

Section Review

- The speed of a particle is doubled.
 - By what factor is its momentum changed?
 - What happens to its kinetic energy?
- A pitcher claims he can throw a 0.145 kg baseball with as much momentum as a speeding bullet. Assume that a 3.00 g bullet moves at a speed of 1.50×10^3 m/s.
 - What must the baseball's speed be if the pitcher's claim is valid?
 - Which has greater kinetic energy, the ball or the bullet?
- When a force is exerted on an object, does a large force always produce a larger change in the object's momentum than a smaller force does? Explain.
- What is the relationship between impulse and momentum?
- Physics in Action** A 0.42 kg soccer ball is moving downfield with a velocity of 12 m/s. A player kicks the ball so that it has a final velocity of 18 m/s downfield.
 - What is the change in the ball's momentum?
 - Find the constant force exerted by the player's foot on the ball if the two are in contact for 0.020 s.