Written Homework #9   Physics 131 Spring 2009

Due on Monday 13 April 2009 at the beginning of lecture.

Write down your name and student ID number.

James and Sarah stand on a stationary cart with frictionless wheels. The total mass of the cart and riders is 130 kg. At the same instant, James throws a 1.0 kg ball to Sarah at 4.5 m/s, while Sarah throws a 0.5 kg ball to James at 1.0 m/s. James's throw is to the right and Sarah's is to the left.

    a.   While the two balls are in the air, what is the velocity of the cart and its riders?

    b.   After the balls are caught, what is the speed of the cart and its riders?

Show your work to get full credit.