Astronomy 150
Lab 1
Motion of the Celestial Sphere
(Diurnal Motion)

Hourly observations on one night between January 27-February 9. Sketch (50%)

1) (5%) Why does the position of Orion in the sky change over a period of a few hours?

*Due to the Earth’s rotation about its polar axis*

2) (5%) Considering *only what you have observed*, can you think of any reason to think that the sky is fixed and the Earth is spinning?

*Actually, these observations only demonstrate a relative rotation: it could be either due to the rotation of the Earth relative to the stars or due to a motion of the stars relative to the Earth. We need other observations to decide which*
3) (15%) Where will Orion be the next night at the same time as your first observation? Where will it be a month later at the same time of day?

*On the next night at the same solar time, it will be a little (about 1 degree) farther West. The next month it will be about 3 degrees farther West.*

4) (15%) Will you be able to observe Orion in July? Why or why not? How about in October? If you answered "yes" to either month, would you be able to see it in the morning or evening sky? Explain.

*It will not be observable in July; it will be behind the Sun. In October it will be a morning object, since the Sun in its apparent path W to E among the stars will have passed to the East of Orion, so that Orion will rise before the Sun.*

5) (10%) What direction was the Sun when you made your last observation? (Hint: Where was the sun with respect to Orion when you made your first observation?)

*At my last observation (at midnight), the Sun was way below the horizon in the North.*