

$$m = 2 \cdot 10^{24} \text{ kg}$$

$$v = ?$$

$$r = 5000 \text{ km} = 5000000 \text{ m}$$

$$F = m \cdot \omega \cdot 2r$$

$$F = 2 \cdot 10^{24} \text{ kg} \cdot 10 \frac{\text{mm}}{\text{s}^2} = 2 \cdot 10^{25} \frac{\text{kg m}}{\text{s}^2} = 2 \cdot 10^{25} \text{ N}$$

$$\omega = \frac{F}{2rm}$$

$$\omega = \frac{2 \cdot 10^{25}}{2 \cdot 5000000 \text{ m} \cdot 2 \cdot 10^{24} \text{ kg}} = \frac{10}{10000000} =$$

$$0,000001 \left[ \frac{1}{\text{s}} \right]$$

$$v = \omega \cdot r$$

$$v = 0,000001 \frac{1}{\text{s}} \cdot 5000000 \text{ m} = 5 \frac{\text{m}}{\text{s}}$$