

Application Questions Chapter 9

Data: 1 atm=760 torr=760 mm Hg, $K=^{\circ}\text{C}+273$; $PV=nRT$, $R=0.0821 \text{ L atm/mol K}=62.4 \text{ L torr/mol K}$

1. The pressure of a gas is 638 torr. Calculate the pressure in atmospheres.
2. Why do scuba divers need to exhale air when they ascend to the surface of the water?
3. A gas with a volume of 4.00 L and a pressure of 852 torr is in a closed container. Calculate the new pressure if the volume is compressed to 3.64 L with no change in temperature.
4. A gas has a volume of 6.23 L at 15°C. What final temperature in °C is needed to cause the volume of the gas to increase to 9.52 L if the pressure remains constant?
5. A 45.0 g sample of argon gas has a temperature of 35°C at 0.854 atm. What is the volume of the argon gas in L?