

Constants & Equations:

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| $PV=nRT$ $d \frac{\text{g}}{\text{L}} = \frac{M_{\text{wt}} \cdot P}{R \cdot T}$ | $P = \rho \times h \times d$ $\frac{P_1 V_1}{T_1} = \frac{P_2 V_2}{T_2}$ | $R = 0.08206 \frac{\text{L} \cdot \text{atm}}{\text{mol} \cdot \text{K}}$ $1 \text{ mm Hg} = 1 \text{ torr}$ $1 \text{ mole} = 22.4 \text{ L (at STP)}$ |
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- Calculate the height in meters of a column of liquid glycerol (density = 1.26 g/cm³) required to exert the same pressure as 760 mmHg (d= 13.60 g/cm³).
- To what volume will a sample of gas expand if it heated from 50.0°C and 2.33 L to 500.0°C?
- A balloon filled with helium gas at 20°C occupies 4.91 L at 1.00 atm. The balloon is immersed in liquid nitrogen at -196°C, while the pressure is raised to 5.20 atm. What is the volume of the balloon in the liquid nitrogen?
- A 0.465 g sample of an unknown compound occupies 245 mL at 298 K and 1.22 atm. What is the molar mass of the unknown compound?

