H Chem Stoichiometry Worksheet or Fun with Moles!

1. 240 grams of sodium hydroxide are mixed with 2 liters of 3 M phosphoric acid.

   a. How many moles of sodium hydroxide are present?

   b. How many moles of acid are present?

   c. Which reactant is limiting/

   d. Which reactant is excess?

   e. How many moles of water will form?

   f. What mass of sodium phosphate will form?

2. What mass of sodium hydroxide would be necessary to make 5 liters of a 2 M solution?

3. 16 moles of hydrochloric acid are mixed with 12 moles of zinc.

   a. What mass of zinc is consumed?

   b. How many moles of zinc chloride are produced?

   c. What **volume** of hydrogen could be produced?

4. If 200.0 liters of carbon dioxide react with water to form carbonic acid, and if all the carbon dioxide is consumed, how many **molecules** of water will be consumed?

5. What mass of aluminum chlorate will be required to produce 255 liters of oxygen at STP?

6. What mass of aluminum chloride will be produced in number 5?

7. 78.0 grams of potassium are mixed with 54.8 liters of chlorine at STP. What mass of excess reactant will remain after the reaction is complete?

8. What volume of air(20% oxygen) would be required to oxidize 54 grams of Al?

9. Some imaginary metal X has an oxidation number of +4 and a molecular mass of 50.0 g/mole. What mass of metal is necessary to produce 455 liters of hydrogen if the metal reacts with HCl?

10. What mass of aluminum iodide can be produced from 110.0 grams of sodium iodide and 225.0 grams of aluminum nitrate?

11. Burning 6.00 grams of ethane(C2H6) releases 312 kJ of heat. How much heat would a mole of ethane release?

12. If A + B ---------> A_2B_3 + 235 kJ heat, how many moles of A would be necessary to produce 10 kJ of heat? If A has a molecular mass of 75 g/mole, how many grams of A are necessary?