Chapter 11: Liter-to-Liter Conversions Name: _____

Stoichiometry

1) What volume of sulfur dioxide gas is necessary to produce 11.4 L of water vapor?

$$SO_2 + 2H_2S \rightarrow 3S + 2H_2O$$

5.7 L

2) When 2.75 L of oxygen react with glucose, according to the reaction below, what volume of carbon dioxide will be produced? $6O_{2(g)} + C_6H_{12}O_{6(s)} \rightarrow 6H_2O_{(g)} + 6CO_{2(g)}$

2.75 L

3) If 500 L of ozone (O_3) are produced, how many liters of oxygen (O_2) are required?

$$3O_{2(g)} \rightarrow 2O_{3(g)}$$

750 L

4) If an excess of nitrogen gas reacts with 25.0 L of hydrogen gas, how many L of ammonia will be produced? $N_{2(g)} + 3H_{2(g)} \rightarrow 2NH_{3(g)}$

16.67 L

Liter/Gram Conversions

5) From the equation given, $2\ NaN_3 \rightarrow 2\ Na + 3\ N_2$, what volume (in L) of N_2 gas is produced when 175 g of sodium forms at STP?

255.76 L

6) An automobile airbag inflates when N_2 gas is released from the decomposition of sodium azide according to the equation: $2\ NaN_3 \rightarrow 2\ Na + 3\ N_2$ Calculate the mass of NaN_3 required to produce 50.0 L of N_2 gas at STP.

96.69 g