AST 105 HW #12
Week of November 9th, 2015

Note: All Problems are from *The Cosmic Perspective* (6ed)

Chapter 12

**Review Problems**

4. What is the difference between a meteor and a meteorite? How can we distinguish a meteorite from a terrestrial rock?

6. What does a comet look like when it is far from the Sun? How does its appearance change when it is near the Sun? What happens to comets that make many passes near the Sun?

7. What produces the coma and tails of a comet? What is the nucleus? Why do tails point away from the Sun?

9. Describe the Kuiper belt and Oort cloud in terms of their locations and the orbits of comets within them. How did comets come to exist in these two regions?

10. Briefly describe Pluto and Charon. How do Eris and other large Kuiper belt objects compare to Pluto and Charon?

**Test Your Understanding**

Suppose someone claimed to make the discoveries described below. (These are not real discoveries.) Decide whether each discovery should be considered reasonable or surprising. Explain clearly; not all these have definitive answers, so your explanation is more important than your chosen answer.

19. Astronomers discover a previously unknown comet that will be brightly visible in our night sky about 2 years from now.

23. Astronomers discover three objects with the same average distance from the Sun (and the same orbital period) as Pluto.

**Investigate Further**

42. **Comet Tails.** Describe in your own words why comets have tails. Why do most comets have two distinct visible tails, and why do the tails go in different directions? Why is the third, invisible tail of small pebbles of interest to us on Earth?

43. **Oort Cloud vs. Kuiper Belt.** Explain in your own words how and why there are two different reservoirs of comets. Be sure to discuss where the two groups of comets formed, and what kinds of orbits they travel on.