Name: _____ Grade: _____ Date: _____

CHAPTER 11 REVIEW

Gases

SECTION 3: Gas Volumes and the Ideal gas Law.

1. _____ The molar mass of a gas at STP is the density of that gas
   (a) multiplied by the mass of 1 mol.
   (b) divided by the mass of 1 mol.
   (c) multiplied by 22.4 L.
   (d) divided by 22.4 L.

2. _____ For the expression $V = \frac{nRT}{P}$, which of the following will cause the volume to increase?
   (a) increasing P
   (b) decreasing T
   (c) increasing T
   (d) decreasing n

3. Two sealed flasks, A and B, contain two different gases of equal volume at the same temperature and pressure.

   _____ a. The two flasks must contain an equal number of molecules. True or False?

   _____ b. The two samples must have equal masses. True or False?

4. Use the data in the table below to answer the following questions.

Formula	Molar mass (g/mol)
N_2	28.02
CO	28.01
C_2H_2	26.04
He	4.00
Ar	39.95

(Assume all gases are at STP.)

   _____ a. Which gas contains the most molecules in a 5.0 L sample?

   _____ b. Which gas is the least dense?

   _____ c. Which two gases have virtually the same density?

   _____ d. What is the density of N_2 measured at STP?

SECTION 3 *continued*

5. _____ a. How many moles of methane, CH_4 are present in 5.6 L of the gas at STP?

_____ b. How many moles of gas are present in 5.6 L of any ideal gas at STP?

_____ c. What is the mass of the 5.6 L sample of CH_4?

6. _____ a. A large cylinder of He gas, such as that used to inflate balloons, has a volume of 25.0 L at 22°C and 5.6 atm. How many moles of He are in such a cylinder?

_____ b. What is the mass of the He calculated in part a?

7. When C_3H_4 combusts at STP, 5.6 L of C_3H_4 are consumed according to the following equation:

$$C_3H_4(g) + 4O_2(g) \rightarrow 3CO_2(g) + 2H_2O(l)$$

_____ a. How many moles of C_3H_4 react?

_____ b. How many moles of O_2, CO_2, and H_2O are either consumed or produced in the above reaction?

_____ c. How many grams of C_3H_4 are consumed?

_____ d. How many liters of CO_2 are produced?

_____ e. How many grams of H_2O are produced?