

PM-2Soln)

One presumes that the layers separate out with the oil on top of the water and the mercury beneath the water.

We use Pascal's principle to find the pressure at the bottom of the oil; this then becomes the P_o for the top of the water, *et c.*

$$\begin{aligned} P &= (P_{\text{ATM}} + D_{\text{OIL}} g h_{\text{OIL}}) + D_{\text{WATER}} g h_{\text{WATER}} + D_{\text{MERCURY}} g h_{\text{MERCURY}} \\ &= 101,000 + 700(10)4 + 1000(10)2 + 13600(10)3 = 557,000 \text{ Pa} . \end{aligned}$$