

Astron 211 Constants

August 28, 2017

bolometric absolute mag of the Sun $M_{\text{bol},\odot} = 4.74$

Solar Mass $M_{\odot} = 2 \times 10^{30}$ kg

Solar Luminosity $L_{\odot} = 4 \times 10^{26}$ W

Solar Radius $R_{\odot} = 7 \times 10^8$ m

Earth Mass $M_{\oplus} = 6 \times 10^{24}$ kg

Earth Radius $R_{\oplus} = 6.4 \times 10^6$ m

AU 1.5×10^{11} m

parsec 3.1×10^{16} m = 206265 AU

year 3.16×10^7 s

c 3×10^8 m s⁻¹

G 6.7×10^{-11} N m² kg⁻²

Permeability of free space $\mu_0 = 4\pi \times 10^{-7}$ N A⁻²

Permittivity of free space $\epsilon_0 = 1/\mu_0 c^2$

Electric Charge $e = 1.6 \times 10^{-19}$ C

Electron volt eV = 1.6×10^{-19} J

Planck's constant $h = 6.6 \times 10^{-34}$ J s, $\hbar = h/2\pi$

Boltzmann's constant $k_B = 1.4 \times 10^{-23}$ J K⁻¹

Stefan-Boltzmann constant $\sigma = 5.7 \times 10^{-8}$ W m⁻² K⁻⁴

Radiation constant $a = 4\sigma/c$

Proton mass $m_p \approx m_n \approx m_H = 1.7 \times 10^{-27}$ kg

Electron mass $m_e \approx m_p/1800 = 9.1 \times 10^{-31}$ kg