**SI Worksheet 1**

1. Define moles in your own words: A mole corresponds to 6.022 x 1023 of something or the weight of the 12C atom (12 amu). A mole not only does Avogadro’s number correspond to the number of atoms but it can also mean number of molecules, number of people, number of students, etc.
2. What is Avogadro’s Number? 6.022 x 1023
3. Consider Iodine: 127I. How many protons does it have? Electrons? Neutrons? What’s the mass number and atomic number? How much does one mole of Iodine weigh? What about two moles? How many atoms are in two moles of iodine? 53 protons, 74 neutrons, 57 electrons, mass of 127 amu and atomic number of 53. One mole weighs 127 g or amu while two moles weigh 254 g or 254 amu. 2 moles contain 1.204 x 1024 atoms.
4. I have 453 grams of NaCl (Sodium Chloride), how many kilograms of NaCl do I have? What about in milligrams? .453 Kg, and 453,000 mg
5. 357 grams of H2O is how many Liters of water? (hint\* 1 gram= 1mL) .357L of water
6. Chlorine has two naturally occurring isotopes 35Cl and 37Cl, what is the % abundance of each isotope of chlorine? Which isotope is more commonly encountered? (hint\* look at periodic table) 77.35% 35Cl and 22.65% 37Cl. Chlorine with mass 35 amu is more encountered
7. 100g of KCl is how many moles of KCl? What about the amount of atoms?

1.34 moles and 8.078 x 1023 atoms

1. What group of the periodic table do these elements belong to? Li, Na, Mg, Cd, Fe, F, Cl, He, Ne, Ca, Ur, and Yb: respectively, alkali, alkali, alkaline earth, transition, transition, halogen, halogen, noble gas, noble gas, alkaline earth, actinide, lanthanide