

## Elastic Collision Equations

These equations are valid for perfectly elastic collisions only!

$$v_{1f} = \left( \frac{m_1 - m_2}{m_1 + m_2} \right) v_{1i} + \left( \frac{2m_2}{m_1 + m_2} \right) v_{2i}$$

$$v_{2f} = \left( \frac{2m_1}{m_1 + m_2} \right) v_{1i} + \left( \frac{m_2 - m_1}{m_1 + m_2} \right) v_{2i}$$

These equations are only valid for perfectly elastic collisions in which

$m_2$  is initially at rest.

$$v_{1f} = \left( \frac{m_1 - m_2}{m_1 + m_2} \right) v_{1i}$$

$$v_{2f} = \left( \frac{2m_1}{m_1 + m_2} \right) v_{1i}$$