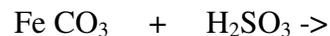**George W.J. Kenney, Jr**

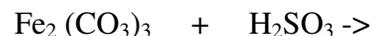# Calculations with Chemical Formulas and Equations

<u>Steps for **BALANCING AN EQUATION**</u>

5.01 grams of Iron (III) Carbonate is reacted with xcs [Excess] Sulfurous Acid. What are the products and how much of each is formed?
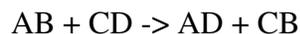
1. Translate the English to Chemical REACTANTS $Fe\ CO_3\ \ +\ \ H_2SO_3\ ->$

2. Balance the ions in each Reactant Compound so the net charge is zero $Fe^{+3}\ CO_3^{-2}\ \ +\ \ H_2^{+1\ ea\ =\ +2}\ SO_3^{-2}\ ->$

    $Fe_2^{+3}\ (CO_3)_3^{-2}\ \ +\ \ H_2^{+1\ ea\ =\ +2}\ SO_3^{-2}\ ->$

    $Fe_2\ (CO_3)_3\ \ +\ \ H_2SO_3\ ->$

3. Determine the Products and write down the basic compounds. $AB + CD -> AD + CB$
    Use the simple ionic exchange

4. Balance the ions in each Product Compound so the net charge is zero

5. Balance the equation so there are equal number of each element on each side of the reaction arrow

6. With the known amount of starting compound / reactant, determine the molecular weight of that compound

7. Determine the molecular weight of each of the Product Compounds.

8. Set up the simple ratio of known amount of starting material to molecular weight equals x over the mw of each product and calculate the amount of each product. Don't forget to put in all the units!!

9. Write out the answers – the amount of each product in grams [or milligrams] corrected to the proper number of significant digits with the units.