Momentum Quiz PDF

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Explain why momentum is considered a vector quantity and how this affects calculations.

Discuss how momentum is transferred in a game of pool when one ball strikes another.

Describe the difference between elastic and inelastic collisions with examples.

Which statements about impulse are correct? (Select all that apply)

- [ ] It is equal to the change in momentum

- [ ] It is measured in Newton-seconds
- [ ] It is a scalar quantity
- [ ] It can be calculated as Force x Time

How does the impulse-momentum theorem apply to safety features in vehicles?

Explain the principle of conservation of momentum and provide a real-world example.

In which type of collision is both momentum and kinetic energy conserved?

- ◯ Elastic Collision
- ◯ Inelastic Collision
- ◯ Perfectly Inelastic Collision
- ◯ Partially Elastic Collision

What happens to the total momentum of a system if no external forces act on it?

- ◯ It increases
- ◯ It decreases
- ◯ It remains constant
- ◯ It becomes zero

Which scientist is most associated with the laws of motion and momentum?

- ◯ Albert Einstein

- ◯ Isaac Newton
- ◯ Galileo Galilei
- ◯ Niels Bohr

Which of the following best describes momentum?

- ◯ A scalar quantity
- ◯ A vector quantity
- ◯ A constant quantity
- ◯ A dimensionless quantity

What is the primary principle behind airbags in vehicles?

- ◯ Conservation of Energy
- ◯ Conservation of Momentum
- ◯ Impulse-Momentum Theorem
- ◯ Newton's First Law

Calculate the momentum of a 5 kg object moving at a velocity of 10 m/s.

Which of the following are true about momentum? (Select all that apply)

- ☐ It is a scalar quantity
- ☐ It depends on both mass and velocity
- ☐ It can be transferred between objects
- ☐ It is always conserved in isolated systems

In which situations is impulse applied? (Select all that apply)

- ☐ A tennis racket hitting a ball
- ☐ A book resting on a table
- ☐ A hammer driving a nail

- [ ] A person standing still

What is the unit of momentum in the International System of Units (SI)?

- ◯ Newton
- ◯ Joule
- ◯ Kilogram meter per second
- ◯ Meter per second squared

What is the formula for momentum?

- ◯ Force x Time
- ◯ Mass x Velocity
- ◯ Mass x Acceleration
- ◯ Velocity x Time

Which of the following are characteristics of elastic collisions? (Select all that apply)

- [ ] Total kinetic energy is conserved
- [ ] Objects stick together
- [ ] Momentum is conserved
- [ ] Objects bounce off each other

Which factors affect the momentum of an object? (Select all that apply)

- [ ] Mass
- [ ] Velocity
- [ ] Temperature
- [ ] Shape

Which scenarios demonstrate the conservation of momentum? (Select all that apply)

- [ ] A car accelerating on a highway
- [ ] Two ice skaters pushing off each other
- [ ] A ball thrown upwards
- [ ] A bullet being fired from a gun

In a perfectly inelastic collision, what happens to the colliding objects?

- ◯ They bounce off each other

- ◯ They stick together
- ◯ They explode
- ◯ They stop moving