

:Universal constants

mol^{-1}	$10^{23} \times 6.022$	=	N_A Avogadro constant
J K^{-1}	$10^{-23} \times 1.381$	=	k_B Boltzmann constant
C	$10^{-19} \times 1.602$	=	e Charge of electron
J s	$10^{-34} \times 6.626$	=	h Planck constant
m s^{-1}	$10^8 \times 2.998$	=	c Speed of light in vacuum
$\text{N m}^2 \text{kg}^{-2}$	$10^{-11} \times 6.674$	=	G Universal gravitational constant
$\text{J mol}^{-1} \text{K}^{-1}$	8.315	=	R Universal gas constant
$\text{W m}^{-2} \text{K}^{-4}$	$10^{-8} \times 5.670$	=	σ Stefan-Boltzmann constant
m K	$10^{-3} \times 2.898$	=	b Wien's displacement constant
$\text{m}^{-3} \text{kg}^{-1} \text{s}^4 \text{A}^2$	$10^{-12} \times 8.854$	=	ϵ_0 Permittivity of free space
N A^{-2}	$10^{-6} \times 1.257$	=	μ_0 Permeability of free space
MeV/c^2	0.511	=	m_e Mass of electron
MeV/c^2	938.272	=	m_p Mass of proton
MeV/c^2	939.565	=	m_n Mass of neutron
MeV/c^2	1875.613	=	m_D Mass of deuteron
MeV/c^2	3727.181	=	m_{He} Mass of He nucleus

:Astronomical data

kg	$10^{30} \times 1.988$	=	$M_\odot$ Mass of Sun
m	$10^8 \times 6.957$	=	$R_\odot$ Radius of Sun
W	$10^{26} \times 3.828$	=	$L_\odot$ Luminosity of Sun
K	5772	=	$T_{\text{eff}, \odot}$ Effective temperature of Sun
-26.74		=	$m_{V, \odot}$ (Apparent magnitude of Sun (in V-band
$+4.82$		=	$M_{V, \odot}$ (Absolute magnitude of Sun (in V-band
-26.83		=	$m_{\text{bol}, \odot}$ Apparent bolometric magnitude of Sun
$+4.74$		=	$M_{\text{bol}, \odot}$ Absolute bolometric magnitude of Sun
W m^{-2}	1361	=	$S_\odot$ (Solar constant (above atmosphere of Earth
$32'$		$\approx$	$\theta_\odot$ (Apparent angular diameter of Sun (from Earth
kg	$10^{24} \times 5.972$	=	$M_\oplus$ Mass of Earth
m	$10^6 \times 6.378$	=	$R_\oplus$ Radius of Earth
$23^\circ 26'$		=	ϵ Axial tilt of Earth
$5^\circ 8' 43''$		=	Inclination of the lunar orbit w.r.t. the ecliptic
kg	$10^{27} \times 1.898$	=	M_J Mass of Jupiter
m	$10^7 \times 6.991$	=	R_J Radius of Jupiter
m	$10^{11} \times 1.496$	=	au 1Astronomical Unit 1
m	$10^{16} \times 3.086$	=	pc 1parsec 1
m	$10^{15} \times 9.461$	=	ly 1light-year 1
$\text{W m}^{-2} \text{Hz}^{-1}$	10^{-26}	=	Jy 1jansky 1
s	$10^7 \times 3.156$	=	tropical year 1
	$\text{d } 5 \text{ h } 48 \text{ min } 46 \text{ s } 365$	=	
s	$10^7 \times 3.156$	=	sidereal year 1
	$\text{d } 6 \text{ h } 9 \text{ min } 13 \text{ s } 365$	=	
	years 1 \degree per 71.6	=	Rate of precession of Vernal Equinox

:Calculus related formulas

$$\begin{aligned}
 k \sec^2 kx &= \frac{d}{dx} \tan kx .5 & -k \sin kx &= \frac{d}{dx} \cos kx .4 & k \cos kx &= \frac{d}{dx} \sin kx .3 & nx^{n-1} &= \frac{d}{dx} x^n .2 & \frac{dy}{du} \frac{du}{dx} &= \frac{dy}{dx} .1 \\
 f(x_0) + \frac{df}{dx} \Big|_{x=x_0} (x-x_0), \text{ for } x \approx x_0 &\simeq f(x) .7 & n \neq -1 \text{ for } ; \frac{x^{n+1}}{n+1} + \text{constant} &= \int x^n dx .6
 \end{aligned}$$