

1. A  $952 \text{ cm}^3$  container of gas is exerting a pressure of 108 kPa while at a temperature of  $48 \text{ }^\circ\text{C}$ . Calculate the pressure of this same amount of gas in a  $1236 \text{ cm}^3$  container at a temperature of  $64 \text{ }^\circ\text{C}$ .
2. At STP, a sample of gas occupies 24.5 mL. Calculate the volume of this gas at a pressure of 2.3 atm and a temperature of 301 K.
3. A 3.25 L container of ammonia gas exerts a pressure of 652 mm Hg at a temperature of 243 K. Calculate the pressure of this same amount of gas in a 2.50 L container at a temperature of 221 K.
4. A sample of gas has a volume of  $5.23 \text{ cm}^3$  at a pressure of 72.6 kPa and a temperature of  $25 \text{ }^\circ\text{C}$ . What will be the volume of the gas if the pressure is changed to 124 kPa and the temperature is changed to  $0 \text{ }^\circ\text{C}$ ?

5. Calculate the pressure (in kPa) of 0.421 mole of helium gas at 254 K when it occupies a volume of 3.32 L.
6. How many moles of argon are there in a 22.4 L sample of gas at 101.3 kPa and 0 °C?
7. What is the volume of 2.56 moles of gas at 0.634 atm and 65 °C?
8. A 500.0 g block of dry ice (solid  $\text{CO}_2$ , molar mass = 44.0 g) vaporizes to a gas at room temperature. Calculate the volume of gas produced at 25.0 °C and 1.50 atm.