Section III. Things to Memorize

Below are polyatomic ions and solubility rules that you should have memorized by the 1st day of school. We will have a quiz on this the second full day of class.

Polyatomic Ions (AP assumes knowledge of polyatomic ions and does not provide them)

NO_3^-	nitrate ion
NO_2^-	nitrite
CrO_4^{-2}	chromate
$Cr_2O_7^{-2}$	dichromate
CN^-	cyanide
MnO_4^-	permanganate
OH^-	hydroxide
O_2^{-2}	peroxide
NH_2^-	amide
CO_3^{-2}	carbonate
SO_4^{-2}	sulfate
SO_3^{-2}	sulfite
$C_2O_4^{-2}$	oxalate
PO_4^{-3}	phosphate
PO_3^{-3}	phosphite
ClO_4^-	perchlorate
ClO_3^-	chlorate
ClO_2^-	chlorite
ClO^-	hypochlorite
IO_4^-	iodate
IO_3^-	iodite
IO^-	hypoiodite
BrO_3^-	bromate
BrO^-	hypobromite

HPO_4^{-2}	hydrogen phosphate
$H_2PO_4^-$	dihydrogen phosphate
$C_2H_3O_2^-$ (or CH_3COO^-)	acetate
NH_4^+	ammonium
HCO_3^-	bicarbonate (hydrogen carbonate)
HSO_4^-	bisulfate (hydrogen sulfate)
HSO_3^-	bisulfite (hydrogen sulfite)

Solubility Rules

- Strong acids: HCl, HBr, HI, H_2SO_4, HNO_3, $HClO_4$
- Strong bases: hydroxides of group 1 and group 2. (Ba, Sr, Ca are marginal. Be and Mg are WEAK)

Soluble Salts (see table): (Ionic compounds: metal/nonmetal) **ALWAYS SOLUBLE IN an AQUEOUS COMPOUND**	**EXCEPT WITH**
NO_3^-, Group 1, NH_4^+, $C_2H_3O_2^-$, ClO_4^-, ClO_3^-	No exceptions
Cl^-, Br^-, I^-	Pb, Ag, Hg_2^{+2}
SO_4^{-2}	Pb, Ag, Hg_2^{+2} Ca, Sr, Ba

Gases, pure liquids, and solids are generally insoluble.