$$\text{Pressure} = \frac{\text{Force}}{\text{Area}}$$

Units of Pressure:

$$1Pa = 1\frac{N}{m^2} \quad \text{(standard SI unit called Pascal)}$$

$$1bar = 100kPa = 10^5 Pa$$

$$\text{Atmospheric Pessure is veruy close to 1 Bar:}$$

$$1atm \approx 1.01bar$$

Pressure in fluids

- **Pascal's Principle:**

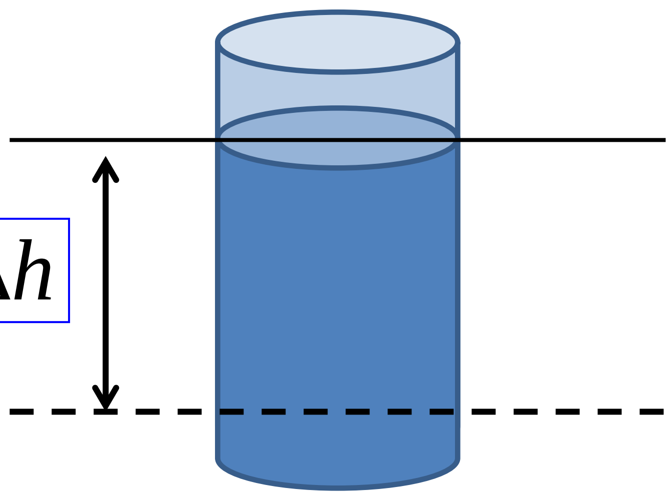
"Pressure in static fluid is transmitted uniformly in all directions"

P = *const*

(static fluid, no gravity)

- **Hydrostatic Pressure.** Due to gravity, the pressure increases as you go deeper in fluid:

$$\boxed{\Delta P = \rho g \Delta h}$$



$$P = P_{atm}$$

$$\Delta h$$

$$P = P_{atm} + \rho g \Delta h$$

Homework

The figure shows the famous experiment conducted in German city of Magdeburg in 1656. Air has been pumped out of a hollow sphere made of two separate halves. After that, the hemispheres could not be separated by two strong horses. **Why?** How much force would be needed to separate them, if the sphere radius is 25 cm? For simplicity, imagine that hemispheres are nearly flat disks.