General Astronomy (29:61)
Fall 2012
Homework Set #2
Assigned: August 31, 2012
Due: September 7, 2012

Note: Some of the questions will require you to consult the data in Table A.8 of the Appendix in the book.

1. You look up in the sky and see the bright star Betelgeuse (Alpha Orionis) is on the meridian. Where in the sky is the bright star Sirius (Alpha Canis Majoris)? By "where in the sky", I mean an answer such as "west of the meridian and higher than Betelgeuse", "low in the sky in the northeast", etc. Be sure and fully describe how you arrived at your answer.

2. Assume the observation in question # 1 is made at 8 PM. Approximately what time of year is the observation made? This will involve some thinking and concepts in addition to those we have presented in class.

3. Consider the stars Procyon and Rigel. Which one transits first during a night? Be sure to explain your answer.

4. The next question will require you to use a star chart of some sort. You can use the star charts you learned about in lab, or an application of some sort. In any case, explain what you used to find the answers. Give the name of the star closest to the following coordinates. There is a reasonably bright star near each position.
(a) $\alpha = $ 5h 16m, $\delta = $ 46d
(b) $\alpha = $ 16h 35m, $\delta = $ -11d
(a) $\alpha = $ 0h 40m, $\delta = $ 56d

5. In class, we talked about sidereal day and solar day. Now think about the planet Mars, where we currently have operating spacecraft. Which is longer on Mars, the sidereal day or the solar day? What is the amount of time by which one is longer than the other?

6. On Saturday, September 1, the coordinates of the planet Jupiter will be $\alpha = $ 4h 53m, $\delta = $ 22d . What constellation is it in? What is a bright star (or reasonably bright star) that is near to it on the sky?

7. Problem 1.1 from the book.

8. Problem 1.2 from the book.

9. Problem 1.3 from the book.

10. Problem 1.4 from the book.