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	17/VII															
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	F 19.00															
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	Cl 35.45															
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	Br 79.90															
	83															
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	Se 78.96															
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	Te 127.6															
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	Si 28.09															
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	Ge 72.61															
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	Sn 118.7															
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	Pb 207.2															
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	Al 26.98															
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	Ga 69.72															
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	Zn 65.39															
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	Cu 63.55															
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	Ag 107.9															
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	Lu 174.9															
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	Ac 227.0															
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	2															
	Be 9.012															
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	Mg 24.30															
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	Ca 40.08															
	40.08															
	Sr 87.62															
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	Ba 137.3															
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	Ra 226.0															
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	1															
	Li 6.941															
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	Na 22.99															
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	K 39.10															
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	Rb 85.47															
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	Rf 261.0															
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	Sc 44.96															
	44.96															
	Y 88.91															
	88.91															

Useful relations

At 298.15 K

RT	$2.4790 \text{ kJ mol}^{-1}$
RT/F	25.693 mV
$RT \ln 10/F$	59.160 mV
kT/hc	207.23 cm^{-1}
kT/e	25.693 meV
V_m^\ominus	$2.4790 \times 10^{-2} \text{ m}^3 \text{ mol}^{-1} \quad 24.790 \text{ L mol}^{-1}$

Conversion factors

1 eV	$1.60218 \times 10^{-19} \text{ J}$
	$96.485 \text{ kJ mol}^{-1}$
	8065.5 cm^{-1}
1 cal	4.184^* J
1 atm	101.325^* kPa
	760^* Torr
1 cm^{-1}	$1.9864 \times 10^{-23} \text{ J}$
1 D	$3.33564 \times 10^{-30} \text{ C m}$
1 Å	10^{-10} m^*

* Exact value

Mathematical relations

$$\pi = 3.14159265359 \dots$$

$$e = 2.71828182846 \dots$$

$$\ln x = (\ln 10) \log x = (2.302585 \dots) \log x$$

$$\frac{dx^n}{dx} = nx^{n-1}$$

$$\int x^n dx = \frac{x^{n+1}}{n+1} + \text{constant}$$

$$\int \frac{1}{x} dx = \ln x + \text{constant}$$

$$\int_0^\infty x^n e^{-ax} dx = \frac{n!}{a^{n+1}}$$

Prefixes

z	a	f	p	n	μ	m	c	d	Da	k	M	G	T
zepto	atto	femto	pico	nano	micro	milli	centi	deci	deka	kilo	mega	giga	tera
10^{-21}	10^{-18}	10^{-15}	10^{-12}	10^{-9}	10^{-6}	10^{-3}	10^{-2}	10^{-1}	10^1	10^3	10^6	10^9	10^{12}

General data and fundamental constants

Quantity	Symbol	Value	Power of ten	Units
Speed of light	c	2.997 924 58*	10^8	m s^{-1}
Elementary charge	e	1.602 177	10^{-19}	C
Faraday constant	$F = N_A e$	9.648 53	10^4	C mol^{-1}
Boltzmann constant	k	1.380 66	10^{-23}	J K^{-1}
Gas constant	$R = N_A k$	8.314 51		$\text{J K}^{-1} \text{mol}^{-1}$
		8.314 51	10^{-2}	$\text{L bar K}^{-1} \text{mol}^{-1}$
		8.205 78	10^{-2}	$\text{L atm K}^{-1} \text{mol}^{-1}$
		6.236 40	10	$\text{L Torr K}^{-1} \text{mol}^{-1}$
Planck constant	h	6.626 08		10-34
J s				
	$h = h/2\pi$	1.054 57	10^{-34}	J s
Avogadro constant	N_A	6.022 14	10^{23}	mol^{-1}
Atomic mass unit	u	1.660 54	10^{-27}	kg
Mass				
electron	m_e	9.109 39	10^{-31}	kg
proton	m_p	1.672 62	10^{-27}	kg
neutron	m_n	1.674 93	10^{-27}	kg
Vacuum permittivity	$\epsilon_0 = 1/c^2 \mu_0$	8.854 19	10^{-12}	$\text{J}^{-1} \text{C}^2 \text{m}^{-1}$
	$4\pi\epsilon_0$	1.112 65	10^{-10}	$\text{J}^{-1} \text{C}^2 \text{m}^{-1}$
Vacuum permeability	μ_0	$4\pi^*$	10^{-7}	$\text{J s}^2 \text{C}^{-2} \text{m}^{-1}$ (= $\text{T}^2 \text{J}^{-1} \text{m}^3$)
Magneton				
Bohr	$\mu_B = eh/2m_e$	9.274 02	10^{-24}	J T^{-1}
nuclear	$\mu_N = eh/2m_p$	5.050 79	10^{-27}	J T^{-1}
g value	g_e	2.002 32		
Bohr radius	$a_0 = 4\pi\epsilon_0 h^2 / m_e e^2$	5.291 77	10^{-11}	m
Fine-structure constant	$\alpha = \mu_0 e^2 c / 2h$	7.297 35	10^{-3}	
	α^{-1}	1.370 36	10^2	
Second radiation constant	$c_2 = hc/k$	1.438 77	10^{-2}	m K
Stefan-Boltzmann constant	$\sigma = 2\pi^5 k^4 / 15h^3 c^2$	5.670 51	10^{-8}	$\text{W m}^{-2} \text{K}^{-4}$
Rydberg constant	$\mathcal{R} = m_e e^4 / 8h^3 c \epsilon_0^2$	1.097 37	10^5	cm^{-1}
Standard acceleration of free fall	g	9.806 65*		m s^{-2}
Gravitational constant	G	6.672 59	10^{-11}	$\text{N m}^2 \text{kg}^{-2}$

* Exact value.