/50

AP Chemistry – Auuuugghh the Pressure!!! – 22

Name _____Per ___

1. For an ideal gas, calculate the following quantities:

(a) the pressure of the gas if 0.215 moles occupies 338 mL at 32°C

(b) the temperature, in Kelvins, at which 0.0412 moles occupies 3.00 L at 1.05 atm

(c) the number of moles in 98.5 L at 236 K and 690 torr

(d) the volume occupied by 5.48×10^{-3} moles at 55°C and a pressure of 3.87 kPa.

2. A neon sign is made of glass tubing whose inside diameter is 4.5 cm and whose length is 5.3 m. If the sign contains neon at a pressure of 2.03 torr at 35°C, how many grams of neon are in the sign?

3. Which gas is least dense at 1.00 atm and 298 K, SO_3, HCl or CO_2?

4. Calcium hydride reacts with water to form hydrogen gas and calcium hydroxide. Write a balanced chemical equation and determine how many grams of calcium hydride are needed to generate 64.5 L of hydrogen gas at 814 torr and 32°C.

5. A mixture of gasses containing 3.15 g each of CH_4, C_2H_4 and C_4H_{10} is contained in a 2.00 L flask at a temperature of 64°C. (a) Calculate the partial pressure of each of the gases in the mixture and (b) the total pressure of the mixture.

6. (a) What are the mole fractions of each component in a mixture of 6.55 g of O_2, 4.92 g of N_2, and 1.32 g of H_2?

(b) What is the partial pressure in atm of each component of this mixture if it is held in a 12.40 L vessel at 15°C?

7. Calculate the root mean squared speed of NF_3 molecules at 25°C.