

Conversion Factors:**Length:**

12 in = 1 ft

3 ft = 1 yd

1 mile = 5280 ft

1.00 km = 0.621 mile

1.00 m = 39.4 in

1.00 m = 3.28 ft

1.00 inch = 2.54 cm

Mass:

1 pound = 16 ounces

1.00 kg = 2.20 pounds

1.00 ounce = 28.3 grams

Volume:

1 quart = 4 cups

1 gallon = 4 quarts

1.00 L = 0.264 gallon

1.00 quart = 0.946 liter

1.00 mL = 0.0338 fluid ounce

Temperature conversion equations:

$$^{\circ}\text{F} = 1.8(^{\circ}\text{C}) + 32$$

$$^{\circ}\text{C} = (^{\circ}\text{F} - 32)/1.8$$

$$\text{K} = ^{\circ}\text{C} + 273$$

$$^{\circ}\text{C} = \text{K} - 273$$

Nutritional energy relationships:

1 g of fat = 9 Calories

1 g of protein = 4 Calories

1 g of carbohydrate = 4 Calories

Avogadro's number:

1 mole = 6.02×10^{23} items

Pressure relationships:

1.00 atm = 760. torr

1.00 atm = 760. mmHg

1.00 atm = 14.7 psi

1.00 atm = 101.3 kPa

Gas Laws:**Boyle's Law**

$$P_1 \times V_1 = P_2 \times V_2$$

Charles' Law

$$V_1 / T_1 = V_2 / T_2$$

Gay-Lussac's Law

$$P_1 / T_1 = P_2 / T_2$$

Dalton's Law

$$P_{\text{total}} = P_1 + P_2 + P_3 + \dots$$

Dilution equation:

$$C_1 \times V_1 = C_2 \times V_2$$

Common Polyatomic Ions:			
Ion	Name	Ion	Name
NH ₄ ⁺	ammonium	CO ₃ ²⁻	carbonate
NO ₂ ⁻	nitrite	HCO ₃ ⁻	bicarbonate
NO ₃ ⁻	nitrate	ClO ⁻	hypochlorite
SO ₃ ²⁻	sulfite	ClO ₂ ⁻	chlorite
SO ₄ ²⁻	sulfate	ClO ₃ ⁻	chlorate
HSO ₄ ⁻	hydrogen sulfate	ClO ₄ ⁻	perchlorate
OH ⁻	hydroxide	C ₂ H ₃ O ₂ ⁻	acetate
CN ⁻	cyanide	MnO ₄ ⁻	permanganate
PO ₄ ³⁻	phosphate	Cr ₂ O ₇ ²⁻	dichromate
HPO ₄ ²⁻	hydrogen phosphate	CrO ₄ ²⁻	chromate
H ₂ PO ₄ ⁻	dihydrogen phosphate	O ₂ ²⁻	peroxide

Table of Electronegativities:

H 2.1																	He
Li 1.0	Be 1.5											B 2.0	C 2.5	N 3.0	O 3.5	F 4.0	Ne
Na 0.9	Mg 1.2											Al 1.5	Si 1.8	P 2.1	S 2.5	Cl 3.0	Ar
K 0.8	Ca 1.0	Sc 1.3	Ti 1.5	V 1.6	Cr 1.6	Mn 1.5	Fe 1.8	Co 1.8	Ni 1.8	Cu 1.9	Zn 1.6	Ga 1.6	Ge 1.8	As 2.0	Se 2.4	Br 2.8	Kr 3.0
Rb 0.8	Sr 1.0	Y 1.2	Zr 1.4	Nb 1.6	Mo 1.8	Tc 1.9	Ru 2.2	Rh 2.2	Pd 2.2	Ag 1.9	Cd 1.7	In 1.7	Sn 1.8	Sb 1.9	Te 2.1	I 2.5	Xe 2.6
Cs 0.7	Ba 0.9	La 1.1	Hf 1.3	Ta 1.5	W 1.7	Re 1.9	Os 2.2	Ir 2.2	Pt 2.2	Au 2.4	Hg 1.9	Tl 1.8	Pb 1.8	Bi 1.9	Po 2.0	At 2.2	Rn 2.4
Fr 0.7	Ra 0.7	Ac 1.1	Unq	Unp	Unh	Uns	Uno	Uue									
Ce 1.1	Pr 1.1	Nd 1.1	Pm 1.1	Sm 1.1	Eu 1.1	Gd 1.1	Tb 1.1	Dy 1.1	Ho 1.1	Er 1.1	Tm 1.1	Yb 1.1	Lu 1.2				
Th 1.3	Pa 1.5	U 1.7	Np 1.3	Pu 1.3	Am 1.3	Cm 1.3	Bk 1.3	Cf 1.3	Es 1.3	Fm 1.3	Md 1.3	No 1.3	Lr				

The Periodic Table of the Elements

8A																			
1A		2A																8A	
1	H Hydrogen 1.00794																	2	He Helium 4.003
3	Li Lithium 6.941	Be Beryllium 9.012182																10	Ne Neon 20.1797
11	Na Sodium 22.989770	Mg Magnesium 24.3050																18	Ar Argon 39.948
19	K Potassium 39.0983	Ca Calcium 40.078	Sc Scandium 44.955910	Ti Titanium 47.867	V Vanadium 50.9415	Cr Chromium 51.9961	Mn Manganese 54.938049	Fe Iron 55.845	Co Cobalt 58.933200	Ni Nickel 58.6934	Cu Copper 63.546	Zn Zinc 65.39	Ga Gallium 69.723	Ge Germanium 72.61	As Arsenic 74.92160	Se Selenium 78.96	Kr Krypton 83.80		
37	Rb Rubidium 85.4678	Sr Strontium 87.62	Y Yttrium 88.90585	Zr Zirconium 91.224	Nb Niobium 92.90638	Mo Molybdenum 95.94	Tc Technetium (98)	Ru Ruthenium 101.07	Rh Rhodium 102.90550	Pd Palladium 106.42	Ag Silver 107.8682	Cd Cadmium 112.411	In Indium 114.818	Sn Tin 118.710	Sb Antimony 121.760	Te Tellurium 127.60	Xe Xenon 131.29		
55	Cs Cesium 132.90545	Ba Barium 137.327	La Lanthanum 138.9055	Hf Hafnium 178.49	Ta Tantalum 180.9479	W Tungsten 183.84	Re Rhenium 186.207	Os Osmium 190.23	Ir Iridium 192.217	Pt Platinum 195.078	Au Gold 196.96655	Hg Mercury 200.59	Tl Thallium 204.3833	Pb Lead 207.2	Bi Bismuth 208.98038	Po Polonium (209)	Rn Radon (222)		
87	Fr Francium (223)	Ra Radium (226)	Ac Actinium (227)	Rf Rutherfordium (261)	Db Dubnium (262)	Sg Seaborgium (263)	Bh Bohrium (262)	Hs Hassium (265)	Mt Meitnerium (266)	110	111	112	113	114					
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(272)																			
(269)																			
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(168.93421)																			
(210)																			
(222)																			