Name: _____

LAB 8 PRE-LAB

1. Two carts, one with mass m_1 and initial velocity v_{1i}, and the other with mass m_2 and initial velocity v_{2i}, collide and stick together. What should be their common velocity after the collision? Give a formula in terms of the quantities m_1, m_2, v_{1i}, and v_{2i}.

2. What are the two physical quantities conserved in all *elastic* collisions? (Strictly speaking, there are three, but here I want you to identify two quantities other than mass.)

3. Make data tables to record the data from the collisions you will conduct in this lab. There are two general types of collision that you will conduct: using the magnetic bumpers, and using the Velcro bumpers. Within each class, you will conduct two runs each of several kinds of collision. You will need to record the mass of each cart and the velocity of each cart before and after each collision. You need one data table for your group of no more than four students, and the table must be ready for inspection by the instructor at the beginning of the lab period.

   You may want to create the data tables in a spreadsheet to conveniently calculate quantities like momentum and kinetic energy. But you can't store files on the lab computers long-term, so you'll need to save your spreadsheet to a thumb drive, to a cloud drive, or email it to yourself to keep a record of your work at least until your lab grade is recorded on Canvas.