

$$\boxed{1/10} \quad F = \frac{G m_s m_t}{d^2}$$

$$= \frac{G \left(\frac{4}{3} \pi r^3 \rho_s \right) \left(\frac{4}{3} \pi \left(\frac{r}{2} \right)^3 \rho_t \right)}{(4r)^2 + \left(\frac{r}{2} \right)^2}$$

With $\begin{cases} G = 6.673(10^{-11}) \text{ m}^3/(\text{kg} \cdot \text{s}^2) \\ r = 0.050 \text{ m} \\ \rho_s = 7830 \text{ kg/m}^3, \rho_t = 3080 \text{ kg/m}^3 \end{cases}$

$$F = 1.358(10^{-9}) \text{ N}$$

