

Momentum

Post-assessment 3

1. A **1.5 kg** ball moving at **8 m/s** collides with a **3 kg** ball at rest. After the collision, the 1.5 kg ball moves at **2 m/s**. What is the velocity of the 3 kg ball?
 - a) 1 m/s
 - b) 3 m/s
 - c) 6 m/s
 - d) 8 m/s
2. Two objects with different masses have the **same momentum**. What does this mean about their velocities?
 - a) They must have the same velocity
 - b) The heavier object must be moving faster
 - c) The lighter object must be moving faster
 - d) Their velocities do not matter
3. The equation $K = \frac{p^2}{2m}$ shows that kinetic energy is related to momentum. If momentum doubles, kinetic energy:
 - a) Stays the same
 - b) Doubles
 - c) Increases by four times
 - d) Decreases
4. A force acts on a moving object for a short time, changing its momentum. This is an example of:
 - a) Impulse
 - b) Acceleration
 - c) Gravity
 - d) Friction
5. A **1 kg** object moves at **5 m/s** to the right. It collides with a **2 kg** object at rest. If after the collision the 1 kg object moves left at **1 m/s**, what is the velocity of the 2 kg object?
 - a) 2 m/s
 - b) 4 m/s
 - c) 6 m/s
 - d) 8 m/s

6. Which of the following is true for a perfectly **inelastic** collision?
- a) Momentum is conserved, but kinetic energy is lost
 - b) Both momentum and kinetic energy are conserved
 - c) Momentum is lost
 - d) Kinetic energy increases
7. A **0.02 kg bullet** moves at **500 m/s** and collides with a **5 kg wooden block** at rest. The bullet sticks to the block. What is their final velocity?
- a) 1 m/s
 - b) 2 m/s
 - c) 4 m/s
 - d) 2.4 m/s