Gas Laws Review!   Name: _____

Write the formula for each law below:

Boyles:	Charles:	Gay-Lussac:	Combined:
Ideal Gas Law:	R =	1 mol of any gas at STP= _____ L	1.00 atm = _____torr = _____ kPa
	(don't forget units)		= _____ mm Hg

Problems: Show all work.

1) Find the volume, in liters of each of the following.

a) 8.00 g of O_2 at STP   b) 8.00 g of O_2 at 450. K and 1.5 atm

2) Calculate the pressure in atmospheres exerted by 2.50 L of HF containing 1.35 mol at 320. K.

3)   Carbon monoxide gas reacts with oxygen gas to produce carbon dioxide gas. Write a balanced EQ:

_____ → _____

a) If you react 10.0 mol of CO gas with excess oxygen, how many liters of CO_2 gas could you produce at STP?

b) If you react 10.0 mol of CO gas with excess oxygen, how many liters of CO_2 gas could you produce at 25°C and 1.3 atm?

4) Determine the density (g/L) of chlorine gas (Cl_2) at STP.

5) A certain quantity of gas has a volume of 0.750 L at 298 K. At what temperature, in Kelvin, would this quantity of gas be reduced to 0.500 L, assuming constant pressure.

Law: _____ Math:

6) A metal aerosol can contains gases under a pressure of 4.50 atm at 20.°C. If the can is left on a hot, sandy beach, the pressure of the gases increases to 4.80 atm. What is the temperature on the beach?

Law: _____ Math:

7) A helium-filled balloon contains 125 mL of gas at a pressure of 0.974 atm. What volume will the gas occupy at standard pressure? (assume temperature is constant)

Law: _____ Math:

8) A gas occupying 75 mL at standard conditions (STP) is heated to 17°C while the pressure is reduced to 0.97 atm. What is the new volume occupied by the gas expressed in mL?

Law: _____ Math:

9) (a) What mass (grams) of ethene gas (C_2H_4) is contained in a 15.0 L tank that has a pressure of 4.40 atm and a temperature of 305 K?

(b) Find the density of the ethene gas from 9(a).

10) Use this equation: $2H_{2(g)} + O_{2(g)} \rightarrow 2H_2O_{(g)} + 482$ kJ

a) How many liters of H_2O vapor could be obtained at STP if you start with 4.00 L of H_2 gas and excess oxygen?

b) How many liters of H_2O vapor could be obtained at 310. K and 1.50 atm if you start with 5.00 g of H_2 and excess O_2 gas?