Lecture Quiz 4, Physics 161, Spring 2003
Due, Wednesday, March 5, Beginning of Class
Please do this in groups of TWO MINIMUM and THREE MAXIMUM
This Quiz will be graded on effort. Sincer effort is worth a 10.

Reading Assignment: Serway & Beichner, Chapter 5, Sections 5.1-5.4

Newton's 1st law postulates that in the absence of an external force, an object maintains uniform motion. Here uniform motion means constant velocity. Note that constant velocity covers the case of $\vec{v} = 0$.

In lecture we did a demo of this property of object to resist changes in their velocities by using a fire extinguisher to shoot a pencil almost to the speed of sound into a block of plywood. As you may recall, the pencil almost completely shot through the wood all the way down to the eraser bit. Also, I showed in class that by bringing a magnet in the vicinity of electrons traveling in a straight line, we can deflect them from their path and therefore change their velocities.

Q1) We have a good definition of all the concepts we have used up to chapter 4, e.g., velocity and acceleration. But we haven't yet defined exactly what a 'Force' is. Use Newton's First law above to give at least a qualitative definition of force.

Q2). Up to chapter 4, we never mentioned forces and never had to deal with the concept of 'mass. Now that we have an operational definition of force, and we already knew how acceleration is defined, use Newton's second law to come up with your own definition of mass.

Q3). Try out the **Quick lab** listed on page 114. Report and interpret your results.