

PHYSICAL AND ASTRONOMICAL CONSTANTS

c	Speed of light in vacuo	$2.998 \times 10^8 \text{ m s}^{-1}$
e	Elementary charge	$1.602 \times 10^{-19} \text{ C}$
m_n	Neutron rest mass	$1.675 \times 10^{-27} \text{ kg}$
m_p	Proton rest mass	$1.673 \times 10^{-27} \text{ kg}$
m_e	Electron rest mass	$9.110 \times 10^{-31} \text{ kg}$
h	Planck's constant	$6.626 \times 10^{-34} \text{ J s}$
\hbar	Dirac's constant ($= h/2\pi$)	$1.055 \times 10^{-34} \text{ J s}$
k	Boltzmann's constant	$1.381 \times 10^{-23} \text{ J K}^{-1}$
G	Gravitational constant	$6.673 \times 10^{-11} \text{ N m}^2 \text{ kg}^{-2}$
σ	Stefan-Boltzmann constant	$5.670 \times 10^{-8} \text{ J m}^{-2} \text{ K}^{-4} \text{ s}^{-1}$
c_1	First Radiation Constant ($= 2\pi hc^2$)	$3.742 \times 10^{-16} \text{ J m}^2 \text{ s}^{-1}$
c_2	Second Radiation Constant ($= hc/k$)	$1.439 \times 10^{-2} \text{ m K}$
ϵ_0	Permittivity of free space	$8.854 \times 10^{-12} \text{ C}^2 \text{ N}^{-1} \text{ m}^{-2}$
μ_0	Permeability of free space	$4\pi \times 10^{-7} \text{ H m}^{-1}$
N_A	Avogadro constant	$6.022 \times 10^{23} \text{ mol}^{-1}$
R	Gas constant	$8.314 \text{ J K}^{-1} \text{ mol}^{-1}$
a_0	Bohr radius	$5.292 \times 10^{-11} \text{ m}$
μ_B	Bohr magneton	$9.274 \times 10^{-24} \text{ J T}^{-1}$
α	Fine structure constant ($= 1/137.0$)	7.297×10^{-3}
M_\odot	Solar Mass	$1.989 \times 10^{30} \text{ kg}$
R_\odot	Solar radius	$6.96 \times 10^8 \text{ m}$
L_\odot	Solar luminosity	$3.827 \times 10^{26} \text{ J s}^{-1}$
M_\oplus	Earth Mass	$5.976 \times 10^{24} \text{ kg}$
R_\oplus	Mean earth radius	$6.371 \times 10^6 \text{ m}$
1 light year		$9.461 \times 10^{15} \text{ m}$
1 AU	Astronomical Unit	$1.496 \times 10^{11} \text{ m}$
1 pc	Parsec	$3.086 \times 10^{16} \text{ m}$
1 year		$3.156 \times 10^7 \text{ s}$

ENERGY CONVERSION : 1 joule (J) = 6.2415×10^{18} electronvolts (eV)