#	Name:	Date:	Period:

General Physics Momentum Review WS 1

Use your notes to answer the questions on a separate sheet of paper.

Problem

1. A 40-kg football player leaps through the air to collide with and tackle a 50-kg player heading toward him, also in the air. If the 40-kg player is heading to the right at 9 m/s and the 50-kg player is heading toward the left at 2 m/s, what is the speed and direction of the tangled players?

2. A 5-kg blob of clay moving horizontally at 4 m/s has a head-on collision with a 4-kg blob of clay that moves toward it at 2 m/s. What is the speed of the two blobs stuck together immediately after the collision?

3. A 70-kg free-floating astronaut fires 0.10-kg of gas at a speed of 30 m/s from her propulsion pistol. What is the astronaut's recoil speed?

4. What velocity must a 1340 kg car have in order to have the same momentum as a 2680 kg truck traveling at a velocity of 15 m/s to the west?

5. A cricket ball with a mass of 0.11 kg moves at a speed of 12 m/s. Then the ball is hit by a bat and rebounds in the opposite direction at a speed of 15 m/s. What is the change in momentum of the ball?

6. A train with a mass of 1.8×10^{3} kg is moving at 15 m/s when the engineer applies the brakes. If the braking force is constant at 3.5×10^{4} N, how long does it take the train to stop? How far does the train travel during this time?

7. A 65.0 kg ice-skater standing on frictionless ice throws a 0.15 kg snowball horizontally at a speed of 32.0 m/s. At what speed does the skater move backward?