Conservation of Momentum

Net Momentum Before = Net Momentum After

$m_1v_1 = m_2v_2$ — **one object not moving**

$m_1v_1 + m_2v_2 = m_{(1+2)}v_f$ — **2 objects become one**

$m_{(1+2)}v_0 = m_1v_1 + m_2v_2$ — **one object moving, becoming two**

$m_1v_1 + m_2v_2 = \pm m_{1f}v_{1f} \pm m_{2f}v_{2f}$ **2 objects collide, Bounce apart**