D.A.: dimensional analysis GAS PRACTICE #3
(involving the MOLAR VOLUME OF A GAS AT STP)

1) Calculate the volume in L of butane (C_4H_{10}) gas at STP that has a mass of 2.67 g.

2) Calculate the volume, in mL, of 1.01×10^{22} r.p. of neon gas collected at STP. Specify the correct type of r.p. in your work.

3) 75.6 L of sulfur dioxide gas is collected at STP. What is the mass of the gas?

4) How many L of hydrogen gas at STP are contained in 16.00 g?

5) Calculate the number of particles in 990 L of nitrogen dioxide gas at STP. Specify the correct type of r.p. in your work and answer.

Use the equation below for questions 6-10:

$$\underline{4}\ FeCr_2O_7 + \underline{8}\ K_2CO_3 + O_2 \rightarrow \underline{2}\ Fe_2O_3 + \underline{8}\ K_2CrO_4 + \underline{8}\ CO_2$$

6) How many liters of carbon dioxide are produced from reacting 8.955×10^{23} r.p. of iron(II) dichromate with the other excess reactants. Assume STP conditions. Specify the correct type of r.p. in your work.

7) If 2.75 liters of oxygen gas are used, how many grams of potassium chromate are produced under STP conditions?

8) Calculate the number of particles of iron(III) oxide formed from using 423 mL of oxygen at STP. Specify the correct type of r.p. in your work and answer.

9) 56.00 g of potassium chromate are produced from reacting how many liters of oxygen gas at STP?

10) How many r.p. of carbon dioxide are produced from reacting 34 L of oxygen? Assume STP conditions. Specify the correct type of r.p. in your work and answer.