# Chemistry Calculation Review

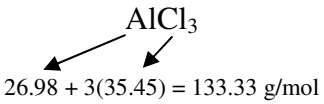
## Chem Worksheet 12-1

Name _____

The first step in performing a stoichiometric calculation is to write a balanced equation. Recall that balancing an equation involves placing coefficients before each of the reactants and products in order to ensure that the number of each type of atom is the same before and after the reaction.

**Ex.** $\underline{2}\,Al + \underline{3}\,Cl_2 \rightarrow \underline{2}\,AlCl_3$

Another important aspect to doing a stoichiometric calculation is finding the molar mass of an element or compound using the periodic table. The molar mass of iron (III) nitrate is shown below.




Finally, the ability to convert units using dimensional analysis is an important skill in performing stoichiometric calculations. In this technique conversion factors are placed next to values in a manner that allows units to be cancelled. An example of a mole conversion is shown below.

$$\frac{6.3\ \text{g}\ \cancel{AlCl_3}}{1} \times \frac{1\ \text{mol}\ AlCl_3}{133.33\ \text{g}\ \cancel{AlCl_3}} = 0.047\ \text{mol}\ AlCl_3$$

**Balance the following equations.**

**1.** ___$Mg(OH)_2$ + ___HCl → ___$MgCl_2$ + ___$H_2O$

**2.** ___K + ___$Br_2$ → ___KBr

**3.** ___$P_4O_{10}$ + ___$H_2O$ → ___$H_3PO_4$

**4.** ___$SO_3$ → ___$SO_2$ + ___$O_2$

**5.** ___Na + ___$Fe_2O_3$ → ___$Na_2O$ + ___Fe

**6.** ___Na + ___$H_2O$ → ___NaOH + ___$H_2$

**Find the molar mass of each of the following compounds.**

**7.** $Mg(OH)_2$

**8.** KBr

**9.** $H_3PO_4$

**10.** $SO_3$

**11.** $Fe_2O_3$

**12.** $Na_2O$

**Convert the following measurements. Show all work, including units that cancel.**

**13.** 18.2 g → ? mol

**14.** $8.5 \times 10^{24}$ molecules $NO_2$ → mol

**15.** 82.6 L of neon at STP → mol

**16.** 4.14 g of $Na_2O$ → mol

**17.** 9.3 mol $SO_3$ → liters

**18.** $1.4 \times 10^{24}$ atoms of K → mol