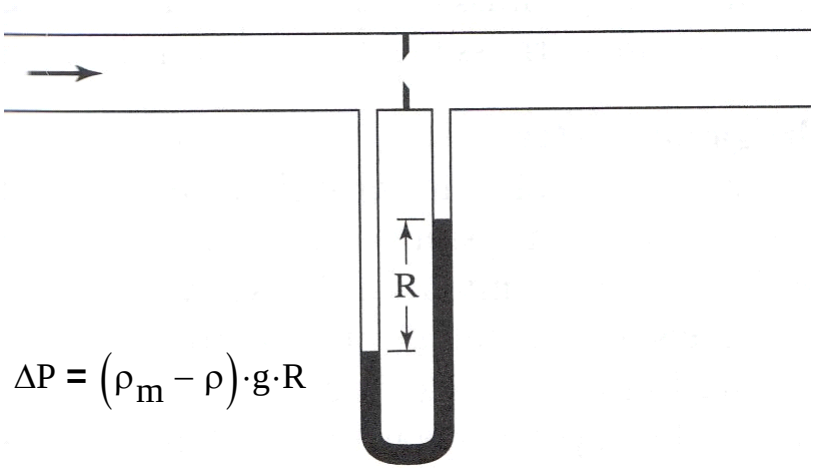
Orifice Meter



$\Delta P = \left(\rho_m - \rho\right) \cdot g \cdot R$

Question a

$\rho_m := 13600 \frac{kg}{m^3}$

$\rho := 1000 \frac{kg}{m^3}$ $\quad$ $g = 9.81 \frac{m}{s^2}$

$R := 32cm$

$\Delta P := \left(\rho_m - \rho\right) \cdot g \cdot R$ $\quad$ $\Delta P = 0.39\,atm$

Question b

$R := 70cm$

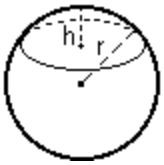
$\Delta P := \left(\rho_m - \rho\right) \cdot g \cdot R$ $\quad$ $\Delta P = 0.85\,atm$

Spherical Tank

$D := 12ft$ $\quad r := \frac{D}{2}$

$h := 3ft$

$V := \frac{4}{3}\pi r^3$



$V = 25620.48\,L$

$V_p := \frac{1}{3}\cdot\pi\cdot h^2\cdot(3\cdot r - h)$

$V_p = 4003.2\,L$

Part b

$h := 10ft$ $\quad V_p := \frac{1}{3}\cdot\pi\cdot h^2\cdot(3\cdot r - h)$

$V_p = 23722.67\,L$

$V_p(h, r) := \frac{1}{3}\cdot\pi\cdot h^2\cdot(3\cdot r - h)$

$V_p(3ft, 6ft) = 141.37\,ft^3$

$V_p(10ft, 6ft) = 837.76\,ft^3$