Name _____   Date _____   Period _____

Stoichiometry Ws # 3: Volume Conversions

Show all work and the balanced equations for each problem.   Circle your final answer with correct units and label.

1. Methane burns in oxygen gas to produce carbon dioxide gas and water vapor. What volume of carbon dioxide gas is produced when 3.2 L of oxygen gas are consumed? (Assume STP)

2. What volumes of hydrogen and nitrogen gases are necessary to produce 16.0 L of ammonia gas in a combination reaction?

3. How many molecules of sulfuric acid are needed to react with 15 moles of ammonium hydroxide in a double replacement reaction?

4. The body metabolizes glucose ($C_6H_{12}O_6$) by burning it with oxygen to produce carbon dioxide, water and energy. If 3 moles of glucose are burned, what volume of CO_2 (g) is produced at STP?

5. Is your body at STP? If not, how does it differ from these conditions?

6. Candles are made of paraffin wax ($C_{25}H_{52}$) which burns in oxygen in a combustion reaction. If 5.5g of paraffin burn, what volume of carbon dioxide will be produced at STP?

7. If a piece of magnesium with a mass of 2.76g is added to a solution of hydrochloric acid, what volume of hydrogen gas would be produced at STP?

8. How many grams of oxygen gas are necessary for the complete combustion of 94.5g of toluene (C_7H_8)?

9. What volume of oxygen would be necessary for this same reaction at STP?