

Exercise 8-7

$$\begin{aligned}g &= \frac{GM}{r^2} \\&= \frac{(6.673 \times 10^{-11} \text{ N}\cdot\text{m}^2/\text{kg}^2) (7.00 \times 10^{10} \text{ kg})}{(175 \times 10^3 \text{ m})^2} \\&= 1.525 \times 10^{-10} \text{ m/s}^2\end{aligned}$$

$$\begin{aligned}F_G &= mg \\&= (80.0 \text{ kg}) (1.525 \times 10^{-10} \text{ m/s}^2) \\&= 1.22 \times 10^{-8} \text{ N}\end{aligned}$$