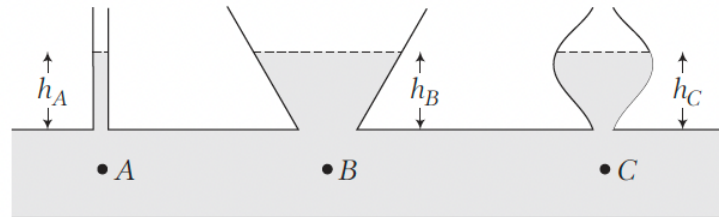


## Notes and formulas – Lecture 2

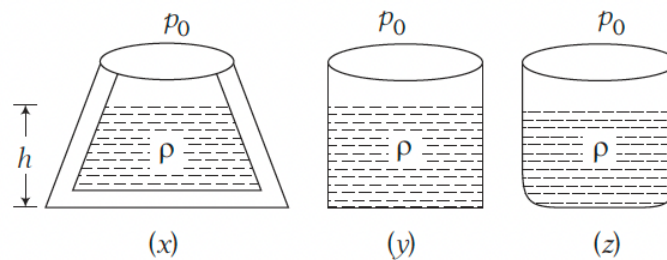
Important points related with fluid pressure are given below

- (i) At a point in the liquid column, the pressure applied on it is same in all directions.
- (ii) In a liquid, pressure will be same at all points at the same level.
- (iii) The pressure exerted by a liquid depends only on the height of fluid column and is independent of the shape of the containing vessel.



If  $h_A = h_B = h_C$ , then  $p_A = p_B = p_C$

- (iv) Consider following shapes of vessels



Pressure at the base of each vessel

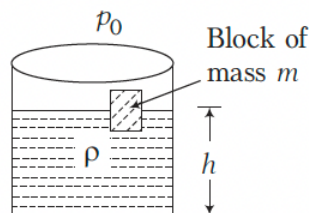
$$p_x = p_y = p_z = p_0 + \rho gh \text{ but } w_x \neq w_y \neq w_z$$

where,  $\rho$  = density of liquid in each vessel,

$h$  = height of liquid in each vessel

and  $p_0$  = atmospheric pressure.

- (v) In the figure, a block of mass 'm' floats over a fluid surface



If  $\rho$  = density of the liquid

$A$  = area of the block

Pressure at the base of the vessel in  $p = p_0 + \rho gh + \frac{mg}{A}$