

EXERCICIO F2BE2442:

$$G = 6,67 \cdot 10^{-11} \text{ N m}^2 \text{ kg}^{-2}$$

$$R_T = 6370 \cdot 10^3 \text{ m}$$

$$M_T = 5,98 \cdot 10^{24} \text{ kg}$$

$$a) \quad g_{\text{SUP}} = G \frac{M_T}{R_T^2} = 6,67 \cdot 10^{-11} \frac{5,98 \cdot 10^{24}}{(6370 \cdot 10^3)^2}$$

$$g_{\text{SUP}} = 9,83 \frac{\text{N}}{\text{kg}}$$

$$b) \quad g = g_{\text{SUP}} - \frac{1}{3} g_{\text{SUP}} = 9,83 - \frac{9,83}{3} = 6,55$$

$$6,55 = G \frac{M_T}{R^2}$$

$$6,55 = 6,67 \cdot 10^{-11} \frac{5,98 \cdot 10^{24}}{R^2}$$

$$R^2 = 6,09 \cdot 10^{13} \Rightarrow R = 7,8 \cdot 10^6$$

$$h = R - R_T = 7,8 \cdot 10^6 - 6370 \cdot 10^3$$

$$h = 1,43 \cdot 10^6 \text{ m}$$