Stoichiometry Practice #2

Name _____

1) How many grams of water are produced by the combustion of 5.5 grams of CH_4?

$CH_4 + 2\ O_2 \rightarrow 2\ H_2O + CO_2$

$$5.5\text{g } CH_4 \times \frac{1\text{ mol } CH_4}{16\text{ g } CH_4} \times \frac{2\text{ mol } H_2O}{1\text{ mol } CH_4} \times \frac{18\text{ g } H_2O}{1\text{ mol } H_2O} =$$

2) How many grams of lithium hydroxide can be produced when 3.8 grams of lithium nitride react?

$Li_3N + 3\ H_2O \rightarrow NH_3 + 3LiOH$

$$3.8\text{g } Li_3N \times \frac{1\text{ mol } Li_3N}{34.7\text{ g } Li_3N} \times \frac{3\text{ mol } LiOH}{1\text{ mol } Li_3N} \times \frac{23.9\text{ g } LiOH}{1\text{ mol } LiOH} =$$

3) How many grams of carbon dioxide are produced when 1.8 grams of butane are burned?

$2\ C_4H_{10} + 13\ O_2 \rightarrow 8\ CO_2 + 10\ H_2O$

$$1.8\text{g } C_4H_{10} \times \frac{1\text{ mol } CH_4}{58\text{ g } CH_4} \times \frac{8\text{ mol } CO_2}{2\text{ mol } C_4H_{10}} \times \frac{44\text{ g } CO_2}{1\text{ mol } CO_2} =$$

4) How many grams of NH_3 can be produced when 3.5 grams of H_2 react?

$N_2 + 3\ H_2 \rightarrow 2\ NH_3$

$$3.5\text{g } H_2 \times \frac{1\text{ mol } H_2}{2\text{ g } H_2} \times \frac{2\text{ mol } NH_3}{3\text{ mol } H_2} \times \frac{17\text{ g } NH_3}{1\text{ mol } NH_3} =$$

6) How many grams of O_2 are produced when 3.1 grams of potassium chlorate decompose?

$2\ KClO_3 \rightarrow 2\ KCl + 3\ O_2$

$$3.1\text{g } KClO_3 \times \frac{1\text{ mol } KClO_3}{122.5\text{ g } KClO_3} \times \frac{3\text{ mol } O_2}{2\text{ mol } KClO_3} \times \frac{32\text{ g } O_2}{1\text{ mol } O_2} =$$

7) How many grams of carbon dioxide are produced when 5 grams of benzene is burned?

$2\ C_6H_6 + 15\ O_2 \rightarrow 6\ H_2O + 12\ CO_2$

$$5\text{g } C_6H_6 \times \frac{1\text{ mol } C_6H_6}{78\text{ g } C_6H_6} \times \frac{12\text{ mol } CO_2}{2\text{ mol } C_6H_6} \times \frac{44\text{ g } CO_2}{1\text{ mol } CO_2} =$$

8) How many grams of H_2 are produced when 17 grams of aluminum react?

$2\ Al + 3\ H_2SO_4 \rightarrow Al_2(SO_4)_3 + 3H_2$

$$17\text{g } Al \times \frac{1\text{ mol } Al}{27\text{ g } Al} \times \frac{3\text{ mol } H_2}{2\text{ mol } Al} \times \frac{2\text{ g } H_2}{1\text{ mol } H_2} =$$