Gas Law Problems Name:_____

1. A dry gas occupies a volume of 28.4 mL at 725 mm Hg. What will be the new volume of the gas at 800 mm Hg?

2. A dry gas with a volume of 588.8 mL at 1.0049 atm of pressure is subjected to a new pressure of 1.035 atm. What is its volume under the new pressure?

3. A dry gas occupies a volume of 35.9 mL at a temperature of 295 K. What volume will the same gas occupy at a temperature of 301 K?

4. At a temperature of 24.46° C, a dry gas occupies a volume of 4.588 mL. What volume will the gas occupy at a temperature of 21.24° C?

5. The pressure of a gas in a rigid container is 90 kPa. What will the new pressure be if the temperature on the gas is doubled?

6. At conditions of 785 mm Hg of pressure and 15.0° C temperature, a gas occupies a volume of 45.5 mL. What will be the volume of the same gas at 745 mm Hg and 30.0° C?

7. A gas occupies a volume of 34.2 mL at a temperature of 288 K and a pressure of 800.0 mm Hg. What will be the volume of this gas at standard conditions?

8. A sample of gas containing 0.089 moles is put into a 10.00 L container at a temperature of 30.0° C. What pressure does the gas exert on the container in atm.?

9. How many moles of gas are contained in a 50.0 L cylinder at a pressure of 100.0 atm and a temperature of 308 K?

10. How many grams of oxygen gas are contained in a 3.50 L tank where the temperature is 50.0° C and the pressure is maintained at 4.5 atm?

11. What is the relative rate of diffusion between two samples of oxygen and hydrogen gas?

12. A sample of gas consists of 75% hydrogen and 25% oxygen. The total pressure exerted by the gas is 788 torr. What pressure is exerted by each of the gases individually?

13. 45.0 g of sodium chlorate decomposes to form sodium chloride and oxygen gas. How many liters of oxygen can be collected at 300 K and 90 kPa?

14. 40.0 ml of gas is collected over water on a day when the barometric pressure was 790.0 mmHg and the temperature was 20.0° C. What would be the volume of the (dry) gas at standard conditions? (refer to page 835 in text)