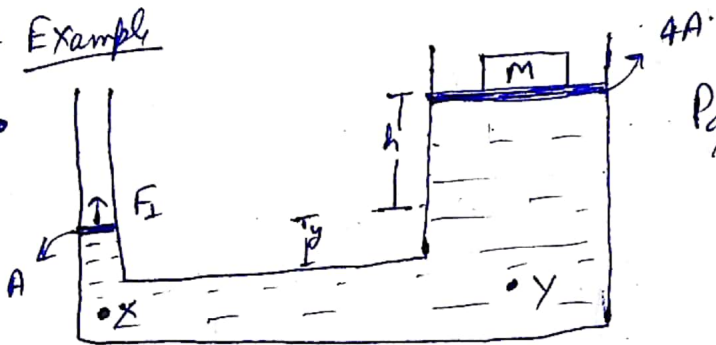


* Pascal's law (P is same at same level)



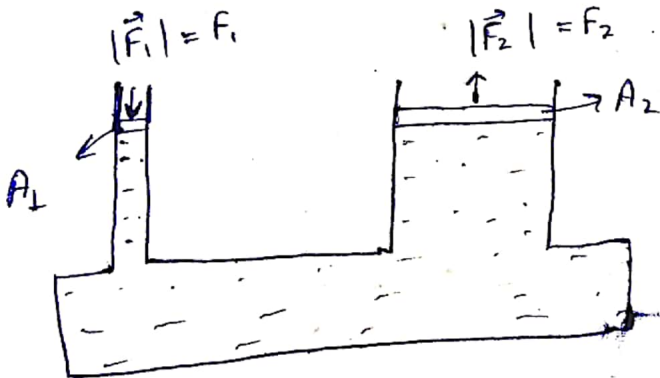
* Example



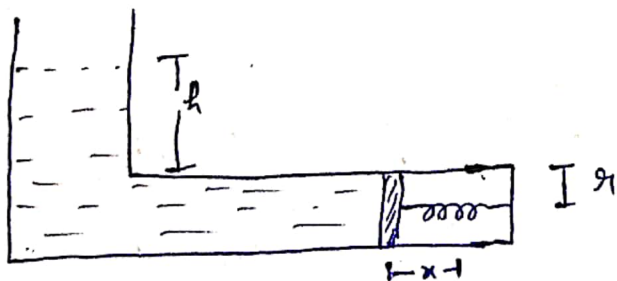
$$P_x = P_y$$

$$P_{atm} + \frac{F_1}{A} + \rho g h = P_{atm} + \frac{Mg}{4A} + \rho g h + \rho g y$$

$$F_1 = \frac{Mg}{4} + \rho g h A$$

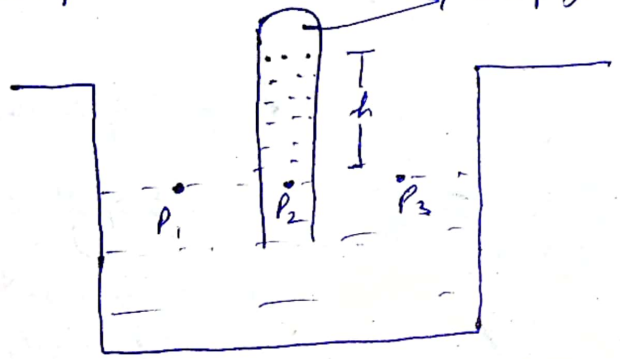


$$\frac{F_1}{A_1} = \frac{F_2}{A_2}$$



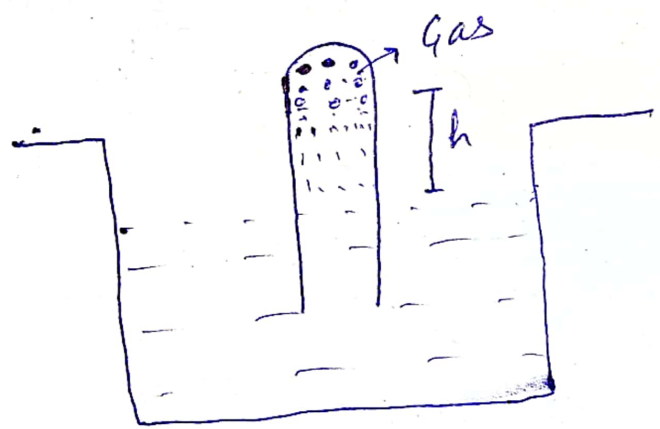
$$\frac{\rho g (h+x) \pi r^2}{k} = x$$

• Simple Barometer



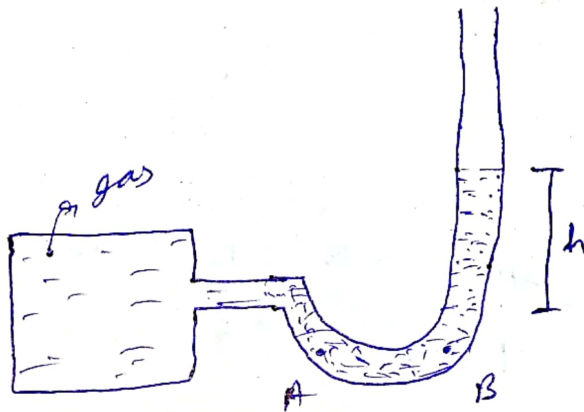
$$P_1 = P_2 = P_3$$

$$P_{atm} = \rho g h$$



$$P_2 = P_{gas} + \rho g h$$

Manometer



$$P_{\text{gas}} = P_{\text{atm}} + \rho g h$$

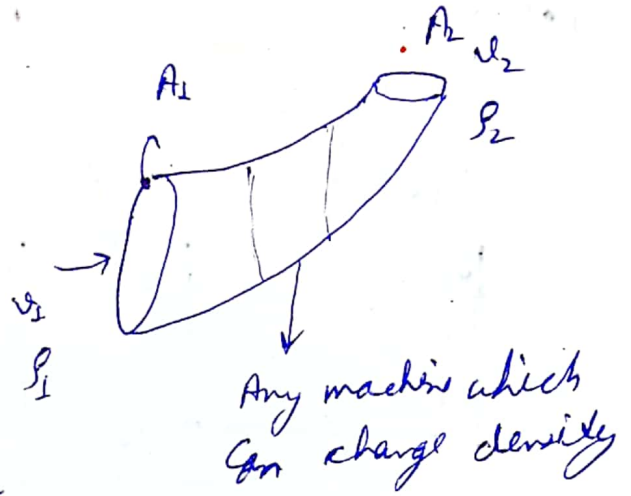
Eqⁿ of Continuity

$$\rho_1 A_1 v_1 = \rho_2 A_2 v_2$$

but, if we have same density fluid
then

$$\rho A_1 v_1 = \rho A_2 v_2$$

$$A_1 v_1 = A_2 v_2$$



- where ρ_1 = input density
- v_1 = input velocity
- A_1 = cross section area of input side
- ρ_2 = output density
- v_2 = output velocity
- A_2 = cross section area of output side

Buoyancy & Archimedes' Principle

- When an object is immersed in a fluid it experiences an upward force called buoyant force. This property is called buoyancy or upthrust.

Question - Why do objects float or sink when placed on the surface of water?

Answer - If the density of object is less than the density of a liquid, it will float on the liquid & if the density of an object is more than the density of liquid, it will sink in the liquid.

Archimedes' Principle

- Archimedes' principle states that, when a body is partially or fully immersed in a liquid (fluid) it experiences an upward force that is equal to the weight of the fluid displaced by it.

