Physics 10, Fall 2014  
Problem Set #2: due Tuesday, Sept 16

These Problems are based on material we discussed in class, and/or on Hewitt Chapter 1: ("About Science") and Chapter 2 ("Newton's First Law of Motion: Inertia")

Please answer the questions on a separate paper, and write “Problem Set #2” at the top.

You are invited and encouraged to draw diagrams as part of your answers. This will make it much easier to reason out some of the questions, and to answer them clearly.

**Question #1:**  
What were some major differences between Ptolemy's model of the solar system and Copernicus's?

**Question #2:**  
Why was Copernicus himself unsure that his heliocentric model made sense? How did Galileo and Newton's insights into physics help to make Copernicus's model more plausible?  
*(Hint: if you really are standing on a moving Earth, why don't you "feel" this motion?)*

**Question #3:**  
What do we mean by "Occam's Razor?" How can it be helpful in doing science?
**Question #4:**
The Voyager I spacecraft recently became the first human-made object to leave the Solar System. (Actually, there is no clear line marking where the "solar system" ends, but by any measure, Voyager is way the hell out there now.) Voyager's engines have been shut down for decades now, yet it is still moving. What force keeps Voyager moving?

**Question #5:**
The moon moves in a circular orbit around the Earth, due to the force of the Earth's gravity. If the Earth's gravity suddenly ceased to exist, what would the moon do? (You can draw a sketch if it helps explain your answer.)

**Question #6:**
Describe at least one way in which Galileo disagreed with thinkers that went before him. (There are lots of possible answers.)

**Question #7:**
If the Earth is orbiting the Sun, rather than the other way around, then the stars must be vastly further away than ancient thinkers had believed. Explain why this is.