

## LAB 10-2

### PROBLEM SET

1. What is the formula weight of a gas if one liter of the gas weighs 1.43 grams at STP?
2. What would one liter of  $\text{CO}_2$  weigh (density) at STP? What would one liter of  $\text{N}_2$  weigh at STP?
3. A carbon dioxide fire extinguisher contains 6.8 kg of  $\text{CO}_2$ . What volume of gas could it deliver at STP? (stoich)
4. What volume will 3 moles of  $\text{CH}_4$  occupy when the pressure is 900 mm Hg and the temperature is 200K?
5. What volume would be occupied by 6 moles of  $\text{N}_2$  under a pressure of 5 atm and a temperature of 30 °C?
6. How many moles of oxygen will be contained in a 40 L cylinder at 30 °C and 150 atm? How many kg of oxygen will this be?

7. What volume will .086 mols of  $O_2$  gas occupy at 692 mm Hg and  $20^\circ C$  ?

8. A gas sample has a mass of .0534 g, occupies a volume of 90 mL at  $125^\circ C$  and 725 mm Hg. Solve for the molar mass of the gas

9. What is the density of  $CH_4$  gas at STP ?

10. What is the density of  $NH_3$  at 720 mm Hg and  $123^\circ C$  ?

11. What pressure is being exerted by neon gas when 45 grams of it occupy 35 L at  $10^\circ C$  ?

12. At 790 mm Hg and  $31^\circ C$ , 265 mL of a gas weighs 0.675 grams. Find the molar mass using molar volume and the combined gas law.