CONSTANTS

Avogadro's number, N_A	6.023×10^{23} mole^{-1}
Boltzmann constant, k	1.38×10^{-23} J/K
Electron charge, e	1.602×10^{-19} C
Gas constant, R	8.31 J/mol·K

EQUATIONS

$$APF = \frac{V_s}{V_c}$$

$$\rho = \frac{nA}{V_c N_A}$$

$$PD = \frac{A_{atoms}}{A_{plane}}$$

$$LD = \frac{L_{atoms}}{L_{line}}$$

$$n\lambda = 2d \sin\theta$$

$$d = \frac{a}{\sqrt{h^2 + k^2 + l^2}}$$

$$D = D_o e^{(-Q_d/RT)}$$

$$\frac{\partial C}{\partial t} = D \frac{\partial^2 C}{\partial x^2}$$

$$J = -D\left(\frac{dC}{dx}\right)$$

$$\frac{C_x - C_o}{C_s - C_o} = 1 - erf\left(\frac{x}{2\sqrt{Dt}}\right)$$

$$\sigma = Ce^{(-E_g/2kT)}$$

$$\rho = \frac{RA}{l}$$

$$\sigma = \frac{1}{\rho}$$

$$\sigma = n|e|\mu_e$$

$$V = IR$$

$$\rho_i = \rho_o + aT$$

$$\rho_i = Ac_i(1 - c_i)$$

$$\rho_i = \rho_\alpha V_\alpha + \rho_\beta V_\beta$$

PERIODIC TABLE (FROM CALLISTER CH. 2)

Metal

Nonmetal

Intermediate

Key: 29 (Atomic number) Cu (Symbol) 63.54 (Atomic weight)

IA	IIA	IIIB	IVB	VB	VIB	VIIB	VIII			IB	IIB	IIIA	IVA	VA	VIA	VIIA	0
1 H 1.0080																	2 He 4.0026
3 Li 6.939	4 Be 9.0122											5 B 10.811	6 C 12.011	7 N 14.007	8 O 15.999	9 F 18.998	10 Ne 20.183
11 Na 22.990	12 Mg 24.312											13 Al 26.982	14 Si 28.086	15 P 30.974	16 S 32.064	17 Cl 35.453	18 Ar 39.948
19 K 39.102	20 Ca 40.08	21 Sc 44.956	22 Ti 47.90	23 V 50.942	24 Cr 51.996	25 Mn 54.938	26 Fe 55.847	27 Co 58.933	28 Ni 58.71	29 Cu 63.54	30 Zn 65.37	31 Ga 69.72	32 Ge 72.59	33 As 74.922	34 Se 78.96	35 Br 79.91	36 Kr 83.80
37 Rb 85.47	38 Sr 87.62	39 Y 88.91	40 Zr 91.22	41 Nb 92.91	42 Mo 95.94	43 Tc (99)	44 Ru 101.07	45 Rh 102.91	46 Pd 106.4	47 Ag 107.87	48 Cd 112.40	49 In 114.82	50 Sn 118.69	51 Sb 121.75	52 Te 127.60	53 I 126.90	54 Xe 131.30
55 Cs 132.91	56 Ba 137.34	Rare earth series	72 Hf 178.49	73 Ta 180.95	74 W 183.85	75 Re 186.2	76 Os 190.2	77 Ir 192.2	78 Pt 195.09	79 Au 196.97	80 Hg 200.59	81 Tl 204.37	82 Pb 207.19	83 Bi 208.98	84 Po (210)	85 At (210)	86 Rn (222)
87 Fr (223)	88 Ra (226)	Acti-nide series															

Rare earth series	57 La 138.91	58 Ce 140.12	59 Pr 140.91	60 Nd 144.24	61 Pm (145)	62 Sm 150.35	63 Eu 151.96	64 Gd 157.25	65 Tb 158.92	66 Dy 162.50	67 Ho 164.93	68 Er 167.26	69 Tm 168.93	70 Yb 173.04	71 Lu 174.97
Actinide series	89 Ac (227)	90 Th 232.04	91 Pa (231)	92 U 238.03	93 Np (237)	94 Pu (242)	95 Am (243)	96 Cm (247)	97 Bk (247)	98 Cf (249)	99 Es (254)	100 Fm (253)	101 Md (256)	102 No (254)	103 Lw (257)