

CHEM 1210 (Rowley)

Exam 2 (Chapters 3-4) Spring 2026

Formulas

$$C_1 V_1 = C_2 V_2$$

$$\%m/m = \frac{m_A}{m_{total}} 100\%$$

$$\%v/v = \frac{V_A}{V_{solution}} 100\%$$

$$\%Yield = \frac{\text{actual yield}}{\text{theoretical yield}} 100\%$$

$$\%m/v = \frac{g_A}{V_{solution}} 100\%$$

$$ppm = \frac{m_A}{m_{total}} 10^6 ppm$$

$$ppb = \frac{m_A}{m_{total}} 10^9 ppb$$

Constants

$$R = 8.314 \frac{J}{mol K}$$

$$R = 0.08206 \frac{L \text{ atm}}{mol K}$$

		Periodic Table of the Elements																			
		Group IVA								Group VA								Group VIA		Group VIIA	
		Group IIIA			Group IVA			Group VA		Group VIA		Group VIIA		Group 8A		Group 8A		Group 8A			
1	H	2	Be	Boron	C	Silicon	Phosphorus	P	Sulfur	Cl	Chlorine	Oxygen	F	Neon	He	Heium	VIIIA	VIIIA	VIIIA		
Hydrogen 1.008	Lithium 6.941	Beryllium 9.012	Magnesium 24.305	Aluminum 26.982	Germanium 72.631	Arsenic 74.922	Krypton 83.798	Argon 39.948	Sulfur 32.066	Selenium 78.971	Bromine 79.904	Fluorine 18.998	Neon 20.180	Heium 4.003	He	Heium	Heium	Heium	Heium		
1	H	2	Be	Boron	Carbon	Nitrogen	Oxygen	Phosphorus	Sulfur	Chlorine	Fluorine	Neon	Heium	He	Heium	Heium	Heium	Heium			
3	Li	4	Be	Boron	Carbon	Nitrogen	Oxygen	Phosphorus	Sulfur	Chlorine	Fluorine	Neon	Heium	He	Heium	Heium	Heium	Heium			
11	Na	12	Mg	Magnesium	Aluminum	Germanium	Phosphorus	Sulfur	Chlorine	Fluorine	Neon	Heium	He	Heium	Heium	Heium	Heium	Heium			
19	K	20	Ca	Scandium	Titanium	Cobalt	Nickel	Iron	Zinc	Gallium	Germanium	Arsenic	As	Ar	Ar	Ar	Ar	Ar			
Potassium 39.098	Calcium 40.078	Magnesium 24.305	Scandium 44.956	Titanium 47.867	Cobalt 55.845	Nickel 58.693	Iron 55.845	Zinc 65.38	Gallium 69.723	Germanium 72.631	Arsenic 74.922	Krypton 83.798	Neon 20.180	Heium 4.003	He	Heium	Heium	Heium	Heium		
37	Rb	38	Sr	Yttrium	Zirconium	Ruthenium	Palladium	Rhodium	Ptodium	Irodium	Thallium	Antimony	Te	Xe	Xe	Xe	Xe	Xe	Xe		
Rubidium 85.468	Srtrontium 87.62	Yttrium 88.906	Zirconium 91.224	Titanium 47.867	Zirconium 91.224	Ruthenium 101.07	Palladium 106.42	Rhodium 102.906	Ptodium 106.42	Irodium 192.217	Thallium 204.583	Antimony 121.760	Te	Iodine 126.904	Iodine 126.904	Radon 222.018	Radon 222.018	Radon 222.018	Radon 222.018		
55	Cs	56	Ba	La	Hafnium	Tantalum	W	Tungsten	Ptodium	Osmium	Platinum	Mercury	Po	Rn	Rn	Rn	Rn	Rn	Rn		
Cesium 132.905	Barium 137.328	Lanthanum 138.905	Hafnium 178.49	Tantalum 180.948	Tungsten 183.84	Ptodium 195.085	Platinum 195.085	Osmium 190.23	Platinum 195.085	Osmium 190.23	Platinum 195.085	Mercury 200.582	Po	At	At	At	At	At	At		
87	Fr	88	Ra	Ac	Dubnium	Bohrium	Sg	Seaborgium	Rutherfordium	Mt	Darmstadtium	Rg	Cn	Lv	Og	Og	Og	Og	Og		
Francium 223.020	Radium 226.025	Actinium 227.028	Dubnium 262	Bohrium 264	Seaborgium 266	Rutherfordium 261	Rutherfordium 261	Bohrium 264	Rutherfordium 261	Mt	Darmstadtium 281	Rg	Rg	Nh	Ornesson [294]	Ornesson [294]	Ornesson [294]	Ornesson [294]	Ornesson [294]		
58	Ce	59	Pr	60	Nd	61	Pm	62	Sm	63	Eu	64	Gd	65	Tb	66	Dy	67	Ho	68	
Lanthanide Series	Cerium 140.116	Praseodymium 140.908	Neodymium 144.913	Promethium 144.913	Samarium 150.36	Europium 151.964	Gadolinium 157.25	Terbium 158.925	Dysprosium 162.500	Holmium 164.930	Erbium 167.259	Thulium 168.934	Ytterbium 173.055	Lu	Lu	Lu	Lu	Lu	Lu	Lu	
Actinide Series	Thorium 232.038	Protactinium 231.036	Uranium 238.029	Neptunium 237.048	Plutonium 244.064	Americium 243.061	Curium 247.070	Berkelium 247.070	Fermium 251.080	Einsteinium 254	Mendelevium 258.1	No	Md	Fm	Es	Er	Tm	Yb	Yb		