

Physical Constants

c	2.997925	$\times 10^8$	m s^{-1}	Speed of light in vacuum
G	6.67430	$\times 10^{-11}$	$\text{m}^3 \text{kg}^{-1} \text{s}^{-2}$	Gravitational constant
h	6.626070	$\times 10^{-34}$	J s	Planck constant
e	1.602177	$\times 10^{-19}$	C	Elementary charge
\hbar	1.052572	$\times 10^{-34}$	J s	Reduced Planck constant
k	1.380649	$\times 10^{-23}$	J K^{-1}	Boltzmann constant
μ_0	1.256637	$\times 10^{-6}$	N A^{-2}	Vacuum permeability
ε_0	8.854188	$\times 10^{-12}$	F m^{-1}	Vacuum permittivity
σ	5.670374	$\times 10^{-8}$	$\text{W m}^{-2} \text{K}^{-4}$	Stefan-Boltzmann constant
m_e	9.109384	$\times 10^{-31}$	kg	Electron mass
	0.510999		MeV c^{-2}	
m_p	1.672622	$\times 10^{-27}$	kg	Proton mass
	938.2721		MeV c^{-2}	
m_n	1.674927	$\times 10^{-27}$	kg	Neutron mass
	939.5654		MeV c^{-2}	
N_A	6.022141	$\times 10^{23}$	mol^{-1}	Avogadro constant
R	8.314463		$\text{J mol}^{-1} \text{K}^{-1}$	Gas constant
a_0	5.291772	$\times 10^{-11}$	m	Bohr radius
R_∞	1.097373	$\times 10^7$	m^{-1}	Rydberg constant
b_λ	2.897772	$\times 10^{-3}$	m K	Wien's displacement constant
b_ν	5.878926	$\times 10^{10}$	Hz K	
a	7.565767	$\times 10^{-16}$	$\text{J m}^{-3} \text{K}^{-4}$	Radiation constant
α	7.297353	$\times 10^{-3}$		Fine structure constant
σ_e	6.652459	$\times 10^{-29}$	m^2	Thomson cross section
μ_B	9.274010	$\times 10^{-27}$	J T^{-1}	Bohr magneton
r_e	2.817940	$\times 10^{-15}$	m	Classical electron radius
g	9.80665		m s^{-2}	Standard gravity on Earth
atm	1.01325	$\times 10^5$	Pa	Standard atmosphere

All values are nominal 2023 CODATA or IAU recommendations.

Astronomical Constants

AU	1.495979	$\times 10^{11}$	m	Astronomical Unit
ly	9.460730	$\times 10^{15}$	m	Light year
pc	3.085678	$\times 10^{16}$	m	Parsec
yr	365.2563		days	Sidereal year
M_{\odot}	1.988416	$\times 10^{30}$	kg	Solar mass
R_{\odot}	6.957	$\times 10^8$	m	Solar radius
L_{\odot}	3.828	$\times 10^{26}$	W	Solar luminosity
$T_{\odot, \text{eff}}$	5772		K	Solar effective temperature
$M_{\odot, V}$	4.83			Solar magnitude
$M_{\odot, \text{bol}}$	4.75			
$m_{\odot, V}$	-26.832			
α_{\odot}	32'			Size of solar disc
μ_{\odot}	$4\pi^2$		$\text{AU}^3 \text{yr}^{-2}$	Solar gravitational parameter
M_{\oplus}	5.9722	$\times 10^{24}$	kg	Earth mass
R_{\oplus}	6.3781	$\times 10^6$	m	Earth radius
e_{\oplus}	0.016709			Earth eccentricity
ω_{\oplus}	283.324°			Earth's longitude of perihelion
M_{moon}	7.346	$\times 10^{22}$	kg	Moon mass
R_{moon}	1.7374	$\times 10^6$	m	Moon radius
$d_{\text{E-M}}$	3.84399	$\times 10^8$	m	Earth–Moon distance
$m_{\text{moon}, V}$	12.74			magnitude of full moon
α_{moon}	31'			Size of lunar disc
M_J	1.8982	$\times 10^{27}$	kg	Jupiter mass
R_J	6.9911	$\times 10^7$	m	Jupiter radius
a_J	5.2038		AU	Semi-major axis of Jupiter
a_V	0.7233		AU	Semi-major axis of Venus
a_M	1.5237		AU	Semi-major axis of Mars
H_0	70.1		$\text{km s}^{-1} \text{Mpc}^{-1}$	Hubble constant
κ	20.4955		arcsec	Abberation constant
ε	23° 26' 21"			Obliquity of the ecliptic
ζ	-34'			Refraction at horizon
Jy	1	$\times 10^{-26}$	$\text{W m}^{-2} \text{Hz}^{-1}$	Jansky
A	15		$\text{km s}^{-1} \text{kpc}^{-1}$	Oort constants
B	20		$\text{km s}^{-1} \text{kpc}^{-1}$	

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