**Exercise 4**

**Chem 1013 Intro to Chem**

 **Spring 2014 Alfred State College**

**Basic Mole Calculations**

4.1. Gram Molecular Weights of Compounds (MW)

Calculate to the nearest gram, the MW of the common compounds below:

1. Sand, SiO2
2. Drinking alcohol, C2H6O
3. Limestone, CaCO3
4. Methane, CH4
5. Gasoline, C8H18

4.2. mass to moles

Calculate the number of moles in the given masses of the compounds below:

1. 300 grams of sand
2. 690 grams of drinking alcohol
3. 50 grams of limestone
4. 12,800 grams of methane
5. 28.5 grams of gasoline

4.3. moles to mass

Calculate the mass in the given moles of the compounds below:

1. 0.08333 moles sand
2. 0.086856 moles drinking alcohol
3. 0.030 moles limestone
4. 0.125 moles methane
5. 0.008772 moles gasoline

4.4. molecule count <-> moles and mass

1. How many molecules of SiO2 in 3.322 moles of sand?
2. How many moles of drinking alcohol in 2.408 \*1024 molecules of drinking alcohol ?
3. How many grams of limestone in 1.802\*1022 molecules of limestone
4. How many molecules of methane in 7.973\*10-23 g of methane ?
5. How many grams of gasoline in 2.604\*1022 molecules of gasoline ?