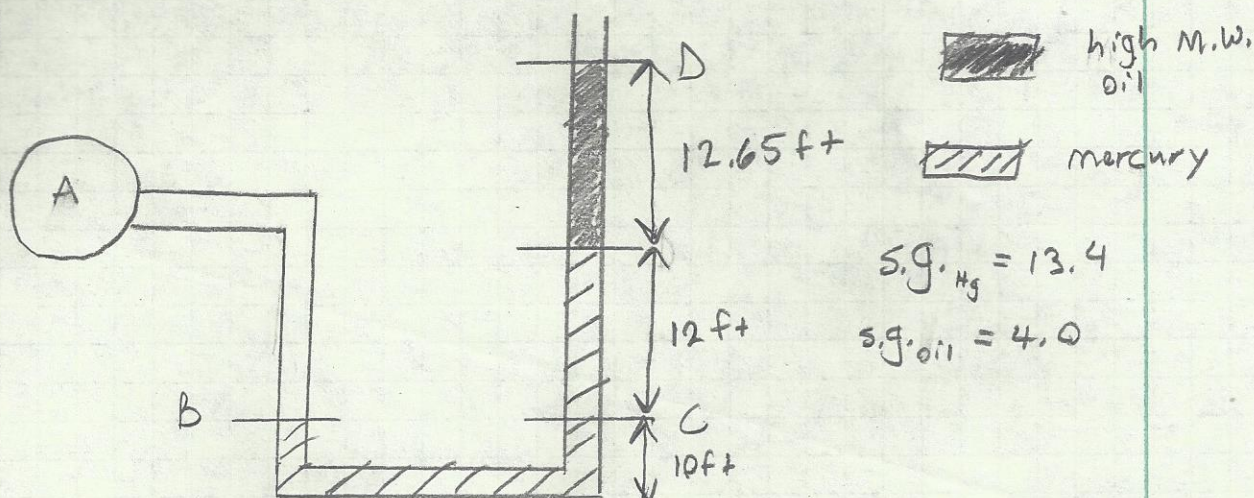


3



$$P_A = ?$$

$$P_A = \rho_{Hg} g Z_{Hg} + \rho_{oil} g Z_{oil} + P_{atm}$$

$$P_A = 13.4 \left(62.4 \frac{\text{lbm}}{\text{ft}^3} \right) \left(32.2 \frac{\text{ft}}{\text{s}^2} \right) \left(\frac{1 \text{ lbf} \cdot \text{s}^2}{32.2 \text{ lbm} \cdot \text{ft}} \right) (12 \text{ ft}) \left(\frac{1 \text{ ft}^2}{144 \text{ in}^2} \right) \\ + 4.0 \left(62.4 \frac{\text{lbm}}{\text{ft}^3} \right) \left(32.2 \frac{\text{ft}}{\text{s}^2} \right) \left(\frac{1 \text{ lbf} \cdot \text{s}^2}{32.2 \text{ lbm} \cdot \text{ft}} \right) (12.65 \text{ ft}) \left(\frac{1 \text{ ft}^2}{144 \text{ in}^2} \right) \\ + 14.7 \frac{\text{lbf}}{\text{in}^2}$$

$$\Rightarrow P_A = 106.3 \text{ psia}$$