

CHEM 1210 (Rowley)

Exam 2 (Chapters 3-4) Fall 2025

Formulas

$$C_1V_1 = C_2V_2$$

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

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

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

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

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

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

Constants

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

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

Feel free to use this page as scratch paper, but final work for questions must be shown *in the question's section* to count for credit.

Periodic Table of the Elements

1 H Hydrogen 1.008	2 He Helium 4.003	3 Li Lithium 6.941	4 Be Beryllium 9.012	5 B Boron 10.811	6 C Carbon 12.011	7 N Nitrogen 14.007	8 O Oxygen 15.999	9 F Fluorine 18.998	10 Ne Neon 20.180	11 Na Sodium 22.990	12 Mg Magnesium 24.305	13 Al Aluminum 26.982	14 Si Silicon 28.086	15 P Phosphorus 30.974	16 S Sulfur 32.066	17 Cl Chlorine 35.453	18 Ar Argon 39.948	19 K Potassium 39.098	20 Ca Calcium 40.078	21 Sc Scandium 44.956	22 Ti Titanium 47.867	23 V Vanadium 50.942	24 Cr Chromium 51.996	25 Mn Manganese 54.938	26 Fe Iron 55.845	27 Co Cobalt 58.933	28 Ni Nickel 58.693	29 Cu Copper 63.546	30 Zn Zinc 65.38	31 Ga Gallium 69.723	32 Ge Germanium 72.631	33 As Arsenic 74.922	34 Se Selenium 78.971	35 Br Bromine 79.904	36 Kr Krypton 83.798	37 Rb Rubidium 85.468	38 Sr Strontium 87.62	39 Y Yttrium 88.906	40 Zr Zirconium 91.224	41 Nb Niobium 92.906	42 Mo Molybdenum 95.95	43 Tc Technetium 98.907	44 Ru Ruthenium 101.07	45 Rh Rhodium 102.906	46 Pd Palladium 106.42	47 Ag Silver 107.868	48 Cd Cadmium 112.414	49 In Indium 114.818	50 Sn Tin 118.711	51 Sb Antimony 121.760	52 Te Tellurium 127.6	53 I Iodine 126.904	54 Xe Xenon 131.294	55 Cs Cesium 132.905	56 Ba Barium 137.328	57 La Lanthanum 138.905	58 Ce Cerium 140.116	59 Pr Praseodymium 140.908	60 Nd Neodymium 144.243	61 Pm Promethium 144.913	62 Sm Samarium 150.36	63 Eu Europium 151.964	64 Gd Gadolinium 157.25	65 Tb Terbium 158.925	66 Dy Dysprosium 162.500	67 Ho Holmium 164.930	68 Er Erbium 167.259	69 Tm Thulium 168.934	70 Yb Ytterbium 173.055	71 Lu Lutetium 174.967	72 Fr Francium 223.020	73 Ra Radium 226.025	74 Ac Actinium 227.028	75 Th Thorium 232.038	76 Pa Protactinium 231.036	77 U Uranium 238.029	78 Np Neptunium 237.048	79 Pu Plutonium 244.064	80 Am Americium 243.061	81 Cm Curium 247.070	82 Bk Berkelium 247.070	83 Cf Californium 251.080	84 Es Einsteinium [254]	85 Fm Fermium 257.095	86 Md Mendelevium 258.1	87 No Nobelium 259.101	88 Lr Lawrencium [262]	89 Fr Francium 223.020	90 Th Thorium 232.038	91 Pa Protactinium 231.036	92 U Uranium 238.029	93 Np Neptunium 237.048	94 Pu Plutonium 244.064	95 Am Americium 243.061	96 Cm Curium 247.070	97 Bk Berkelium 247.070	98 Cf Californium 251.080	99 Es Einsteinium [254]	100 Fm Fermium 257.095	101 Md Mendelevium 258.1	102 No Nobelium 259.101	103 Lr Lawrencium [262]	104 Lu Lutetium 174.967	105 Yb Ytterbium 173.055	106 Er Erbium 167.259	107 Tm Thulium 168.934	108 Yb Ytterbium 173.055	109 Lu Lutetium 174.967	110 Yb Ytterbium 173.055	111 Lu Lutetium 174.967	112 Yb Ytterbium 173.055	113 Lu Lutetium 174.967	114 Lu Lutetium 174.967	115 Lu Lutetium 174.967	116 Lu Lutetium 174.967	117 Lu Lutetium 174.967	118 Lu Lutetium 174.967	119 Lu Lutetium 174.967	120 Lu Lutetium 174.967	121 Lu Lutetium 174.967	122 Lu Lutetium 174.967	123 Lu Lutetium 174.967	124 Lu Lutetium 174.967	125 Lu Lutetium 174.967	126 Lu Lutetium 174.967	127 Lu Lutetium 174.967	128 Lu Lutetium 174.967	129 Lu Lutetium 174.967	130 Lu Lutetium 174.967	131 Lu Lutetium 174.967	132 Lu Lutetium 174.967	133 Lu Lutetium 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