Name_____ Per____

Unit 4 Benchmark #3 – Stoichiometry – Practice

Each question is worth 4 points. You must show all of your work.
Put your answer in the space provided! No Work = No Credit!

1. How many grams of nitrous oxide (N_2O) must be decomposed in order to produce 64 grams of oxygen gas, O_2?

$2N_2O \rightarrow 2N_2 + O_2$

$$\frac{64\text{ g } O_2}{} \left| \frac{\text{mol } O_2}{32\text{ g } O_2} \right| \frac{2\text{ mol } N_2O}{1\text{ mol } O_2} \left| \frac{44\text{ g } N_2O}{\text{mol } N_2O} \right.$$

176 grams N_2O

2. How many grams of water are produced by burning 32 grams of methane, CH_4?

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

$$\frac{32\text{ g } CH_4}{} \left| \frac{\text{mol } CH_4}{16\text{ g } CH_4} \right| \frac{2\text{ mol } H_2O}{1\text{ mol } CH_4} \left| \frac{18\text{ g } H_2O}{\text{mol } H_2O} \right.$$

72 grams H_2O

3. How many grams of oxygen are needed for the complete combustion of 11 grams of propane, C_3H_8?

$C_3H_8 + 5O_2 \rightarrow 3CO_2 + 4H_2O$

$$\frac{11\text{ g } C_3H_8}{} \left| \frac{\text{mol } C_3H_8}{44\text{ g } C_3H_8} \right| \frac{5\text{ mol } O_2}{1\text{ mol } C_3H_8} \left| \frac{32\text{ g } O_2}{\text{mol } O_2} \right.$$

40 grams O_2

4. How many grams of hydrogen gas are needed to produce 34 grams of ammonia, NH_3?

$N_2 + 3H_2 \rightarrow 2NH_3$

$$\frac{34\text{ g } NH_3}{} \left| \frac{\text{mol } NH_3}{17\text{ g } NH_3} \right| \frac{3\text{ mol } H_2}{2\text{ mol } NH_3} \left| \frac{2\text{ g } H_2}{\text{mol } H_2} \right.$$

6 grams H_2