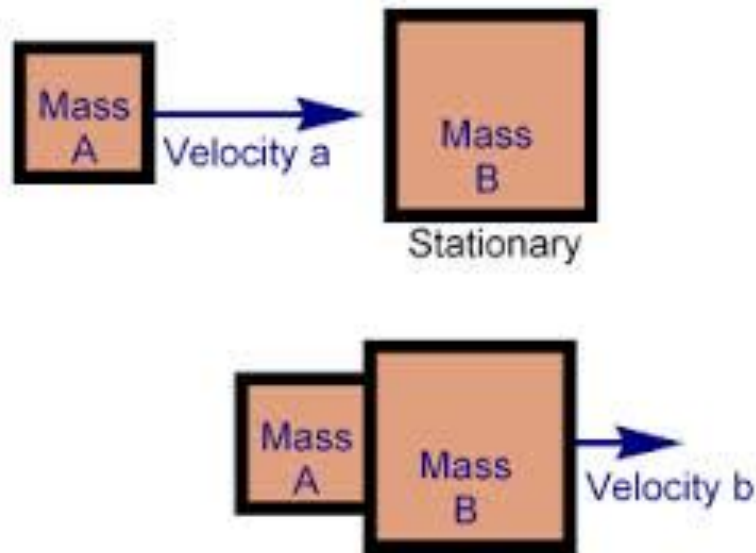




Types of Collisions

Perfectly Inelastic Collisions

- A collision in which two objects stick together after colliding.
 - $m_1 v_{1,i} + m_2 v_{2,i} = (m_1 + m_2) v_f$

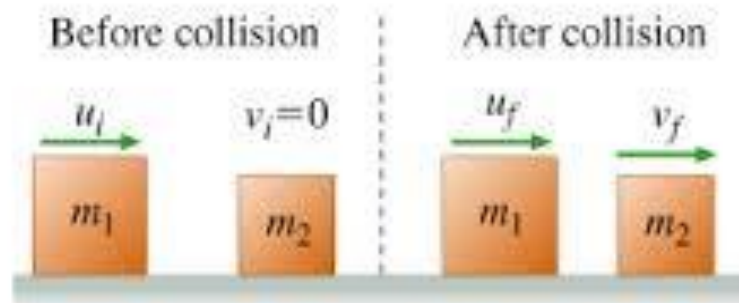


Sample Problem 1 (pg. 224 #2)

- A grocery shopper tosses a 9.0 kg bag of rice into a stationary 18.0 kg grocery cart. The bag hits the cart with a horizontal speed of 5.5 m/s toward the front of the cart. What is the final speed of the cart and bag?

Elastic Collisions

- This occurs when two objects collide and return to their original shapes with no change in total kinetic energy.
- $(m_1 \cdot v_{1i}) + (m_2 \cdot v_{2i}) = (m_1 \cdot v_{1f}) + (m_2 \cdot v_{2f})$



Sample Problem 2 (pg. 229 # 3A)

- A 4.0 kg bowling ball sliding to the right at 8.0 m/s has an elastic head-on collision with another 4.0 kg bowling bowl initially at rest. The first ball stops after the collision. Find the velocity of the second ball after the collision.