

Stoßaufgabe Golfball (Marguerite III Nr. 2.11)

$$v_1 = 72 \frac{\text{km}}{\text{h}} \stackrel{!}{=} 20 \frac{\text{m}}{\text{s}} ; m_2 = 5 \cdot m_1$$

a) Ges: u_1, u_2

$$m_1 v_1 = m_1 u_1 + m_2 u_2 = m_1 u_1 + 5 m_1 u_2$$

$$u_1 = v_1 - 5 u_2$$

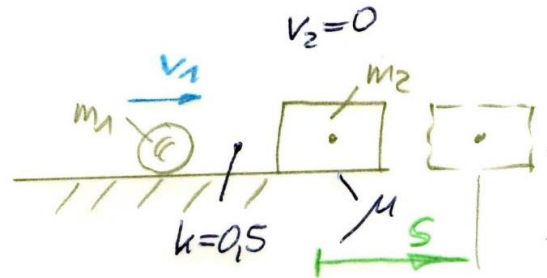
$$k = \frac{u_1 - u_2}{v_2 - v_1} = \frac{u_1 - u_2}{-v_1} = \frac{v_1 - 5 u_2 - u_2}{-v_1} = \frac{v_1 - 6 u_2}{-v_1}$$

$$-v_1 k = v_1 - 6 u_2$$

$$6 u_2 = v_1 + v_1 \cdot k = 1,5 v_1$$

$$u_2 = \frac{1,5}{6} v_1 = \frac{1,5}{6} 20 \frac{\text{m}}{\text{s}} = 5 \frac{\text{m}}{\text{s}} \stackrel{!}{=} 18 \frac{\text{km}}{\text{h}}$$

$$u_1 = v_1 - 5 u_2 = 20 \frac{\text{m}}{\text{s}} - 5 \cdot 5 \frac{\text{m}}{\text{s}} = -5 \frac{\text{m}}{\text{s}} \stackrel{!}{=} -18 \frac{\text{km}}{\text{h}}$$



b) $\frac{1}{2} m_2 u_2^2 - m_2 g \cdot \mu \cdot s = 0$ mit $\mu = 0,2$

$$s = \frac{u_2^2}{2 g \cdot \mu} = \frac{25 \frac{\text{m}^2}{\text{s}^2}}{2 \cdot 9,81 \frac{\text{m}}{\text{s}^2} \cdot 0,2} = 6,37 \text{ m}$$