

RECOMMENDED UNIT PREFIXES
As adopted by International Committee on Weights and Measures,
\$1.50 yr.* Reprinted from NBS Technical News Bulletin, Feb. 1963, issued monthly,
Publ. 232, 50c.* Also see The Metric System of Measurement, NBS Misc.

Multiples and submultiples	Prefixes	Symbols	Pronunciation
10 ¹²	tera	T	ter' á
10 ⁹	giga	G	jí gá
10 ⁶	mega	M	még' á
10 ³	kilo	k	kí' ló
10 ²	hecto	h	hék' tó
10 ⁻¹	deka	da	dék' á
10 ⁻²	deci	d	dés' í
10 ⁻³	centi	c	sén' í
10 ⁻⁶	milli	m	mí' l' í
10 ⁻⁹	micro	μ	mí' kró
10 ⁻¹²	nano	n	nán' ó
10 ⁻¹⁵	pico	p	pe' kó
10 ⁻¹⁸	femto	f	fem' tó
	atto	a	át' tó

DEFINED VALUES AND CONVERSION FACTORS

Meter	1 650 763.73 wavelengths of the transition 2p ₁₀
Kilogram	mass of the international kilogram
Second	1/31 556 925.974 7 of the tropical year 1900
Degree Kelvin	ln the thermodynamic scale, 273.16 °K = triple point of water (p, 273.15 °K = 0 °C)
Unified atomic mass unit, u	1/12 the mass of an atom of the ¹² C nuclide
Standard acceleration of free fall	9.806 65 m s ⁻² , 980.665 cm s ⁻²
Normal atmosphere	101 325 N m ⁻² , 1 013 250 dyn cm ⁻²
Thermochemical calorie	4.1840 J, 4.1840 × 10 ⁷ erg
Int. Steam Table calorie	4.1868 J, 4.1868 × 10 ⁷ erg
Liter	0.001 000 028 m ³ , 1 000.028 cm ³ (recom- mended by CIPM, 1950)
Inch	0.0254 m, 2.54 cm
Pound (avdp.)	0.453 592 37 kg, 453.592 37 g

*For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402

GENERAL PHYSICAL CONSTANTS RECOMMENDED BY NAS-NRC Adopted by NBS¹

Constant	Sym- bol	Value	Est.* error limit	Unit	
				Système Intern. (MKS A)	Centimeter gram-second (CGS)
Speed of light in vacuum	c	2.997925	3	×10 ⁸ m s ⁻¹	×10 ¹⁰ cm s ⁻¹
Elementary charge	e	1.60210	7	10 ⁻¹⁹ C	10 ⁻²⁰ cm ^{1/2} g ^{1/2} s ⁻¹ ‡
		4.80298	20		10 ⁻¹⁰ cm ^{3/2} g ^{1/2} s ⁻¹ ‡
Avogadro constant	N _A	6.02252	28	10 ²³ mol ⁻¹	10 ²³ mol ⁻¹
Electron rest mass	m _e	9.1091	4	10 ⁻³¹ kg	10 ⁻²⁸ g
Proton rest mass	m _p	1.67252	8	10 ⁻²⁷ kg	10 ⁻²⁴ g
Faraday constant	F	9.64870	16	10 ⁴ C mol ⁻¹	10 ⁹ cm ^{1/2} g ^{1/2} mol ⁻¹ †
Planck constant	h	6.6256	5	10 ⁻³⁴ J s	10 ⁻²⁷ erg s
Fine structure constant	α	7.29720	10	10 ⁻³	10 ⁻³
Charge to mass ratio for electron	e/m _e	1.758796	19	10 ¹¹ C kg ⁻¹	10 ⁷ cm ^{1/2} g ^{-1/2} s
		5.27274	6		10 ¹⁷ cm ^{3/2} g ^{-1/2} s ⁻¹ ‡
Rydberg constant	R _∞	1.0973731	3	10 ⁷ m ⁻¹	10 ³ cm ⁻¹
Gyromagnetic ratio of proton	γ _p	2.67519	2	10 ⁸ rad s ⁻¹ T ⁻¹	10 ⁸ rad s ⁻¹ G ⁻¹
γ corrected for diamagnetism, H ₂ O	γ'	2.67512	2	10 ⁸ rad s ⁻¹ T ⁻¹	10 ⁸ rad s ⁻¹ G ⁻¹
Bohr magneton	μ _B	9.2732	6	10 ⁻²⁴ J T ⁻¹	10 ⁻²¹ erg G ⁻¹
Gas constant	R	8.3143	12	10 ⁰ J K ⁻¹ mol ⁻¹	10 ⁷ erg ^{°K} ⁻¹ mol ⁻¹
Boltzmann constant	k	1.38054	18	10 ⁻²³ J K ⁻¹	10 ¹⁶ erg ^{°K} ⁻¹
First radiation constant (2πhc ²)	c ₁	3.7405	3	10 ⁻¹⁶ W m ²	10 ⁻⁵ erg cm ² s ⁻¹
Second radiation constant	c ₂	1.43879	19	10 ⁻² m ² K	10 ⁹ cm ² K
Stefan-Boltzmann constant	σ	5.6697	29	10 ⁻⁸ W m ⁻² K ⁻⁴	10 ⁻⁵ erg cm ⁻² s ⁻¹ K ⁻⁴
Gravitational constant	G	6.670	15	10 ⁻¹¹ N m ² kg ⁻²	10 ⁻⁸ dyn cm ² g ⁻²

*Based on 3 std. dev., applies to last digits in preceding col. †Electromagnetic syst. ‡Electrostatic syst. Reprinted from NBS Technical News Bulletin, Oct. 1963.

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10^{12}	tera	T	tēr'ō
10^9	giga	G	jī'gā
10^6	mega	M	mēg'ā
10^3	kilo	k	kīl'ō
10^2	hecto	h	hēk'tō
10^1	deka	da	dēk'ā
10^{-1}	deci	d	dēs'ī
10^{-2}	centi	c	sēn'tī
10^{-3}	milli	m	mīl'ī
10^{-6}	micro	μ	mī'krō
10^{-9}	nano	n	nān'ō
10^{-12}	pico	p	pē'kō
10^{-15}	femto	f	fēm'tō
10^{-18}	atto	a	āt'tō

DEFINED VALUES AND CONVERSION FACTORS

Meter, m..... 1 650 763.73 wavelengths of the transition 2p_{1/2} - 5d_{3/2} in ⁸⁵Rb

Kilogram, kg..... mass of the international kilogram

Second, s..... 1/31 556 925 974 7 of the tropical year 1900;
9 192 631 770 periods of cesium frequency

Kelvin, K..... In the thermodynamic scale, 273.16 K = triple point of water (tp, 273.15 K = 0 °C)

Unified atomic mass unit, u..... 1/12 the mass of an atom of the ¹²C nuclide

Standard acceleration of free fall..... 9.806 65 m s⁻²; 980.665 cm s⁻²

Normal atmosphere..... 101 325 N m⁻²; 1 013 250 dyn cm⁻²

Thermochemical calorie..... 4.1840 J; 4.1840 × 10⁷ erg

Int. Steam Table calorie..... 4.1868 J; 4.1868 × 10⁷ erg

Liter..... 0.001 cubic meter

Mole..... amount of matter having same number of formula units as atoms in 0.012 kg ¹²C

Inch..... 0.0254 m; 2.54 cm

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