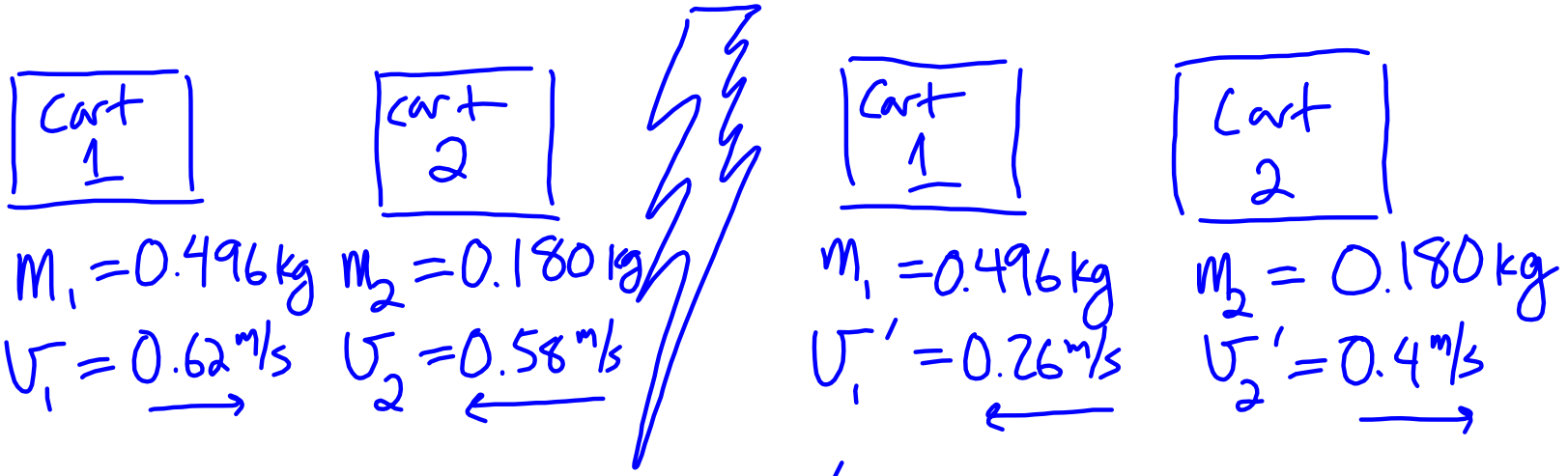

$m_1 = 0.496\,kg$ $m_2 = 0.180\,kg$ $m_1 = 0.496\,kg$ $m_2 = 0.180\,kg$

$v_1 = 0.62\,m/s \rightarrow$ $v_2 = 0.58\,m/s \leftarrow$ $v_1' = 0.26\,m/s \leftarrow$ $v_2' = 0.4\,m/s \rightarrow$

$p_1 = m_1 \cdot v_1$ $p_2 = m_2 \cdot v_2$ $p_1' = m_1 \cdot v_1'$ $p_2' = m_2 \cdot v_2'$

$= (0.496)(0.82)$

$= 0.31\,\frac{kg\,m}{s} \rightarrow$

$p = p_1 + p_2$ $p' = p_1' + p_2'$

Conservation of Momentum:

$p = p'$

v_1 (velocity of cart 1 before collision)

$d = 0.85\,m$

$t = 1.37\,s$ →

$v = d/t =$ **$0.62\ m/s \rightarrow$** (v_1)

v_2 (velocity of cart 2 before collision)

$d = 0.7\,m$

$t = 1.19\,s$ ←

$v = d/t =$ **$0.58\ m/s \leftarrow$** (v_2)

v_1' (velocity of cart 1 after collision)

$d = 0.35\,m$

$t = 1.33\,s$ ←

$v = d/t =$ **$0.26\ m/s \leftarrow$**

v_2' (velocity of cart 2 after collison)

$d = 0.67\,m$

$t = 1.71\,s$ →

$v = d/t =$ **$0.4\ m/s \rightarrow$**