**Problem Set #4 (GRADED/SCORED) -**  Moles, NA, Compound Names **Chemistry 3A Fall 2025 (Secs 43957 & 43958)  
2 pages**

For conversion questions (7, 8), show your calculations/expressions

* 1. What is Avogadro’s Number (the value of the constant)?
  2. What is its symbol?
  3. In just a few words, what does Avogadro’s Number refer to?
  4. What is true or false about Avogadro’s Number?

It refers to the ***mass*** of molecules

It can refer to a ***count*** of atoms

It only refers to a count of molecules

You have to have a Periodic Table to get the value of Avogadro’s Number

* 1. What does molar mass refer to?
  2. What is true or false about a molar mass?

The units of molar mass will be in “grams (g)”

A molar mass can is value that can refer to only atoms of pure elements, or to compounds and molecules (combination of elements)

You determine a molar mass from the Periodic Table

1. Percent composition
   1. What does the percent composition refer to?
2. Empirical Formula
   1. Define/describe/explain what the empirical formula is
3. Percent Hydrate
   1. What does the percent hydrate of a compound refer to?
4. Molecular Formula
   1. What is the molecular formula of a compound?
5. You have 3.011 × 1023 atoms of pure iron (Fe). How many moles of Fe do you have?
6. You have 3.011 × 1024 molecules of water (H2O). How many moles of water do you have?
7. You have 0.254 mol calcium carbonate  
   a. write the structure (formula of the formula unit) of calcium carbonate  
   b. calculate the number of formula units of calcium carbonate you have  
   c. using the Periodic Table, calculate the molar mass of calcium carbonate
8. You have 9.50 mol of carbon dioxide  
   a. write the molecular formula of carbon dioxide  
   b. calculate the number of molecules of carbon dioxide you have  
   c. using the Periodic Table, calculate the molar mass of carbon dioxide
9. You have 2.