

8 Lecture - PHY101

Important Subjective

Define momentum in physics.

Answer: Momentum is a physical quantity that describes an object's motion. It is the product of an object's mass and velocity. The momentum of an object is a vector quantity, meaning it has both magnitude and direction.

What is the formula for momentum?

Answer: The formula for momentum is momentum = mass x velocity, which can be expressed as $p = mv$.

What is the principle of conservation of momentum?

Answer: The principle of conservation of momentum states that the total momentum of a system of objects remains constant if no external forces act on the system.

What is the difference between elastic and inelastic collisions?

Answer: In an elastic collision, both the total momentum and kinetic energy of the system are conserved, while in an inelastic collision, only the total momentum is conserved.

What is impulse?

Answer: Impulse is the change in momentum of an object resulting from an applied force. It is equal to the force multiplied by the time during which it acts.

What is the relationship between force, time, and impulse?

Answer: The impulse of a force is equal to the product of the force and the time during which it acts. This can be expressed as $J = Ft$.

What is the difference between linear momentum and angular momentum?

Answer: Linear momentum is the product of an object's mass and velocity, while angular momentum is the product of an object's moment of inertia and angular velocity.

What is the law of conservation of angular momentum?

Answer: The law of conservation of angular momentum states that the total angular momentum of a system remains constant if no external torques act on the system.

How is momentum used in real-world applications?

Answer: Momentum is used in a variety of real-world applications, such as in the design of car safety features, the understanding of fluid dynamics, and the development of rocket propulsion systems.

How can momentum be used to solve problems in physics?

Answer: Momentum can be used to solve a wide range of problems in physics, such as collisions, motion in a gravitational field, and fluid flow. It provides a useful tool for analyzing the behavior of objects and systems in motion.