1. **(Distance scale and the Hubble Law)**
   a) How far apart are galaxies (what is the average separation)? Historically, why was it so hard to get distances of galaxies beyond the local group? Why do we have to use a distance "Distance Ladder"? What ‘rung’ of the ladder got us out to the galaxies?
   
   b) What's Hubble's Law? How did he discover it? What does it tell us? Why would we like to have a distance estimate for distant galaxies that is independent of the Hubble Law?

2. **(Large scale geography)** What kind of neighborhood does the Milky Way inhabit in terms of nearby galaxies, groups, clusters and superclusters?

3. **(Extra Credit)** Suppose, in a Star Trek-like future, you made first contact with a similar alien species possessing a similar level of technology when your ships met in a rather empty region of interstellar space. Suppose, after you mastered the basics of each other’s languages, that your alien contact told you that the typical lifespan of his species was 200 zorks. How would you derive the number of years in a zork? (Time-keeping is historically an important aspect of astronomy. This problem is intended to get you to think about some of the issues.)