

Concept Items

8.1 Linear Momentum, Force, and Impulse 1.

What is impulse?

- a. Change in velocity
- b. Change in momentum
- c. Rate of change of velocity
- d. Rate of change of momentum

2.

In which equation of Newton's second law is mass assumed to be constant?

- a. $F = ma$
- b. $F = \frac{\Delta p}{\Delta t}$
- c. $F = \Delta p \Delta t$
- d. $F = \frac{\Delta m}{\Delta a}$

3.

What is the SI unit of momentum?

- a. N
- b. $\text{kg} \cdot \text{m}$
- c. $\text{kg} \cdot \text{m/s}$
- d. $\text{kg} \cdot \text{m/s}^2$

4.

What is the equation for linear momentum?

- a. $p = mv$
- b. $p = m/v$
- c. $p = mv^2$
- d. $p = \frac{1}{2}mv^2$

8.2 Conservation of Momentum 5.

What is angular momentum?

- a. The sum of moment of inertia and angular velocity
- b. The ratio of moment of inertia to angular velocity
- c. The product of moment of inertia and angular velocity
- d. Half the product of moment of inertia and square of angular velocity

6.

What is an isolated system?

- a. A system in which the net internal force is zero
- b. A system in which the net external force is zero
- c. A system in which the net internal force is a nonzero constant

- d. A system in which the net external force is a nonzero constant

8.3 Elastic and Inelastic Collisions 7.

In the equation $\mathbf{p}_1 + \mathbf{p}_2 = \mathbf{p}'_1 + \mathbf{p}'_2$ for the collision of two objects, what is the assumption made regarding the friction acting on the objects?

- a. Friction is zero.
- b. Friction is nearly zero.
- c. Friction acts constantly.
- d. Friction before and after the impact remains the same.

8.

What is an inelastic collision?

- a. when objects stick together after impact, and their internal energy is not conserved
- b. when objects stick together after impact, and their internal energy is conserved
- c. when objects stick together after impact, and always come to rest instantaneously after collision
- d. when objects stick together after impact, and their internal energy increases