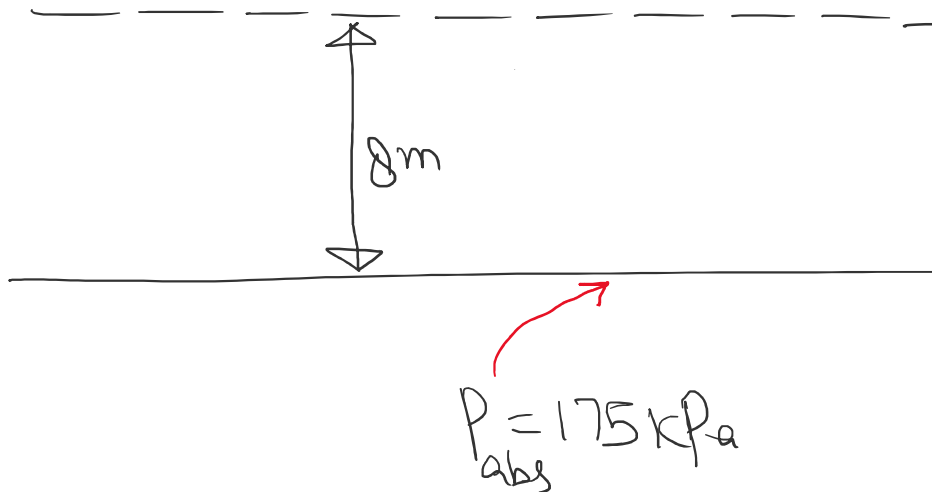


Fluid Statics Problem Solutions

Wednesday, 5 March, 2025 05:49 PM

3-15 The absolute pressure in water at a depth of 8 m is read to be 175 kPa. Determine (a) the local atmospheric pressure, and (b) the absolute pressure at a depth of 8 m in a liquid whose specific gravity is 0.78 at the same location.

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$$a) \quad P_{\text{abs}} = P_{\text{atm}} + \rho g h$$

$$175 \times 10^3 = P_{\text{atm}} + 1000 \times 9.81 \times 8$$

$$\Rightarrow P_{\text{atm}} = 96520 \text{ Pa} = 96.5 \text{ kPa}$$

✓

$$(b) : \quad C_n = 0.78$$

$$P_{abs} = \rho g h + P_{atm}$$

$$\Rightarrow P_{abs} = 0.78 \times \rho_w \times 9.81 \times 8m + 96520 \text{ Pa}$$

$$\Rightarrow P_{abs} = 780 \times 9.81 \times 8 + 96520 = 157734.4$$

$$\Rightarrow P_{abs} = 157.7 \text{ kPa}$$



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