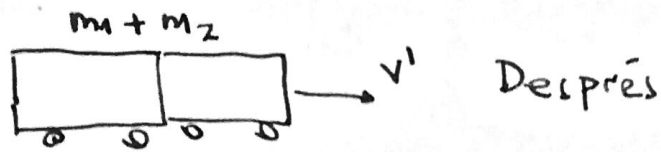


$$m_1 = 1000 \text{ kg}$$

$$m_2 = 2000 \text{ kg}$$

$$v_1 = 5 \text{ m/s}$$

$$v_2 = 0$$



Com que la quantitat de moviment es conserva:

$$p' = p$$

$$\underbrace{(m_1 + m_2)}_{\text{Abans}} v' = \underbrace{m_1 v_1 + m_2 v_2}_{\text{Després}}$$

$$v' = \frac{m_1 v_1 + m_2 v_2}{m_1 + m_2} = \frac{1000 \cdot 5 + 2000 \cdot 0}{1000 + 2000}$$

$$v' = \frac{5000}{3000} = \boxed{1,67 \text{ m/s}} \quad (a)$$

La variació d'energia:

$$\Delta E_M = \frac{1}{2} (m_1 + m_2) v'^2 - \left(\frac{1}{2} m_1 v_1^2 + \frac{1}{2} m_2 v_2^2 \right)$$

$$= \frac{1}{2} 3000 \cdot 1,67^2 - \left(\frac{1}{2} 1000 \cdot 5^2 + 0 \right)$$

$$= 4167 - 12500 = \boxed{-8333 \text{ J}} \quad (b)$$

H₂ perdut 8333 J en el xoc.