

Fundamental Constants

2018 CODATA values from NIST, at <http://physics.nist.gov/cuu/Constants>

Numbers in parentheses are uncertainties in the last two digits of the listed value.

speed of light in vacuum	$c = 299\,792\,458\text{ m/s}$ (exact)
Planck constant	$h = 6.626\,070\,15 \times 10^{-34}\text{ J}\cdot\text{s}$ (exact) $\hbar = 1.054\,571\,818 \dots \times 10^{-34}\text{ J}\cdot\text{s}$ $hc = 1240 \dots \text{ eV}\cdot\text{nm}$
constant of gravitation	$G = 6.674\,30(15) \times 10^{-11}\text{ N}\cdot\text{m}^2/\text{kg}^2$
Coulomb force constant	$k_C = 8.987\,551\,792\,2(13) \times 10^9\text{ N}\cdot\text{m}^2/\text{C}^2$
permittivity constant	$\epsilon_0 = 8.854\,187\,812\,8(13) \times 10^{-12}\text{ C}^2/\text{N}\cdot\text{m}^2$
permeability constant	$\mu_0 = 4\pi \times 1.000\,000\,000\,54(15) \times 10^{-7}\text{ N/A}^2$
elementary charge	$e = 1.602\,176\,634 \times 10^{-19}\text{ C}$ (exact)
Avogadro constant	$N_A = 6.022\,140\,76 \times 10^{23}\text{ molecules/mol}$ (exact)
Boltzmann constant	$k_B = 1.380\,649 \times 10^{-23}\text{ J/K}$ (exact) $\simeq 8.62 \times 10^{-5}\text{ eV/K}$
electron mass	$m_e = 9.109\,383\,7015(28) \times 10^{-31}\text{ kg}$ $\simeq 0.511\text{ MeV}/c^2$
proton mass	$m_p = 1.672\,621\,923\,69(51) \times 10^{-27}\text{ kg}$ $\simeq 938.3\text{ MeV}/c^2$
neutron mass	$m_n = 1.674\,927\,498\,04(95) \times 10^{-27}\text{ kg}$ $\simeq 939.6\text{ MeV}/c^2$
electron magnetic moment	$\mu_e = -9.284\,764\,7043(28) \times 10^{-24}\text{ J/T}$
proton magnetic moment	$\mu_p = 1.410\,606\,797\,36(60) \times 10^{-26}\text{ J/T}$

Miscellaneous Physical Data

gravitational field strength (sea level)	$g = 9.81\text{ N/kg}$
sun: mass = $1.99 \times 10^{30}\text{ kg}$	radius = $6.96 \times 10^8\text{ m}$
earth: mass = $5.97 \times 10^{24}\text{ kg}$	radius = $6.37 \times 10^6\text{ m}$
moon: mass = $7.35 \times 10^{22}\text{ kg}$	radius = $1.74 \times 10^6\text{ m}$
mean earth-sun distance = $1.50 \times 10^{11}\text{ m}$	
mean earth-moon distance = $3.84 \times 10^8\text{ m}$	

Metric Prefixes

centi	$c = 10^{-2}$		
milli	$m = 10^{-3}$	kilo	$k = 10^3$
micro	$\mu = 10^{-6}$	mega	$M = 10^6$
nano	$n = 10^{-9}$	giga	$G = 10^9$
pico	$p = 10^{-12}$	tera	$T = 10^{12}$
femto	$f = 10^{-15}$	peta	$P = 10^{15}$