

Impulse Questions

1. When the average force of impact on an object is extended in time, does this increase or decrease the impulse on the object?

2. What is the relationship between impulse and momentum?

3.
 - a. For a constant force, if the duration of impact upon an object is doubled, by how much is the impulse increased?

 - b. By how much is the resulting change in momentum increased?

4.
 - a. If both the force that acts on an object and the time of impact are doubled, by how much is the impulse increased?

 - b. By how much is the resulting change in momentum increased?

5. In a car crash, why is it good for an occupant to extend the time during which the crash takes place?

6. If the time of impact in a collision is extended by four times, by how much is the force of impact altered?

7. For the least harm to your hand, should you catch a fast-moving baseball while your hand is at rest, while it moves toward the ball, or while it is backing away from the ball?

8. You can't throw a raw egg against a wall without breaking it, but you can throw it with the same speed into a sagging sheet without breaking it. Explain.

9. Everybody knows that you will be harmed less if you fall on a floor with "give" than a rigid floor. In terms of impulse and momentum, why is this so?