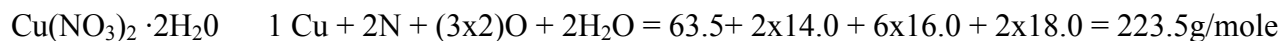


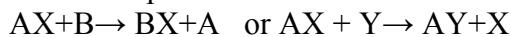
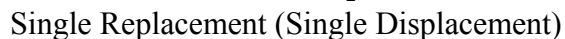
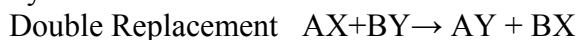
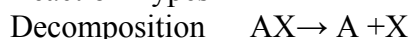
General Chemistry Notes

Molar Mass:



Grams of sample divided by moles of sample = molar mass

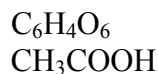
Reaction Types



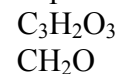
<p>Activity Series</p> <ul style="list-style-type: none"> lithium potassium strontium calcium sodium magnesium aluminum zinc chromium iron cadmium cobalt nickel tin lead hydrogen antimony arsenic bismuth copper mercury silver pladium platinum gold 	<p>1 atm equals</p> <p>760 torr</p> <p>760 mm Hg</p> <p>101.3 kPa</p> <p>Ideal gas constant</p> <p>$R = 0.0821 \frac{\text{L} \cdot \text{atm}}{\text{K} \cdot \text{mol}}$</p> <p>$= 8.314 \frac{\text{L} \cdot \text{kPa}}{\text{K} \cdot \text{mol}}$</p> <p>$= 62.3637 \frac{\text{L} \cdot \text{mmHg}}{\text{K} \cdot \text{mol}}$</p> <p>Half Lives</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th># of Half Lives</th> <th>Amount Remaining</th> </tr> </thead> <tbody> <tr><td>0</td><td>1 (all)</td></tr> <tr><td>1</td><td>1/2</td></tr> <tr><td>2</td><td>1/4</td></tr> <tr><td>3</td><td>1/8</td></tr> <tr><td>4</td><td>1/16</td></tr> <tr><td>5</td><td>1/32</td></tr> <tr><td>6</td><td>1/64</td></tr> </tbody> </table> <p>Alpha particle ${}^4_2\text{He}$</p> <p>Beta Particle (electron) ${}^0_{-1}e$</p> <p>Positron 0_1e</p> <p>neutron 1_0n</p>	# of Half Lives	Amount Remaining	0	1 (all)	1	1/2	2	1/4	3	1/8	4	1/16	5	1/32	6	1/64	<p>Common acids</p> <p>Sulfuric H_2SO_4</p> <p>Hydrochloric HCl</p> <p>Nitric HNO_3</p> <p>Phosphoric H_3PO_4</p> <p>Acetic CH_3COOH</p> <p>Perchloric HClO_4</p> <p>Common bases</p> <p>Sodium Hydroxide NaOH</p> <p>Ammonia NH_3</p> <p>Gas Laws</p> <p>Boyles</p> <p>$P_1V_1 = P_2V_2$</p> <p>Charles</p> <p>$V_1T_2 = V_2T_1$</p> <p>Gay-Lussac</p> <p>$P_1T_2 = P_2T_1$</p> <p>Combined</p> <p>$P_1V_1T_2 = P_2V_2T_1$</p> <p>Ideal</p> <p>$PV = nRT$</p> <p>Dalton</p> <p>$P_t = P_1 + P_2 + P_3 \dots$</p>	<p>Common Ions</p> <p>+2</p> <p>Hg_2^{2+} mercury(I)</p> <p>+1</p> <p>NH_4^+ ammonium</p> <p>H_3O^+ hydronium</p> <p>-1</p> <p>$\text{C}_2\text{H}_3\text{O}_2^-$ acetate</p> <p>ClO_3^- chlorate</p> <p>ClO_2^- chlorite</p> <p>CN^- cyanide</p> <p>H_2PO_4^- dihydrogen phosphate</p> <p>HCO_3^- hydrogen carbonate or bicarbonate</p> <p>HSO_4^- hydrogen sulfate or bisulfate</p> <p>OH^- hydroxide</p> <p>ClO^- hypochlorite</p> <p>NO_3^- nitrate</p> <p>NO_2^- nitrite</p> <p>ClO_4^- perchlorate</p> <p>MnO_4^- permanganate</p> <p>SCN^- thiocyanate</p> <p>-2</p> <p>CO_3^{2-} carbonate</p> <p>CrO_4^{2-} chromate</p> <p>$\text{Cr}_2\text{O}_7^{2-}$ dichromate</p> <p>HPO_4^{2-} hydrogen phosphate</p> <p>O_2^{2-} peroxide</p> <p>SO_4^{2-} sulfate</p> <p>SO_3^{2-} sulfite</p> <p>$\text{S}_2\text{O}_3^{2-}$ thiosulfate</p> <p>-3</p> <p>PO_4^{3-} phosphate</p>
# of Half Lives	Amount Remaining																		
0	1 (all)																		
1	1/2																		
2	1/4																		
3	1/8																		
4	1/16																		
5	1/32																		
6	1/64																		

Examples of molecular and empirical formula

Molecular



Empirical



Mass to Mass Stoichiometry

$$\frac{\text{Grams initial}}{\text{Molar mass initial}} \times \frac{1 \text{ mole initial}}{\text{Moles initial}^{(a)}} \times \frac{\text{Moles final}^{(a)}}{1 \text{ mole final}} \times \text{Molar mass final} = \text{Grams Final}$$

^(a) from balanced equation