

PHYS 1040: Elementary Astronomy

Homework #1, Spring 2008

“Don’t panic.”
~Douglas Adams

1: Imagine you are standing outside facing North in Ogden. Sketch the grid of an *altitude-azimuth* set of coordinates. Sketch the grid of an *equatorial* set of coordinates. Label the location of Polaris in each.

2: Is a sidereal day *longer* or *shorter* than a solar day? Explain.

3: Describe a method for using observations of the night sky to determine your latitude.

4: What is the most critical information that *must* be recorded with every astronomical observation? Why is this the most important information?

5: Suppose the constellation Orion rises at sunset one night. Does it rise earlier, later, or at the same time the next night? Explain why.

6: A good friend of yours lives in Melbourne, Australia, at latitude 38° South. How high in the sky is the South Celestial Pole as viewed from Melbourne? How far into the Northern Hemisphere sky can your friend see?

7: You've inherited the entire Microsoft fortune from your long lost Uncle, Bill Gates. You've decided that you don't really need all of that money, so you're going to spend it all on the world's largest and best observatory, which you'll likely name after your astronomy instructor. You want to make sure your observatory can see as much of the sky as possible, so where on the Earth should you think about building it if you want to see all the stars over the course of a year? Why did you pick this location?