Astron 211 Problem Set 1

Given: Sep 5. Due: Thursday, Sep 12 at the beginning of class

Homework Policy: You can consult class notes and books. Always try to solve the problems yourself; if you cannot make progress after some effort, you can discuss with your classmates or ask the instructor. However, you cannot copy other's work: what you turn in must be your own. Make sure you are clear about the process you use to solve the problems: partial credit will be awarded.

Reading: Kutner Chapter 1 (Introduction)

Problem 1 Star Trails

Using the attached image, or going to
http://www.gravity.phys.uwm.edu/~kaplan/astron299/Palomar_startrails.jpg, look at an image I took of the night sky from Palomar Observatory. The image was pointed North, and Polaris is visible in the middle (you should be able to identify which star it is). I left the camera shutter open for a while to create a "star trail" image. From the image (paper or electronic), estimate the length of the exposure. [Hint: remember that the Earth rotates, which causes the stars to appear to rotate around the north pole, which remains stationary. You may want a protractor, and if you don't have a real one you can find some links on the class website.]

Problem 2 Order of Magnitude Problem

Submit your own order of magnitude problem. You do not need to know the solution, but you should have an idea of where to start. This could be something that you wondered about, or that puzzled you. It need not be related to astronomy or physics. Be creative, but not *too* creative.

You might also look at:
http://www.nytimes.com/interactive/2009/03/31/science/20090331-angier-quiz.html
which has a series of nice problems with solutions. Do not use these for your submission, but you can look at them for inspiration. Or, if you want to test yourself, you can see how you do.