

HOOKOV ZAKON - REŠITVE NALOG

ENAKA VZMET

$$1.) \quad m_1 = 100 \text{ g}$$
$$x_1 = 8 \text{ cm}$$
$$F_1 = 1 \text{ N}$$

$$m_2 = 80 \text{ g}$$
$$x_2 = ?$$
$$F_2 = 0,8 \text{ N}$$

$$F = k \cdot x$$
$$k = \frac{F}{x}$$
$$x = \frac{F}{k}$$

$$F_1 = k \cdot x_1$$

$$k = \frac{F_1}{x_1} = \frac{1 \text{ N}}{8 \text{ cm}} = 0,125 \frac{\text{N}}{\text{cm}}$$

$$x_2 = \frac{F_2}{k} = \frac{0,8 \text{ N} \cdot \text{cm}}{0,125 \text{ N}} =$$

$$\underline{\underline{x_2 = 6,4 \text{ cm}}}$$

Raztež vzmeti je 6,4 cm, ko jo obremenimo z maso 80g.

2.) DVE VZMETI

$$F_1 = 5 \text{ N}$$
$$x_1 = 2 \text{ cm}$$

$$m_2 = 200 \text{ g} \Rightarrow F_2 = 2 \text{ N}$$

$$\underline{\underline{x_2 = 6 \text{ mm} = 0,6 \text{ cm}}}$$

$$k_1 = \frac{F_1}{x_1} = \frac{5 \text{ N}}{2 \text{ cm}} = 2,5 \frac{\text{N}}{\text{cm}}$$

$$k_2 = \frac{F_2}{x_2} = \frac{2 \text{ N}}{0,6 \text{ cm}} = 3,33 \frac{\text{N}}{\text{cm}}$$

Trša je druga vzmet, ki ima večji koeficient (k).

3.) Vámet je dolga 5 cm.

$$F_1 = 0,5 \text{ N}$$

$$x_1 = 2,5 \text{ cm}$$

$$x_2 = 9 \text{ cm}$$

$$F_2 = ?$$

$$k = \frac{F_1}{x_1} = \frac{0,5 \text{ N}}{2,5 \text{ cm}} = 0,2 \frac{\text{N}}{\text{cm}}$$

$$F_2 = k \cdot x_2 = 0,2 \frac{\text{N}}{\text{cm}} \cdot 9 \text{ cm} =$$

$$\underline{\underline{F_2 = 1,8 \text{ N}}} \quad \text{— teža merane uteži}$$

$$m_2 = 180 \text{ g}$$

(masa merane uteži)

4.) VÁMETNA TEHTNICA

$$F = 10 \text{ N}$$

$$x = 8 \text{ cm}$$

$$x_1 = 45 \text{ mm} = 4,5 \text{ cm}$$

$$F_1 = ? \quad m_1 = ?$$

$$k = \frac{F}{x} = \frac{10 \text{ N}}{8 \text{ cm}} = 1,25 \frac{\text{N}}{\text{cm}}$$

$$F_1 = k \cdot x_1 = 1,25 \frac{\text{N}}{\text{cm}} \cdot 4,5 \text{ cm} = 5,625 \text{ N}$$

$$\underline{\underline{m_1 = 562,5 \text{ g}}}$$

5.) VZMETNA TEHNIKA

$$F_1 = 4 \text{ N}$$

$$F_2 = 6 \text{ N}$$

$$x_1 = 6 \text{ cm}$$

$$x_2 = 3 \cdot x$$

$$k_1 = \frac{F_1}{x_1} = \frac{4 \text{ N}}{6 \text{ cm}} = 0,66 \frac{\text{N}}{\text{cm}}$$

$$x_2 = \frac{F_2}{k_1} = \frac{6 \text{ N} \cdot \text{cm}}{0,66 \text{ N}} = 9 \text{ cm}$$

$$x = \frac{x_2}{3} = \frac{9 \text{ cm}}{3} = \underline{\underline{3 \text{ cm}}}$$

Vzmet je dolga 3 cm, ko naino ne deluje nobene sile.