October 6, 2003

PHY138 – Problem Set #5

This problem set is due by 5PM on <u>Tuesday, October 14</u> in the Drop Boxes. Note the unusual date.

From the Textbook

Chapter 5:

- Problem #49

Chapter 6:

- Problem #2
- Problem #10 (ignore significant figures)
- Problem #24
- Problem #40 (use litres per km, not miles per gallon)

Supplemental Problem

Go to the web page:

http://faraday.physics.utoronto.ca/PVB/Harrison/Flash/ClassMechanics/AirTrack/AirTrack.html

1. For elastic collisions and each of the 3 possible values of the mass of the right-hand cart, is the total kinetic energy of the carts conserved?
2. For the 3 possible values of the mass of the right-hand cart, show that the total kinetic energy of the 2 carts is not conserved for *inelastic* collisions. Calculate the energy that is lost for each case.
3. For the inelastic collisions, where did the energy go?