Name_____

Date_____

1. Given the reaction,

$$2SO_{3(g)} \text{ --------> } 2S_{(s)} + 3O_{2(g)}$$
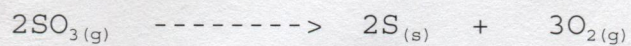
to produce 0.500 moles of sulfur:

a.) how many moles of $SO_{3(s)}$ are needed?

b.) how many liters of $O_{2(g)}$ would also be produced?

2. For the reaction,

$$2H_{2(g)} + O_{2(g)} \text{ --------> } 2H_2O_{(g)}$$

how many moles of H_2O gas will be formed reacting with 8.318 x 10^{22} molecules of $O_{2(g)}$?

3. If the following reaction occurs,

$$Al_2(SO_4)_3 + BaCl_2 \text{ --------> } AlCl_3 + BaSO_4$$

how many grams of barium chloride will be needed to react with 46.2 grams of aluminum sulfate?

4. If the following reaction occurs,

$$Al_4C_{3(s)} + H_2O_{(1)} \text{ ----------> } CH_{4(g)} + Al(OH)_{3(s)}$$
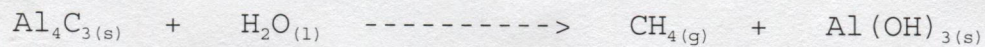
how many grams of aluminum hydroxide are produced along with 12.0 liters of CH_4?

5. If 45.0 liters of oxygen are consumed when a candle made from paraffin ($C_{25}H_{52}$) is burned, what volume of carbon dioxide is produced? (Water is the other product.)

6. In a double replacement reaction, when 6.52 grams of sodium arsenite reacts with 6.52 grams of zinc persulfate, what mass of sodium compound is produced?

   What reactant, and what mass of it, is in excess?