

Name \_\_\_\_\_  
Honors Physics  
Period \_\_\_\_\_

Date \_\_\_\_\_  
Momentum WS #3  
Mrs. Nadworny

## Bouncy (Elastic) Collisions

**Directions:** Read textbook pages 226 – 230. Solve the following problems using the GUESS method and proper significant figures. Be sure to show ALL work.

1. Cart A, of mass 1.2 kg, is at rest on a frictionless air track. It is struck by Cart B, of mass 2.7 kg, which is moving to the right at a velocity of 10.4 m/s. After the collision, Cart A is moving to the right at 4.9 m/s. Calculate the final velocity of Cart B.
  
2. A 2610 kg truck is traveling West at 23.8 m/s when it collides with a 3660 kg truck traveling East at 15.4 m/s. After the collision, the 2610 kg truck is moving East at 3.91 m/s. Calculate the velocity of the 3660 kg truck.
  
3. A 0.158 kg apple is traveling with a momentum of 0.812 kg·m/s East. It collides with a 0.213 kg orange traveling at 7.65 m/s West. After the collision the apple is traveling with a momentum of 1.43 kg·m/s West. Calculate the velocity of the orange after the collision.
  
4. Bo Linball rolls a 6.3 kg bowling ball down the alley for the league championships. One pin is standing still, and Bo hits it head-on with a (forward) velocity of 9.2 m/s. The 3.1 kg pin acquires a forward velocity of 14.8 m/s. Calculate the new velocity of the bowling ball.

Answers in size order: 1.9, 2.88, 4.36, 8.2