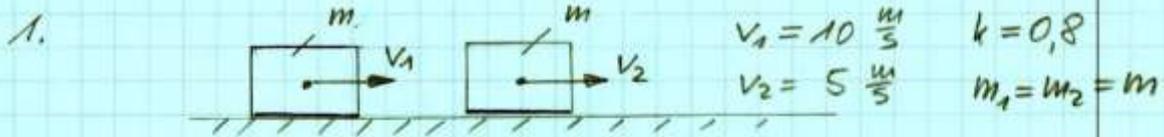


Musterlösung: Kleine Aufgaben

Kleine Aufgaben zu: "Gerader zentraler Stoß"



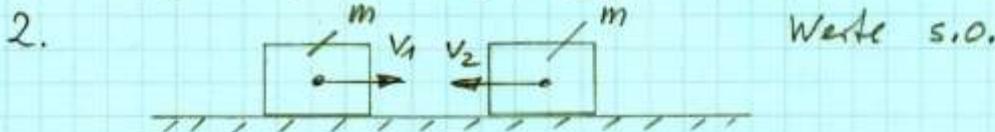
Ges.: u_1, u_2

$$m_1 \cdot v_1 + m_2 \cdot v_2 = m_1 \cdot u_1 + m_2 \cdot u_2$$

$$v_1 + v_2 = u_1 + u_2 \Rightarrow u_1 = v_1 + v_2 - u_2 ; \underline{u_1 = 5,5 \frac{\text{m}}{\text{s}}}$$

$$k = \frac{u_1 - u_2}{v_2 - v_1} = \frac{v_1 + v_2 - u_2 - u_2}{v_2 - v_1} \Rightarrow k(v_2 - v_1) = v_1 + v_2 - 2u_2$$

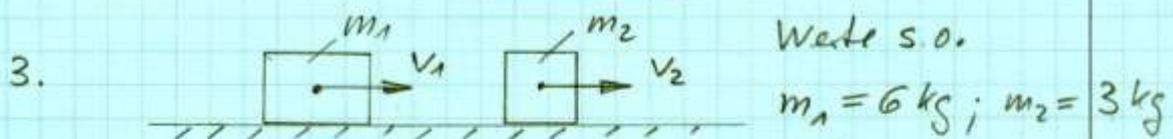
$$2u_2 = v_1 + v_2 - k(v_2 - v_1) \Rightarrow \underline{u_2 = \frac{10 + 5 - 0,8(5 - 10) \frac{\text{m}}{\text{s}}}{2} = 9,5 \frac{\text{m}}{\text{s}}}$$



$$u_2 = \frac{v_1 + v_2 - 0,8(v_2 - v_1)}{2} = \frac{10 - 5 - 0,8(-5 - 10) \frac{\text{m}}{\text{s}}}{2}$$

$$\underline{u_2 = 8,5 \frac{\text{m}}{\text{s}}} ; u_1 = v_1 + v_2 - u_2 = 10 - 5 - 8,5 \frac{\text{m}}{\text{s}}$$

$$\underline{u_1 = -3,5 \frac{\text{m}}{\text{s}}}$$

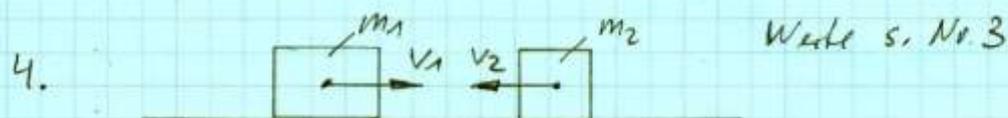


$$m_1 v_1 + m_2 v_2 = m_1 u_1 + m_2 u_2$$

$$k = \frac{u_1 - u_2}{v_2 - v_1} \Rightarrow u_1 = k(v_2 - v_1) + u_2$$

$$\underline{u_1 = 7 \frac{\text{m}}{\text{s}}}$$

$$\underline{u_2 = 11 \frac{\text{m}}{\text{s}}}$$



Rechnung s. Nr. 3 mit $v_2 = -5 \frac{\text{m}}{\text{s}}$

$$\underline{u_1 = 1 \frac{\text{m}}{\text{s}}} ; \underline{u_2 = 13 \frac{\text{m}}{\text{s}}}$$