Constants and astronomical quantities:

Speed of light	$c = 3 \times 10^8$ ms^{-1}
Gravitational constant	$G = 6.67 \times 10^{-11}$ Nm^{2}kg^{-2}
Stefan-Boltzmann's constant	$\sigma = 5.67 \times 10^{-8}$W m^{-2} K^{-4}
Boltzmann's constant	$k = 1.38 \times 10^{-23}$ J K^{-1}
Luminosity of the Sun	1 $L_\odot = 3.839 \times 10^{26}$ W
Mass of the Sun	1 $M_\odot = 1.99 \times 10^{30}$ kg
Surface temperature of the Sun	$T_\odot = 5800$ K
Astronomical unit	1 AU = 1.496×10^{11} m
Parsec	1 pc = 3.26 ly = 3.086×10^{16} m = 206,265 AU
Conversion Kelvin (K) to Celsius (C)	T[K]=T[C]+273
Conversion Celsius (C) to Fahrenheit (F)	T[F]=$\frac{9}{5}$T[C]+32
1 radian = 206,265 arcseconds	

Useful equations:

D = αd where α is in radians

$d = 1/p$ parsecs where p is in arcseconds

$m - M = 5 \log(d) - 5 + A$

K.E. = $0.5mv^2$ P.E. = $\frac{-GMm}{r}$

$F = ma$

$a_c = v^2/r$

$F_g = \frac{GMm}{r^2}$ Gravitational force

$\mid dF \mid = \frac{2GMm}{r^3} dr$ Tidal force

$V_{escape} = \sqrt{\frac{2GM}{r}}$

$P^2 = \frac{4\pi^2}{G(m_1+m_2)} a^3$

$\lambda\nu = c$

$\lambda_{max} = \frac{0.0029mK}{T}$

$F = \sigma T^4$ and also $F = \frac{L}{4\pi r^2}$

$K.E. = 3/2kT$ (per particle)

$V = \sqrt{(3kT/m)}$ (average velocity of particle)

$\theta = 1.22\lambda/D$ (in radians)

$V = \frac{\lambda_{\rm obs} - \lambda_0}{\lambda_0} c = $ cz Doppler velocity

$\Delta\lambda/\lambda_0 = GM/Rc^2$

$v_{app} = v\sin(\theta)/(1 - \beta\cos(\theta))$ where $\beta = v/c$

$t = t_0\gamma$ and $L = L_0/\gamma$ where $\gamma = 1/\sqrt{(1 - \beta^2)}$

$M = V^2 R/G$ Virial theorem

$V = H_0 d$ where H_0 is the Hubble constant