Name_____

Gas Laws Practice:

1. A sample of helium occupies 235 mL at 788 Torr and 25°C. If the sample is condensed into a 0.115 liter flask, what will the new pressure be, assuming constant temperature?

2. A sample of hydrogen gas occupies 92 mL at 602°C. If the pressure is held constant, what volume will the gas occupy when cooled to 83°C?

3. What is the mass of butane gas, C_4H_{10}, that can be held in a 3.00 L container at STP?

4. If a fixed amount of gas occupies 450.0mL at -10.0°C and 191 Torr, what will the volume of the same gas be at 25.0°C and 1142 Torr?

5. A sample of gas in a rigid container is at 25.0°C and 1.00atm. What is the pressure of the sample when heated to 220.0°C?

6. On a cold day a person takes in a breath of 450.0 mL of air at 756 mmHg and -10.0°C. Assuming that amount and pressure remain constant, what is the volume of the air when it warms to body temperature (37.0°C) in the lungs?

7. If 0.123 g of methane, CH_4, is introduced into an evacuated 5.00 liter container at 23°C, what is the pressure, in atmospheres, in the container?

8. A sample of a gas is collected in a flask with a volume of 267 mL at a pressure of 771 mmHg and a temperature of 21°C. If the mass of the gas is 1.05 g, what is the molar mass of the gas?

9. What is the density of helium at 0.975 atm and 27.0°C?

Combined Gas Laws

1. A gas is at 1.33 atm of pressure and a volume of 682 mL. What will the pressure be if the volume is reduced to 0.419 L? **(2.16 atm)**

2. Nitrogen gas is being held in a 14.3 m^3 tank at a temperature of 62°C. What will the volume be when the temperature drops to 24°C? **(12.6 m^3)**

3. A gas storage tank is a 1.72 atm and 35°C. What temperature is the gas at if the pressure increases to 2.00 atm? **(358 K)**

4. A gas with a volume of 1.00 L is at 135°C and 844 mm Hg. What is the volume if the conditions change to 14° C and 748 mm Hg? **(0.794L)**

5. Calculate the mass of 162 L of chlorine gas, measured at STP. **(513 g)**

Ideal Gas Law

6. Find the pressure in mm Hg produced by 2.35 g of carbon dioxide in a 5.00 L flask at 18°C. **(194 mm Hg)**

7. How many grams of carbon monoxide must be placed into a 40.0 L tank to develop a pressure of 965 mm Hg at 23°C? **(58.5 g)**

Ideal Gas Law: Density and Molar Mass

8. At what Celsius temperature will argon have a density of 10.3 g/L and a pressure of 6.43 atm? **(31 deg. C)**

9. The density of an unknown gas at 20°C and 749 mm Hg is 1.31 g/L. Calculate the molar mass of the gas. **(32.0 g/mol)**