

Physical Constants

Physical Constant	Calculator code	Symbol	Value	Unit
Mass of the Proton	<i>mp</i>	m_p	$1.672621777 \times 10^{-27}$	<i>kg</i>
Mass of the Neutron	<i>mn</i>	m_n	$1.674927351 \times 10^{-27}$	<i>kg</i>
Mass of the Electron	<i>me</i>	m_e	$9.10938291 \times 10^{-31}$	<i>kg</i>
Mass of the Muon	<i>mu</i>	m_μ	$1.883531475 \times 10^{-28}$	<i>kg</i>
Bohr radius	<i>a0</i>	a_o	$5.291772109 \times 10^{-11}$	<i>m</i>
Planck's constant	<i>h</i>	h	$6.62606957 \times 10^{-34}$	<i>J/Hz</i>
Nuclear magneton	<i>uN</i>	μ_N	$6.62606957 \times 10^{-34}$	<i>J/T</i>
Bohr magneton	<i>uB</i>	μ_B	$9.27400968 \times 10^{-24}$	<i>J/T</i>
Dirac's constant	<i>Dc</i>	\hbar	$1.054571726 \times 10^{-34}$	<i>J.s/rad</i>
Fine-structure constant	<i>a</i>	α	$7.29735257 \times 10^{-3}$	–
Classical electron radius	<i>re</i>	r_e	$2.817940327 \times 10^{-15}$	<i>m</i>
Compton wavelength	<i>CW</i>	λ_c	$2.426310239 \times 10^{-12}$	<i>m</i>
Gyromagnetic ratio of the proton	<i>GRP</i>	γ_p	267522200.5	<i>rad/s/T</i>
Compton wavelength for proton	<i>CWp</i>	$\lambda_{c,p}$	$1.321409856 \times 10^{-15}$	<i>m</i>
Compton wavelength for neutron	<i>CWn</i>	$\lambda_{c,n}$	1.319590907	<i>m</i>
Speed of light	<i>C</i>	R_∞	3×10^8	<i>m/s</i>
Atomic mass unit	<i>u</i>	u	$1.660538921 \times 10^{-27}$	<i>kg</i>
Proton magnetic moment	<i>up</i>	μ_p	$1.410606743 \times 10^{-26}$	<i>J/T</i>
Electron magnetic moment	<i>ue</i>	μ_e	$-9.2847643 \times 10^{-24}$	<i>J/T</i>
Neutron magnetic moment	<i>un</i>	μ_n	$-9.6623647 \times 10^{-27}$	<i>J/T</i>
Muon moment	<i>uu</i>	μ_μ	$-4.49044807 \times 10^{-26}$	<i>J/T</i>
Faraday's constant	<i>F</i>	F	96485.3365	<i>C/mol</i>
Charge of a proton	<i>e</i>	e	$1.602176565 \times 10^{-19}$	<i>C</i>
Avogadro number	<i>NA</i>	N_A	$6.02214129 \times 10^{23}$	<i>1/mol</i>
Boltzmann's constant	<i>k</i>	k	$1.3806488 \times 10^{-23}$	<i>J/K</i>
Molar volume, 0°C, 1 bar	<i>Vm</i>	V_m	0.022710953	<i>m³/mol</i>
Ideal gas constant	<i>R</i>	R	8.3144621	<i>J/K/mol</i>
Einstein's constant (c)	<i>C0</i>	C_0	299792458	<i>m/s</i>
1 st radiation constant	<i>C1</i>	C_1	$3.74177153 \times 10^{-16}$	<i>W.m²</i>
2 nd radiation constant	<i>C2</i>	C_2	1.438777×10^{-2}	<i>m.K</i>
Stefan's constant	<i>Stp</i>	σ	5.670373×10^{-8}	<i>W/m²/K⁴</i>
Electric constant	<i>e0</i>	ϵ_0	$8.854187817 \times 10^{-12}$	<i>F/m</i>
Magnetic constant	<i>u0</i>	μ_0	$1.256637061 \times 10^{-6}$	<i>H/m</i>
Quantum of flux	<i>QF</i>	ϕ_0	$2.067833758 \times 10^{-15}$	<i>Wb</i>
Normal gravity	<i>g</i>	g	9.80665	<i>N/kg</i>
Conductance quantum	<i>G0</i>	G_0	$7.748091735 \times 10^{-5}$	<i>S</i>
Z of vacuum = m0 c	<i>z0</i>	Z_0	376.7303	Ω
Ice point = 0°C	<i>t</i>	t	273.15	<i>K</i>
Newton's gravitational constant	<i>G</i>	G	6.67384×10^{-11}	<i>N.m²/kg²</i>
Normal atmospheric pressure	<i>atm</i>	<i>atm</i>	101325	<i>Pa</i>