Momentum Test Review

1. Decide if the following are Elastic Collisions (E), Inelastic Collisions (I), or Perfectly Inelastic Collisions (PI).
    (If more than one, give both.)
    A. _____Momentum is conserved, kinetic energy is not conserved
    B. _____Momentum is conserved and they stick together.
    C. _____They collide, do not stick together, and kinetic energy is conserved.
2. Circle the one with more momentum:

    A. Fast baseball; a slow baseball.   C. A hard to stop object, an easy to stop object.
    B. A fast feather; a house.   D. A 2 kg object going 8 m/s; a 6 kg object going 3 m/s.

3. If a 3 kg ball going 6 m/s is bounced off of a wall and ends up going 4 m/s. Find the Δp of the ball.

4. If the collision with the wall took 0.2 seconds, find the force the ball felt from the wall.

5. In #3. Is the collision with the wall elastic or inelastic?

6. A 25 kg person running at 5 m/s jumps into a 30 kg boat originally at rest. How fast will the boat and person be going afterward?

7. Using the graph at the right find out the final velocity of a 4 kg object that was originally going –5 m/s.

Force vs. Time
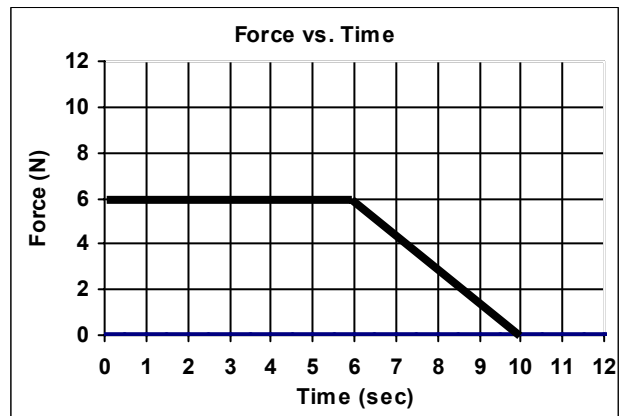
8. A –6 N force pushes on a 4 kg object at rest. If the object ends up going –40 m/s, find the time the force acted.

9. A 16 kg canoe going 12 m/s to the left makes a head-on collision with a 4 kg raft going right at 6 m/s. If afterward the raft ends up going 22.7 to the left.
    A. Find the final velocity of the canoe.

    B. Determine if the collision was elastic or inelastic.

10. In order for an experiment to be valid how many experimental variables must there be?

11. A person is trying to see if objects of different mass fall at the same rate (if they'll hit the ground at the same time).
    A. What is the experimental variable?
    B. Give three control variables:
    C. Give the control setup:

12. Which of the following are the most closely related?
    A. If they are in the same phylum;
    B. If they are in the same genus;
    C. If they are in the same family;
    D. If they are in the same order.

13. For the following scientific names circle the species name and underline the genus name
    A. *Canis lupus*
    B. *Homo sapien*
    C. *Taxidea taxus*