

REVIEW SHEET - Momentum

Name: _____ Per: _____

1. Read Chapter 6
2. **State:** The Principle of Conservation of Momentum
3. **Define:**
 - a) *momentum*
 - b) *impulse*
 - c) *elastic collision*
4. Be able to compare the inertia, momentum, and kinetic energy of different objects.
5. Can a bullet have the same momentum as a truck? Explain.
6. A heavy cart and a light cart initially at rest are pushed apart by a spring and travel in opposite directions. Compare their:
 - a) velocity
 - b) acceleration
 - c) momentum
 - d) impulse
 - e) force
 - f) inertia
 - g) contact time
7. When a truck crashes head-on into a sports car, which one has a greater:
 - a) impact force
 - b) contact time
 - c) acceleration
 - d) change in momentum
 - e) impulse
8. Why does an egg shatter when it hits a wall but not when it hits a sheet? Why are airbags used in cars? Explain using appropriate physics principles.

9. A cart of mass 4.63 kg travels at 3.50 m/s toward a stationary 5.80 kg cart.
- They stick together and roll away with what velocity?
 - If the lighter cart rebounds along its original path at a speed of 0.250 m/s, what will the final velocity of the other cart be?

10. A 2 kg block initially hangs at rest at the end of two 1-meter strings of negligible mass as shown on the left diagram. A 0.003 kg bullet, moving horizontally with a speed of 1000 m/s strikes the block and becomes embedded in it. After the collision, the bullet/block combination swings upward, but does not rotate.



- calculate the speed v of the bullet/block combination just after the collision
- Calculate the ratio of the KE of the bullet/block combination after the collision to the initial KE of the bullet before the collision.
- Calculate the maximum vertical height above the initial rest position reached by the bullet/block combination