Section Review

1. Give two examples of elastic collisions and two examples of perfectly inelastic collisions.
2. If two automobiles collide, they usually do not stick together. Does this mean the collision is elastic?
3. A 90.0 kg fullback moving south with a speed of 5.0 m/s has a perfectly inelastic collision with a 95.0 kg opponent running north at 3.0 m/s.
   a. Calculate the velocity of the players just after the tackle.
   b. Calculate the decrease in total kinetic energy as a result of the collision.
4. A rubber ball collides elastically with the sidewalk.
   a. Does each object have the same kinetic energy after the collision as it had before the collision? Explain.
   b. Does each object have the same momentum after the collision as it had before the collision? Explain.
5. **Physics in Action** Two 0.40 kg soccer balls collide elastically in a head-on collision. The first ball starts at rest, and the second ball has a speed of 3.5 m/s. After the collision, the second ball is at rest.
   a. What is the final speed of the first ball?
   b. What is the kinetic energy of the first ball before the collision?
   c. What is the kinetic energy of the second ball after the collision?