

Midterm Equation Sheet

$$F_{\text{gravity}} = \frac{GM_1M_2}{R^2}$$

$$P^2 = (M_1 + M_2)a^3$$

where P is in years, M in solar masses, and a in AU!

$$v = f\lambda \quad f = \frac{1}{T}$$

$$\lambda_{\text{max}} = \frac{3 \times 10^6 \text{ nm}\cdot\text{K}}{T}$$

$$L = 4\pi R^2 F$$

$$F = \sigma T^4$$

$$E = hf$$

$$\frac{\Delta\lambda}{\lambda} = \frac{v}{c}$$

$$T \propto \frac{1}{\sqrt{r}}$$

$$G = 6.67 \times 10^{-11} \frac{\text{m}^3}{\text{kg s}^2}$$

$$M_E = 5.97 \times 10^{24} \text{ kg}$$

$$R_E = 6.38 \times 10^6 \text{ m}$$

$$1 \text{ AU} = 1.47 \times 10^{11} \text{ m}$$

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

$$L_{\odot} = 3.85 \times 10^{26} \text{ W}$$