

## Constants & Formulas

$$c = 3.00 \times 10^8 \text{ m/s}$$

$$c = 3.00 \times 10^5 \text{ km/s}$$

$$1 \text{ pc} = 3.26 \text{ Ly}$$

$$1 \text{ Mpc} = 10^6 \text{ pc}$$

$$1 \text{ Ly} = 9.46 \times 10^{15} \text{ m}$$

$$1 \text{ nm} = 10^{-9} \text{ m}$$

$$1 \text{ AU} = 1.50 \times 10^{11} \text{ m}$$

$$1 \text{ AU} = 1.50 \times 10^8 \text{ km}$$

$$H = 72 \text{ km/s/Mpc}$$

$$\sigma = 5.67 \times 10^{-8} \text{ W/m}^2/\text{K}^4$$

$$G = 6.673 \times 10^{-11} \text{ m}^3/\text{kg/s}^2$$

$$T_{\odot} = T_{sun} = 5780 \text{ K}$$

$$L_{\odot} = L_{sun} = 3.83 \times 10^{26} \text{ W}$$

$$M_{\odot} = M_{sun} = 2.00 \times 10^{30} \text{ kg}$$

$$R_{\odot} = R_{sun} = 6.96 \times 10^8 \text{ m}$$

$$M_{\oplus} = M_{Earth} = 5.97 \times 10^{24} \text{ kg}$$

$$R_{\oplus} = R_{Earth} = 6.378 \times 10^6 \text{ m}$$

$$(1) \quad d = ct$$

$$(2) \quad P^2 = a^3$$

$$(3) \quad V_{escape} = \sqrt{\frac{2GM}{R}}$$

$$(4) \quad c = \lambda f$$

$$(5) \quad V_r = Hd$$

$$(6) \quad T = \frac{2.898 \times 10^6}{\lambda_m}$$

$$(7) \quad V = \frac{\left[\left(\frac{\lambda}{\lambda_o}\right)^2 - 1\right]}{\left[\left(\frac{\lambda}{\lambda_o}\right)^2 + 1\right]} c$$

$$(8) \quad B = \frac{L}{4\pi d^2}$$

$$(9) \quad L = 4\pi R^2 \sigma T^4$$

$$(10) \quad \frac{R}{R_{Sun}} = \left(\frac{T_{Sun}}{T}\right)^2 \sqrt{\frac{L}{L_{Sun}}}$$

$$(11) \quad d_{pc} = \frac{1}{p}$$

$$(12) \quad M_1 + M_2 = \frac{a^3}{P^2}$$

$$(13) \quad \mathcal{M} = (\mathcal{L})^{\frac{1}{3}}$$

$$(14) \quad R_S = \frac{2GM}{c^2}$$

$$(15) \quad L = \frac{2\pi DA}{360}$$

$$(16) \quad \frac{L}{L_{Sun}} = 10^{-\frac{2}{5}(M_v - M_{vSun})}$$

$$(17) \quad F_{gravity} = \frac{GM_1 M_2}{R^2}$$