COLLISIONS-II

Name:____ Section:____________

Partner:____ Date:____________

WARNINGS Do not slam or drop the carts. Some carts are magnetic so do not bring them near anything using magnetic data storage, such as the computer or your credit cards.

A. Equipment: Verify that the track is level. If the track is not level you will notice that a cart, when given a gentle push in one direction will stop and reverse direction. If pushed in the opposite direction it may gain speed, although this may not be noticeable due to friction. In setting up `LoggerPro` remember that you can adjust the rate at which data is taken (the number of measurements taken per second) and the number of points that are averaged. Use 30 Hz and average over 7 points. Be sure to record velocities from times far enough from the collision that the average does not include the collision. Take the time of the collision to be the mid-point between the beginning and end of the collision.

B1 *Elastic collision, m_1 strikes m_2 which is at rest; masses nearly equal.*

TABLE 1. Elastic collision, one cart at rest, equal masses

	Cart 1	Cart 2
Mass		
Initial velocity		
Time of initial velocity		
Final velocity		
Time of final velocity		

Time collision occurred: ____________________

Data for friction:

B2 *Inelastic collision, m_1 strikes m_2 which is at rest; masses are nearly the same.*

TABLE 2. Inelastic collision, one cart at rest, equal masses

	Cart 1	Cart 2
Mass		
Initial velocity		
Time of initial velocity		
Final velocity		
Time of final velocity		

Time collision occurred: ____________________

Data for friction:

B3 *Elastic collision, m_1 has a head-on collision with m_2. The carts are moving towards each other and have nearly the same masses.*

TABLE 3. Elastic collision, both carts moving, equal masses

	Cart 1	Cart 2
Mass		
Initial velocity		
Time of initial velocity		
Final velocity		
Time of final velocity		

Time collision occurred: ____________________

Data for friction:

B4 *Elastic collision, m_1 strikes m_2 which is more massive and at rest.*

TABLE 4. Elastic collision, one cart at rest, unequal masses

	Cart 1	Cart 2
Mass		
Initial velocity		
Time of initial velocity		
Final velocity		
Time of final velocity		

Time collision occurred: ____________________

Data for friction: