

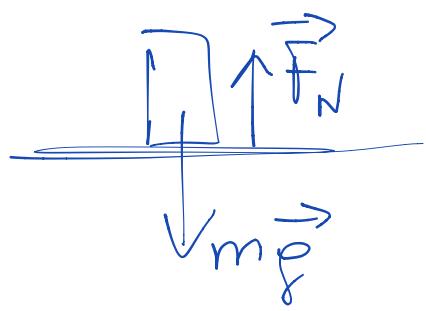
$$P2) m = 72 \text{ kg} \quad \vec{I} = \vec{\Delta p}$$

$$v_1 = 2,1 \text{ m/s}$$

$$\underline{I} = ?$$

$$\underline{I} = m v_1 = 72 \times 2,1 = 150 \text{ kg m/s}$$

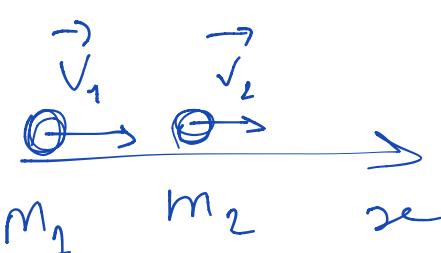
$$\Delta t = 0,36 \text{ s}$$



$$\underline{I} = F \cdot \Delta t$$

$$F = \frac{\underline{I}}{\Delta t} = \frac{150}{0,36} = 420 \text{ N}$$

f 11)  $m_1 = 3,5 \text{ kg}$        $v_1 = 5,4 \text{ m/s}$   
 $m_2 = 4,2 \text{ kg}$        $v_2 = 3,4 \text{ m/s}$



$$m_1 v_1 + m_2 v_2 = (m_1 + m_2) v$$

$$v = \frac{m_1 v_1 + m_2 v_2}{m_1 + m_2} = 4,3 \text{ m/s}$$

$$K_i = \frac{1}{2} m_1 v_1^2 + \frac{1}{2} m_2 v_2^2$$

$$K_f = \frac{1}{2} (m_1 + m_2) v^2$$

$$\Delta K = K_f - K_i$$

$$\text{PlO) } m_1 = 4,2 \text{ kg} \quad v_1 = 5,2 \text{ m/s}$$

$$m_2 = ? \quad v_2 = 0$$

$$\left\{ \begin{array}{l} m_1 v_1 + \cancel{m_2 v_2} = m_1 v_1' + m_2 v_2' \\ \cancel{\frac{1}{2} m_1 v_1^2 + \frac{1}{2} m_2 v_2^2} = \cancel{\frac{1}{2} m_1 v_1'^2 + \frac{1}{2} m_2 v_2'^2} \end{array} \right.$$

$$\left\{ \begin{array}{l} m_1 v_1' + m_2 v_2' = m_1 v_1 \quad (\text{qm}) \\ m_1 v_1'^2 + m_2 v_2'^2 = m_1 v_1^2 \end{array} \right.$$

$$\left\{ \begin{array}{l} m_1 v_1'^2 + m_2 v_2'^2 = m_1 v_1^2 \\ m_1 v_1 - m_1 v_1 = -m_2 v_2'^2 \end{array} \right.$$

$$\left\{ \begin{array}{l} m_1 (v_1' - v_1)(v_1' + v_1) = -m_2 v_2'^2 \\ m_1 (v_1' - v_1) = -m_2 v_2' \end{array} \right.$$

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$$\left\{ \begin{array}{l} m_1 (v_1' - v_1)(v_1' + v_1) = -m_2 v_2'^2 \\ m_1 (v_1' - v_1) = -m_2 v_2' \end{array} \right.$$

$$\left\{ \begin{array}{l} v_1' + v_1 = v_2' \\ m_1 v_1' + m_2 v_2' = m_1 v_1 \end{array} \right. \quad \left. \begin{array}{l} v_1' - v_2' = -v_1 \\ m_1 v_1' + m_2 v_2' = m_1 v_1 \end{array} \right.$$


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$$\left\{ \begin{array}{l} m_2 v_1' - m_2 v_2' = -m_2 v_1 \\ m_1 v_1' + m_2 v_2' = m_1 v_1 \end{array} \right.$$

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$$(m_1 + m_2)v_1' = (m_1 - m_2)v_1$$

$$v_1' = \frac{m_1 - m_2}{m_1 + m_2} v_1$$

$$\text{Se } m_2 = m_1 \Rightarrow v_1' = 0$$

$$\text{Se } m_1 \gg m_2 \Rightarrow v_1' \approx v_1$$

$$\text{Se } m_2 \gg m_1 \Rightarrow v_1' \approx -v_1$$