

Physical Constants & Conversions (Updated August 2016)

Name	Symbol	Value	Units	Uncertainty
Speed of light in vacuum	c	299 792 458	m s ⁻¹	exact
Electric constant	ϵ_0	$8.854\,187\,817 \times 10^{-12}$	C ² N ⁻¹ m ⁻²	exact
Magnetic constant	μ_0	$4\pi \times 10^{-7}$	N A ⁻²	exact
Newtonian constant of Gravitation	G	$6.674\,08 \times 10^{-11}$	kg ⁻¹ m ³ s ⁻²	$0.000\,31 \times 10^{-11}$
Planck constant	h	$6.626\,070\,040 \times 10^{-34}$	J s	$0.000\,000\,081 \times 10^{-34}$
Planck constant over 2 π	$\hbar=h/2\pi$	$1.054\,571\,800 \times 10^{-34}$	J s	$0.000\,000\,013 \times 10^{-34}$
Boltzmann constant	k	$1.380\,648\,52 \times 10^{-23}$	J K ⁻¹	$0.000\,000\,79 \times 10^{-23}$
Stefan-Boltzmann constant	σ	$5.670\,367 \times 10^{-8}$	W m ⁻² K ⁻⁴	$0.000\,013 \times 10^{-8}$
Thomson cross section	σ_e	$0.665\,245\,871\,58 \times 10^{-28}$	m ²	$0.000\,000\,000\,91 \times 10^{-28}$
Electron mass	m _e	$9.109\,383\,56 \times 10^{-31}$	kg	$0.000\,000\,0098 \times 10^{-31}$
Classical electron radius	r _e	$2.817\,940\,3227 \times 10^{-15}$	m	$0.000\,000\,0019 \times 10^{-15}$
Elementary charge	e	$1.602\,176\,6208 \times 10^{-19}$	C	$0.000\,000\,0098 \times 10^{-19}$
Proton mass	m _p	$1.672\,621\,898 \times 10^{-27}$	kg	$0.000\,000\,021 \times 10^{-27}$
Rydberg Constant	R _∞	10 973 731.568 508	m ⁻¹	0.000 065 m ⁻¹
Electron Volt	eV	$1.602\,176\,6208 \times 10^{-19}$	J	$0.000\,000\,0098 \times 10^{-19}$

Source: NIST Physical Measurement Laboratory (physics.nist.gov/cuu/Constants)

SI prefixes

Factor	Name	Symbol		Factor	Name	Symbol
10^{24}	yotta	Y		10^{-1}	deci	d
10^{21}	zetta	Z		10^{-2}	centi	c
10^{18}	exa	E		10^{-3}	milli	m
10^{15}	peta	P		10^{-6}	micro	μ
10^{12}	tera	T		10^{-9}	nano	n
10^9	giga	G		10^{-12}	pico	p
10^6	mega	M		10^{-15}	femto	f
10^3	kilo	k		10^{-18}	atto	a
10^2	hecto	h		10^{-21}	zepto	z
10^1	deka	da		10^{-24}	yocto	y

Source: NIST (physics.nist.gov/cuu/Units/prefixes.html)