

Astronomy Reference Information

Metric Prefixes

$$G = 10^9$$

$$M = 10^6$$

$$k = 10^3$$

$$c = 10^{-2}$$

$$m = 10^{-3}$$

$$\mu = 10^{-6}$$

$$n = 10^{-9}$$

Angle Conversions

$$1 \text{ radian} = 57.3^\circ$$

$$60' = 1^\circ$$

$$60'' = 1'$$

For Right Ascension:

$$1^h = 15^\circ$$

$$1^m = 0.25^\circ = 15'$$

$$1^s = 15''$$

Distances

$$1 \text{ A.U.} = 1.496 \times 10^8 \text{ km}$$

$$1 \text{ pc} = 3.09 \times 10^{13} \text{ km} = 3.26 \text{ ly}$$

Earth:

$$m = 5.974 \times 10^{24} \text{ kg}$$

$$R = 6378 \text{ km}$$

$$F = 1380 \text{ W (the solar constant)}$$

Sun:

$$m = 1.99 \times 10^{30} \text{ kg}$$

$$R = 696000 \text{ km}$$

$$L = 3.90 \times 10^{26} \text{ W}$$

Speed of Light (EMR)

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

Equations:

$$\theta = \frac{a}{r}$$

$$\text{rate} = \frac{\text{amount}}{\text{time}}$$

$$e = \frac{c}{a}$$

$$d_{\text{aph}} = a(1 + e)$$

$$d_{\text{per}} = a(1 - e)$$

$$p^2 = a^3, p \text{ in years, } a \text{ in A.U.}$$

$$v = f\lambda$$

$$\theta = 0.25 \frac{\lambda}{d}, \theta \text{ in arc sec, } \lambda \text{ in } \mu\text{m, } d \text{ in m}$$

$$\lambda_{\text{peak}} = \frac{0.29}{T}, \lambda \text{ in cm, } T \text{ in K}$$

$$L = r^2 T^4, \text{ relative to Sun}$$

$$F = \frac{L}{4\pi r^2}$$

$$\frac{F_1}{F_2} = 2.512^{(m_1 - m_2)}$$

$$\left(\frac{d}{10}\right)^2 = 2.512^{(m - M)}$$

