More Chapter 5 Study Questions

1. A 24.0 liter sample of pure nitrogen gas at 20.0°C and 1.50 atmospheres pressure is heated. What is its pressure at 313°C if its volume is 36.0 liters?

2. A mixture of gases contains nitrogen at a partial pressure of 0.50 atmospheres, oxygen at a partial pressure of 0.20 atmospheres and carbon dioxide. The total gas pressure is 0.80 atmospheres.
   a) Find the partial pressure of carbon dioxide.
   b) If there are 0.25 moles of nitrogen, what is the number of moles of oxygen?

3. Find the number of grams of pentane gas in a 11.2 liter sample at 0°C and 2.40 atmospheres pressure.

4. a) Write a balanced equation for the production of ammonia gas (NH_3) from nitrogen gas (N_2) and hydrogen gas (H_2).
   b) What volume of ammonia is produced from 4.50 liters of H_2 at STP?
   c) What mass of ammonia is produced from 5.60 liters of N_2 at STP?
   d) What volume of ammonia is produced from 12.1 grams of H_2 at 25°C and 1.00 atmosphere pressure?

5. What is the density of C_3H_8 gas at 745 mm Hg and 65°C?

6. Calculate the molar mass of a gas if it has a density of 1.50 g/L at 1.26 atm and 34°C.

7. The volume of a dry gas at 758 mmHg and 12°C is 100. liters. What volume will the gas occupy if stored over water at 20.0°C and a total pressure of 740. mmHg?

8. If a 0.20 liter sample of O_2 at 0°C and 1.0 atmosphere pressure and a 0.10 liter sample of N_2 at 0°C and 2.0 atmospheres pressure are both placed in a 0.40 liter container at 0°C, what is the total pressure in the container?