Relationships and Data:

$$\frac{\theta}{360} = \frac{s}{2\pi r}$$

$$P_{years}{}^2 = A_{AU}{}^3$$

$$P_{years}{}^2 = \frac{A_{AU}{}^3}{M_{tot,solar\_masses}}$$

F=ma
F=ma

Kinetic Energy=(1/2)mv^2

$$F = G\frac{m_1 m_2}{r^2}$$

$$v_{circ} = \sqrt{\frac{GM}{r}}$$

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

frequency=1/Period

$$frequency = f = \frac{c}{\lambda}$$

$$\lambda_{I,\max} = \frac{2900\mu mK}{T_{kelvin}}$$

$$T_{kelvin} = T_{celsius} + 273$$

$$Flux = \sigma T_k{}^4$$

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

$$E_{photon} = \frac{hc}{\lambda}$$

$$E_{photon} = hf$$

$$\lambda_{relative\_motion} = (1 + \frac{v}{c})\lambda_{rest}$$

$$\sigma = 5.67\times10^{-8}\,\frac{W}{m^2K^4}$$

$$G = 6.67\times10^{-11}\,\frac{Nm^2}{kg^2}$$

$$h = 6.34\times10^{-34}\,Js$$

$$c = 3.00\times10^{8}\,\frac{m}{s}$$