

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 ₂ H 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 N₂ measured at STP?

SECTION 3 *continued*

5. _____ a. How many moles of methane, CH₄ are present in 5.6 L of the gas at STP?

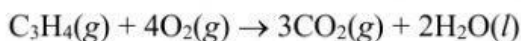
_____ b. How many moles of gas are present in 5.6 L of any ideal gas at STP?

_____ c. What is the mass of the 5.6 L sample of CH₄?

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 C₃H₄ combusts at STP, 5.6 L of C₃H₄ are consumed according to the following equation:



_____ a. How many moles of C₃H₄ react?

_____ b. How many moles of O₂, CO₂, and H₂O are either consumed or produced in the above reaction?

_____ c. How many grams of C₃H₄ are consumed?

_____ d. How many liters of CO₂ are produced?

_____ e. How many grams of H₂O are produced?