2.42

2.42 Determine the pressure of the water in pipe *A* shown in Fig. P2.42 if the gage pressure of the air in the tank is 2 psi.

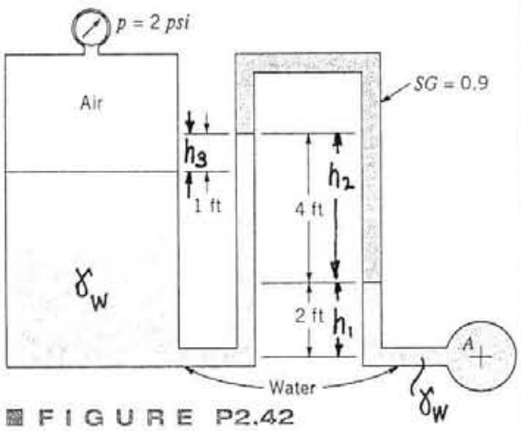

FIGURE P2.42

$$p_A - \gamma_w h_1 - (0.9\gamma_w)h_2 + \gamma_w h_3 = p_{air}$$

or

$$p_A = p_{air} + \gamma_w(h_1 + 0.9h_2 - h_3)$$

$$= 2\frac{lb}{in^2}\left(\frac{144 in^2}{ft^2}\right) + 62.4\frac{lb}{ft^3}(\quad ft + 0.9(4ft) - 1ft)$$

$$= 575\frac{lb}{ft^2}$$