

Physical constants

Speed of light in vacuum	$c = 2.99792458 \times 10^{10} \text{ cm sec}^{-1}, \times 10^8 \text{ m sec}^{-1}$, exactly
Quantum of electric charge, cgs	$e = 4.803206 \times 10^{-10} \text{ esu}$
Quantum of electric charge, SI	$e = 1.60217733 \times 10^{-19} \text{ coul}$
Permittivity of vacuum, SI	$\epsilon_0 = 8.85418782... \times 10^{-12} \text{ coul}^2 \text{ Nt}^{-1} \text{ m}^{-2}$ (or farad m^{-1}), exactly
Permeability of vacuum, SI	$\mu_0 = 4\pi \times 10^{-7} \text{ Nt amp}^{-2}$ (or henry m^{-1}), exactly
Gravitational constant	$G = 6.674215 \times 10^{-8} \text{ cm}^3 \text{ gm}^{-1} \text{ sec}^{-2}, \times 10^{-11} \text{ m}^3 \text{ kg}^{-1} \text{ sec}^{-2}$
Boltzmann constant	$k = 1.380658 \times 10^{-16} \text{ erg K}^{-1}, \times 10^{-23} \text{ joule K}^{-1}$
Stefan-Boltzmann constant	$\sigma = 5.67051 \times 10^{-5} \text{ erg sec}^{-1} \text{ cm}^{-2} \text{ K}^{-4}, \times 10^{-8} \text{ joule sec}^{-1} \text{ m}^{-2} \text{ K}^{-4}$
Avogadro number	$N_A = 6.0221367 \times 10^{23} \text{ molecules mole}^{-1}$
Planck constant	$h = 6.6260755 \times 10^{-27} \text{ erg sec}, \times 10^{-34} \text{ joule sec}$ $\hbar = h/2\pi = 1.05457266 \times 10^{-27} \text{ erg sec}, \times 10^{-34} \text{ joule sec}$
Fine structure constant	$\alpha = 1/137.059895$
Electron mass	$m_e = 9.1093897 \times 10^{-28} \text{ gm}, \times 10^{-31} \text{ kg}$
Proton mass	$m_p = 1.6726231 \times 10^{-24} \text{ gm}, \times 10^{-27} \text{ kg}$
Neutron mass	$m_n = 1.674929 \times 10^{-24} \text{ gm}, \times 10^{-27} \text{ kg}$
Hydrogen mass	$m_H = 1.673534 \times 10^{-24} \text{ gm}, \times 10^{-27} \text{ kg}$
Atomic mass unit	$u = 1.6605402 \times 10^{-24} \text{ gm}, \times 10^{-27} \text{ kg}$
Earth mass	$M_\oplus = 5.972245 \times 10^{27} \text{ gm}, \times 10^{24} \text{ kg}$
Earth radius	$R_\oplus = 6.378 \times 10^8 \text{ cm}, \times 10^6 \text{ m}$
Earth solar day	Day = 86400 sec
Earth sidereal year	$P_\oplus = \text{yr} = 3.155815 \times 10^7 \text{ sec}$
Astronomical unit	$AU = 1.4959787 \times 10^{13} \text{ cm}, \times 10^{11} \text{ m}$
Solar mass	$M_\odot = 1.98843 \times 10^{33} \text{ gm}, \times 10^{30} \text{ kg}$
Solar radius	$R_\odot = 6.9599 \times 10^{10} \text{ cm}, \times 10^8 \text{ m}$
Solar effective temperature	$T_{e\odot} = 5800 \text{ K}$
Solar luminosity	$L_\odot = 3.826 \times 10^{33} \text{ erg sec}^{-1}, \times 10^{26} \text{ watt}$
Light year	$\text{ly} = 9.4605 \times 10^{17} \text{ cm}, \times 10^{15} \text{ m}$
Parsec	$\text{pc} = 3.0857 \times 10^{18} \text{ cm}, \times 10^{16} \text{ m} = 3.2616 \text{ ly}$
Hubble constant	$H_0 = 65 \text{ km sec}^{-1} \text{ Mpc}^{-1} = 20 \text{ km sec}^{-1} \text{ Mly}^{-1}$