

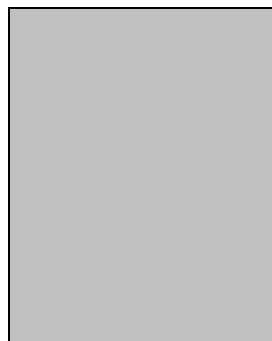
Chapter 6.1 Impulse Lecture Worksheet

Example Problem



Rhonda, who has a mass of 60.0 kg, is riding at 25.0 m/s in her sports car when she must suddenly slam on the brakes to avoid hitting a dog crossing the road. She strikes the air bag, which brings her body to a stop in 0.400 s. What average force does the seat belt exert on her?

Solution

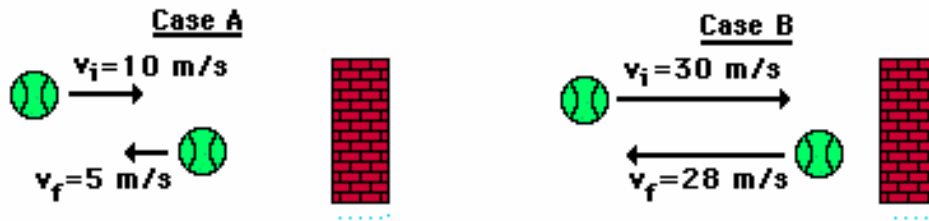


Additional Practice

1. Rhonda had not been wearing her seat belt and not had an air bag, then the windshield would have stopped her head in 0.001 s. What average force would the windshield have exerted on her?
2. A hockey player applies an average force of 80.0 N to a 0.25 kg hockey puck for a time of 0.10 seconds. Determine the impulse experienced by the hockey puck.

3. If a 5-kg object experiences a 10-N force for a duration of 0.1-second, then what is the momentum change of the object?

4. Which one of the following has the greatest:



Velocity change? _____

Acceleration? _____

Change in momentum? _____

Impulse? _____

For Case A:

Calculate the momentum of the 0.2 Kg ball moving towards the wall

Calculate the momentum of the 0.2 Kg ball moving away from the wall

What is the impulse imparted onto the ball? (hint..solve for change in momentum)

Is this greater, the same or less than the impulse in case B?