HOMEWORK #2 (due start of class Wednesday, January 22) Name _____

LEARNING GOALS:

1. Begin recording observations in your journal.
2. Understand the fundamental causes of three phenomena in the evening sky.
3. Understand the AZ/EL coordinate system.
4. Learn how astronomers associate angles with time.

TO RECEIVE FULL CREDIT:

1. If you submit multiple pages, staple them together (5 points).
2. To receive any credit on these problems, you must **show how** you derived your answer by writing all the logical steps that led you to it.
3. All sentence responses must be **typewritten and in complete sentences**. You may handwrite any arithmetic. Use good English grammar.
4. **If you work more than three hours on this assignment, you should stop, record your work here, and contact Dr. McCarthy.**

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1. Read about the Azimuth-Elevation coordinate system.
Read the following online article:
http://en.wikipedia.org/wiki/Horizontal_coordinate_system

2. Begin observing the sky and recording your observations and personal reactions in your journal.
For each of the four objects below, use your fist to measure the AZ/EL coordinates and the time of observation. In your journal, record your measurements and draw maps showing the relative location of each object to other objects in the sky and to points along the horizon. Cellphone photos of any objects, and phenomena, are encouraged. Use your planisphere and the Stellarium program to help you find these objects.

The Moon: Look S-SE in the morning sky about 30-40 deg altitude. Also, draw how the Moon's phase appears and indicate NESW directions. As it orbits the Earth, the Moon will move and change its phase from day to day; try to observe and record those changes.

Planet Venus: Look in the southwestern sky in the early evening.

Constellation Cassiopeia: Use your planisphere to locate the constellation of Cassiopeia in the northern sky at night. Draw all the stars you can see from your location and come to class prepared to share your observations.

Bright star Sirius: Look in the SE sky around 7 pm.

4. Prepare for Wednesday's class by reading about these two phenomena:
Earthshine
http://earthobservatory.nasa.gov/IOTD/view.php?id=83782
http://science.nasa.gov/science-news/science-at-nasa/2005/04oct_leonardo/
Sidereal time
http://earthsky.org/astronomy-essentials/what-is-sidereal-time

5. Optional extra-credit problem:
The star Sirius is the brightest star visible from the Earth. On Jan 21, Sirius rises at the same time (5:47 pm) the Sun sets. When will Sirius rise one month from now?