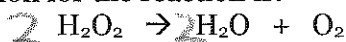


WORKSHEET #7: REVIEW

STOICHIOMETRY PROBLEMS (hint: make sure to **balance!**)

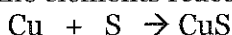
1. Small quantities of oxygen can be generated in the laboratory by the decomposition of hydrogen peroxide. The unbalanced equation for the reaction is:



Calculate the mass of oxygen produced when 10.0 g of hydrogen peroxide decomposes.

$$10.0 \text{g H}_2\text{O}_2 \times \frac{1 \text{ mole H}_2\text{O}_2}{34.02 \text{g H}_2\text{O}_2} \times \frac{1 \text{ mole O}_2}{2 \text{ moles H}_2\text{O}_2} \times \frac{32.00 \text{g O}_2}{1 \text{ mole O}_2} = 4.70 \text{g O}_2$$

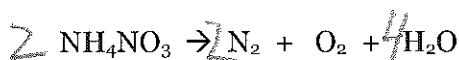
2. A tried and true introductory experiment involves heating finely divided copper metal with sulfur to determine the proportions in which the elements react to form copper II sulfide.



If 1.25 g of copper is heated with an excess of sulfur, how many grams of copper(II)sulfide will form?

$$1.25 \text{g Cu} \times \frac{1 \text{ mole Cu}}{63.55 \text{g Cu}} \times \frac{1 \text{ mole CuS}}{1 \text{ mole Cu}} \times \frac{95.61 \text{g CuS}}{1 \text{ mole CuS}} = 1.88 \text{g CuS}$$

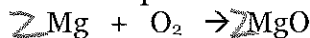
3. Ammonium nitrate has been used as a high explosive because it is unstable and decomposes into several gases. The rapid expansion of the gases produces the explosive force. The unbalanced equation is:



Calculate the ^gliters of nitrogen gas product gas if 1.25 g of ammonium nitrate reacts.

$$1.25 \text{g NH}_4\text{NO}_3 \times \frac{1 \text{ mole NH}_4\text{NO}_3}{80.06 \text{g NH}_4\text{NO}_3} \times \frac{2 \text{ moles N}_2}{2 \text{ moles NH}_4\text{NO}_3} \times \frac{28.02 \text{g N}_2}{1 \text{ mole N}_2} = 0.44 \text{g N}_2$$

4. Magnesium metal, which burns in oxygen with an intensely bright white flame, has been used in photographic flash units. The unbalanced equation is:



How many grams of MgO are produced by the complete reaction of 1.25 ^g of oxygen gas?

$$1.25 \text{g O}_2 \times \frac{1 \text{ mole O}_2}{32.00 \text{g O}_2} \times \frac{2 \text{ moles MgO}}{1 \text{ mole O}_2} \times \frac{40.31 \text{g MgO}}{1 \text{ mole MgO}} = 3.15 \text{g MgO}$$

3.15 g MgO