Homework #2
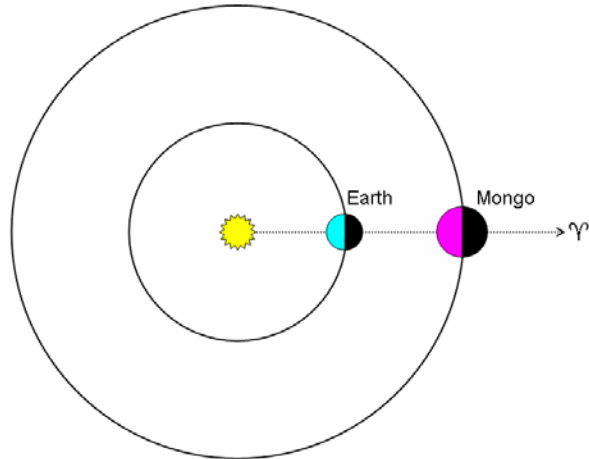## Due Monday, October 15 in class

Instructions

This handout is your worksheet. Please write your answers in the spaces provided. In cases where a calculation is called for, please show your work including any sketches, so we can evaluate your answer and assign partial credit as appropriate. If you use the Internet to find an answer (e.g., questions 1-3), give the source web address and seek out authoritative sources, not just the first page Google turns up. We will only accept homework on this worksheet.

This homework assignment consists of the 5 questions below. Each question has equal weight.

1. On what day and time will Winter Solstice occur in 2019? Give your answer in Eastern Standard Time (Note: EST is 5 hours behind Universal Time or Greenwich Mean Time, should you find a source that lists UT, UTC, or GMT times).

2. When (date and time) will the planet Mars next be in Opposition with the Earth?

3. When was the last time that a Total Solar Eclipse was visible from the Hawaiian Islands?

4. At sunset, you notice that the planet Jupiter appears high in the sky on your meridian. This means that Jupiter is currently in which configuration? Draw a sketch of the configuration of the Earth, Sun, and Jupiter as viewed from above (like the diagrams shown in the notes for Lecture 12)

5. The planet Mongo orbits the Sun once every 5 Earth years in an orbit larger than the Earth's. Today Mongo is in Opposition with the Earth as shown in the diagram below:

Configuration Now

The symbol ♈ marks the direction of the Vernal Equinox.

How many months from now will the next Mongo Opposition occur?

On the diagram below, sketch the locations of Earth and Mongo at this next opposition. Assume both Earth and Mongo are orbiting the Sun counterclockwise in the diagram above.