A hodge-podge of equations:

$$P^2 = \frac{4\pi^2}{GM}a^3 \qquad dF = \frac{2GMm}{r^3}dr$$

$$v_{esc} = \sqrt{\frac{2GM}{r}} \qquad v_{circ} = \sqrt{\frac{GM}{r}}$$

$$r_{lim} < 2.5(\frac{\bar{\rho}_p}{\bar{\rho}_m})^{1/3}R_p \qquad v^2 = GM(\frac{2}{r} - \frac{1}{a})$$

$$\lambda_{max}(cm) = \frac{0.29}{T(K)} \qquad L = 4\pi R^2\sigma T^4$$

$$r_{peri} = a(1-e) \qquad r_{apo} = a(1+e)$$

$$B_\lambda(T) = \frac{2hc^2/\lambda^5}{e^{hc/\lambda kT} - 1}$$

$$E_n = -\frac{13.6}{n^2}\ eV \qquad T_{eq} = T_*(1-a)^{\frac{1}{4}}\sqrt{\frac{R_*}{2r}}$$

$$H = \frac{kT}{mg} \qquad P(z) = P_0 e^{-z/H}$$

$$V_t = 4.74\mu(''/\mathrm{yr})d(\mathrm{pc}) \qquad < M_V >= -2.43\log P - 1.62$$

$$[Fe/H] = \log(Fe/H)_* - \log(Fe/H)_\odot \qquad R_s = \frac{2GM}{c^2}$$

$$M_I = -8.7(\log(v_c) - 2.5) - 23.5 \qquad r_e \sim \sigma^{1.24}\langle I\rangle^{-0.82}$$

$$M = \frac{L}{4\pi}\frac{\sigma}{cGm} \qquad \mu(r) = \mu_0 + 1.09(r/h)$$

$$v = H_0 d \qquad M = \frac{5\langle R\rangle\sigma^2}{G}$$

$$1 + z = \frac{1}{R} \qquad t_H = 1/H_0$$

$$\left(\frac{\dot{R}}{R}\right)^2 - \frac{8}{3}\pi G\rho - \frac{\Lambda}{3} = -\frac{k}{R^2}$$

$$2T + U = 0$$

Possibly Useful Constants and Conversions:

- Solar Blue Magnitudes: $m_B = -26.14$, $M_B = +5.42$
- Solar Visual Magnitudes: $m_V = -26.8$, $M_V = +4.76$
- Gravitational constant: **if** time is measured in years, distances in AU, and masses in solar masses, $G = 39.5$ AU^3 M$_\odot^{-1}$ yr^{-2}
- Gravitational constant: **if** time is measured in Myr, distances in pc, and masses in solar masses. $G = 4.43 \times 10^{-3}$ pc^3 M$_\odot^{-1}$ Myr^{-2}
- Stefan-Boltzmann constant $\sigma = 7.18 \times 10^{-17}$ **if** luminosities are measured in solar luminosities, temperature is measured in Kelvin, and sizes are measured in solar radii.
- 1 parsec (pc) = 206,265 AU
- 1 arcsecond ($''$) = 1/3600 degrees = 4.85×10^{-6} radians
- 1 Angstrom (Å) = 10^{-8} cm
- 1 year = 3.15×10^7 s
- 1 km/s $\approx$ 1 pc/Myr