Elastic Collision Practice Problems

1. A 1.20 kg cart that has an eastward velocity of 0.50 m/s collides elastically head on with a 1.60 kg cart with a westward velocity of

– 0.90 m/s. If the velocity of the larger cart is 0.18 m/s East after the collision, find the velocity of the smaller cart.

1. A 0.24 kg cart (cart 1) moving with a speed of 0.75 m/s is struck from behind by a cart of mass 0.43 kg (cart 2) moving in the same direction with a speed of 0.99 m/s. If the velocity of cart 1 is 0.83 m/s after the collision, find the velocity of cart 2.
2. A 78 kg hockey player is standing on frictionless ice at rest. If he throws a 6.0 kg bowling ball horizontally with velocity of 3.0 m/s, which direction will the hockey player move? How fast will he be moving?
3. A marble with mass of 1.25 g is rolled toward a 1.15 g marble at rest. If the second marble moves in the same direction with a velocity of 2.35 m/s and the original marble remains at rest, find the original velocity of marble 1.