

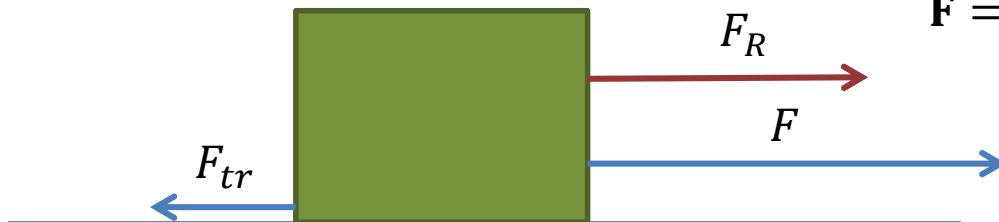
Zadaci – Drugi Njutnov zakon (drugi deo)



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6. Dejan gura kolica mase 50kg po pravoj putanji, paralelno sa horizontalnom podlogom silom intenziteta 0,015 kN. Koliko je ubrzanje kolica ako je sila trenja 2N?

$$F = 0,015\text{kN} = 0,015 \cdot 1000\text{N} = 15\text{N}$$



$$F_R = F - F_{tr}$$

$$F_R = 15\text{N} - 2\text{N}$$

$$F_R = 13\text{N}$$

$$m = 50\text{ kg}$$

$$F_R = 13\text{N}$$

$$a = ?$$

$$a = \frac{F_R}{m}$$

$$a = \frac{13\text{N}}{50\text{ kg}}$$

$$a = 0,26 \frac{\text{m}}{\text{s}^2}$$

7. Telo mase 200 g pod dejstvom konstantne sile kreće se ubrzanjem $5 \frac{m}{s^2}$.
Koliko ubrzanje će dobiti telo mase 10 kg pod dejstvom iste sile?

$$m_1 = 200g = 0,2 \text{ kg}$$

$$a_1 = 5 \frac{m}{s^2}$$

$$F_1 = ?$$

$$F_1 = m_1 \cdot a_1$$

$$F_1 = 0,2 \text{ kg} \cdot 5 \frac{m}{s^2}$$

$$F_1 = 1 \text{ N}$$

$$F_2 = F_1 = 1 \text{ N}$$

$$m_2 = 10 \text{ kg}$$

$$a_2 = ?$$

$$a_2 = \frac{F_2}{m_2}$$

$$a_2 = \frac{1 \text{ N}}{10 \text{ kg}}$$

$$a_2 = 0,1 \frac{m}{s^2}$$

8. Telo za 10 s promeni brzinu od $5 \frac{m}{s}$ na $72 \frac{km}{h}$. Kolika je masa tela ako je na njega delovala sila od 300N?

$$t = 10 \text{ s}$$

$$v_0 = 5 \frac{m}{s}$$

$$v = 20 \frac{m}{s}$$

$$a = ?$$

$$\Delta v = v - v_0$$

$$\Delta v = 20 \frac{m}{s} - 5 \frac{m}{s}$$

$$\Delta v = 15 \frac{m}{s}$$

$$72 \frac{km}{h} = 72 \cdot \frac{1000 \text{ m}}{3600 \text{ s}} = 20 \frac{m}{s}$$

$$a = \frac{\Delta v}{t}$$

$$a = \frac{15 \frac{m}{s}}{10 \text{ s}}$$

$$a = 1,5 \frac{m}{s^2}$$

$$F = 300 \text{ N}$$

$$a = 1,5 \frac{m}{s^2}$$

$$m = ?$$

$$m = \frac{F}{a}$$

$$m = \frac{300 \text{ N}}{1,5 \frac{m}{s^2}}$$

$$m = 200 \text{ kg}$$