

(45)

$\textcircled{1} \rightarrow v_{1i} = 4 \frac{m}{s}$       $\textcircled{2} \rightarrow v_{2i} = 0 \frac{m}{s}$       $\textcircled{1} \rightarrow v_{1f} = 0 \frac{m}{s}$       $\textcircled{2} \rightarrow v_{2f} = ?$

Initial

$$m_1 = m_2 = m$$

Elastic Collision:

$$\begin{array}{cccc}
 m_1 v_{1i} + m_2 v_{2i} = m_1 v_{1f} + m_2 v_{2f} \\
 \uparrow \quad \quad \uparrow \quad \quad \uparrow \quad \quad \uparrow \\
 m \quad \quad m \quad \quad m \quad \quad m
 \end{array}$$

$$\begin{array}{cccc}
 m v_{1i} + m v_{2i} = m v_{1f} + m v_{2f} \\
 \quad \quad \quad \uparrow \quad \quad \quad \uparrow \\
 \quad \quad \quad \emptyset \quad \quad \quad \emptyset
 \end{array}$$

$$\frac{m v_{1i}}{m} = \frac{m v_{2f}}{m}$$

$$v_{1i} = v_{2f} = 4 \frac{m}{s}$$