Chapter 3, Stoichiometry

Terms:

- mass spectrometer
- atomic mass unit
- atomic mass (atomic weight)
- molecular mass (molecular weight)
- formula weight
- mole
- molar mass
- Avogadro's number
- law of conservation of mass
- chemical equation
- reactants
- products
- balanced equation
- stoichiometry
- limiting reagent
- theoretical yield
- percent yield

You should be able to:

1. given the periodic table, indicate how many times more massive an atom of one element is than an atom of another element,
2. work problems involving the relative abundance of isotopes of an element, their atomic masses, and the average atomic mass,
3. calculate molar masses for substances,
4. work problems involving conversions between grams of a substance, moles of a substance, and number of atoms or molecules,
5. calculate the percentage by weight of each element in a compound given the chemical formula,
6. for a sample of a compound calculate the mass of each element in that sample,
7. determine the empirical formula for a compound given the masses or percentages of elements in the compound or combustion analysis data,
8. determine the molecular formula for a compound from the empirical formula and the molar mass,
9. balance chemical equations,
10. work stoichiometry problems including problems involving limiting reagent and theoretical and percent yield,
10. calculate the mass of a single atom or molecule,