$$\text{mass} \quad \propto \quad \text{length}^3$$

$$\text{mass} \quad \propto \quad \text{length}^p$$

$$\text{Period} \quad = \quad K * \text{diameter}$$

$$\text{Period} \quad = \quad K * (\text{diameter})^{0.5}$$

$$\text{Luminosity } L \quad \propto \quad T^4$$

$$\text{Luminosity } L \quad \propto \quad T^7$$