Assignment #9

Foundation of Physics: Phys 1001

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Due: Nov 23, 2011

1. First answer this question:

   (a) In Figure 8-18 of the book, it is claimed for a sligtly *off-set* ellastic collision of two identical masses when one is initially at rest that the angle between the final velocities is 90 degrees. Prove it!

   (b) A proton collides elastically with another proton that is initially at rest. The incoming non-relativistic proton as an initial speed of 3.5×10^5 m/s and makes a glancing collision with the second proton. At close seperations, the protons exert a replusive electrostatic force on each other. After the interaction, one proton moves off at an angle of 37 degrees to the original direction of motion, while the second deflects at an angle of ϕ with respect to the same axis. Find the final speed of the two protons and the angle ϕ.

2. Then do problems #6, #51, #64 and #84 (Chapter 8); and then do problem #10 (Chapter 9).