

$$\delta = \left( \frac{R_p}{R_s} \right)^2$$

$$\theta \simeq \frac{R_s}{a}$$

$$\frac{2\theta}{2\pi} = \frac{T}{P}$$

$$\frac{T}{P} = \frac{R_s}{\pi a}$$

$$P^2 = \frac{4\pi^2}{\frac{4}{3}\pi G\rho_s} \left( \frac{a^3}{R_s^3} \right)$$

$$P^2 = \frac{4\pi^2}{\frac{4}{3}\pi G\rho_s} \left( \frac{P^3}{\pi^3 T^3} \right)$$