**Exercise 6**

**Chem 1013 Intro to Chem**

 **Spring 2011 Alfred State College**

 Stoichiometry calculations

**Sample reaction 1**

C3H8 + 5O2--------🡪 3CO2 + 4H2O (BOOM)

 44 32 44 18 g/mol

 **1) moles to moles** How many moles of CO2 are present if 1.333 moles of H2O are formed ?

**2) moles to weight** How many grams of O2 are consumed if 0.00625 moles of C3H8 are burned?

**3) weight to moles** How many moles of H2O form if 11 g of C3H8 are burned ?

 **4) weight to weight** How many grams of O2 are needed to burn 0.275 g C3H8 ?

**5) weight to count** How many molecules of CO2 form if 0.398 g H2O results ?

**6) count to weight** How many grams of O2 are needed to form 1.50\*1022 molecules of H2O ?

**Sample Reaction 2**

6HCl + 2Al -----🡪 2AlCl3 + 3H2

 36 27 123 2 g/mol

1) moles to moles: How many moles of Al must be added to produce 15 moles of H2 ?

2)moles to weight: How many grams of H2 are created by reacting 10 moles of HCl ?

3) weight to moles: How many moles of HCl can combine with 90 g of Al ?

4) weight to weight: How many grams of Al must react to form 1.1111 grams of H2 ?

5) weight to count: How many molecules of HCl are needed to make 68.33 g AlCl3?

6) count to weight: how many grams of Al produce 3.333 \*1023 molecules of H2 ?