

$$m_1 = 200000\text{kg}$$

$$m_2 = 150000\text{kg}$$

$$v_1 = 25 \frac{\text{m}}{\text{s}}$$

$$v_2 = 15 \frac{\text{m}}{\text{s}}$$

*Before collision :*

$$p_1 = m_1v_1$$

$$p_2 = m_2v_2$$

*After collision:*

$$p = (m_1 + m_2)v$$

*The law of conservation of momentum:*

$$p_1 + p_2 = p$$

$$m_1v_1 + m_2v_2 = (m_1 + m_2)v$$

*The velocity after collision is:*

$$v = \frac{m_1v_1 + m_2v_2}{m_1 + m_2} = \frac{200000 * 25 + 150000 * 15}{200000 + 150000} = \frac{7250000}{350000} = 20.7 \frac{\text{m}}{\text{s}}$$