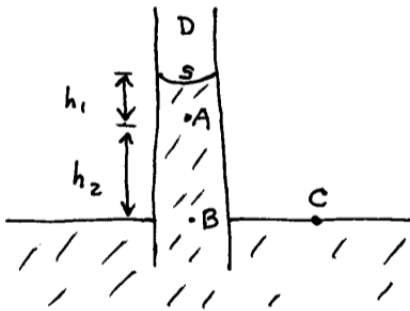


Problem 11-22



(a) At C, $P_{\text{gauge}} = 0$.

But $P_B = P_C$ (same level
in continuous
fluid)

$$\therefore P_B = 0 \text{ Pa}$$

(b) $P_B = P_A + \rho g h_2$

$$\therefore P_A = P_B - \rho g h_2$$

$$= (0 \text{ Pa}) - (8.0 \times 10^3 \text{ kg/m}^3)(9.8 \text{ m/s}^2)(0.04 \times 10^{-2} \text{ m})$$

$$= -31 \text{ Pa}$$

note: since surface S is curved [a portion of
a single-surfaced bubble], then $P_A \neq P_D$ are
related as follows:

$$P_A = P_D - \frac{2\gamma}{r_{\text{surface}}} + \rho g h_1$$

where $P_D = 0 \text{ Pa}$

r_{surface} = radius of curvature
of surface S (not
given)

\neq radius of capillary
tube

minus sign
because:

