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Dano:

$$r_1 = 6378.1 \text{ km}$$

$$r_1 = 5.9 \cdot 10^{24} \text{ kg}$$

$$G = 6.67 \cdot 10^{-11}$$

$$g_2 = (?)$$

$$p_1 : p_2 = ?$$

Szukane:

$$r_2 = r_1 - 25\% \Rightarrow r_2 = 6378.1 - 25\% = 4783.6 \text{ (km)}$$

$$m_2 = m_1 + 25\% \Rightarrow m_2 = 5.9 \cdot 10^{24} + 25\% = 7.4 \cdot 10^{24}$$

$$g = G \frac{m}{R^2} \Rightarrow g = 6.67 \cdot 10^{-11} \frac{7.4 \cdot 10^{24}}{(4783.6)^2} =$$

$$= 7g = \frac{6.67 \cdot 7.4 \cdot 10^{13}}{22882.829} = \frac{6.67 \cdot 7.4 \cdot 10^{17}}{2.29 \cdot 10^7} = \frac{6.67 \cdot 7.4 \cdot 10^6}{2.29}$$

$$= 21.6 \cdot 10^6 \text{ (m/c}^2) \Rightarrow 21.6 \text{ (m/c}^2)$$

$$p_1 : p_2 = 50$$

Odpowiedź: 21.6 m/c²