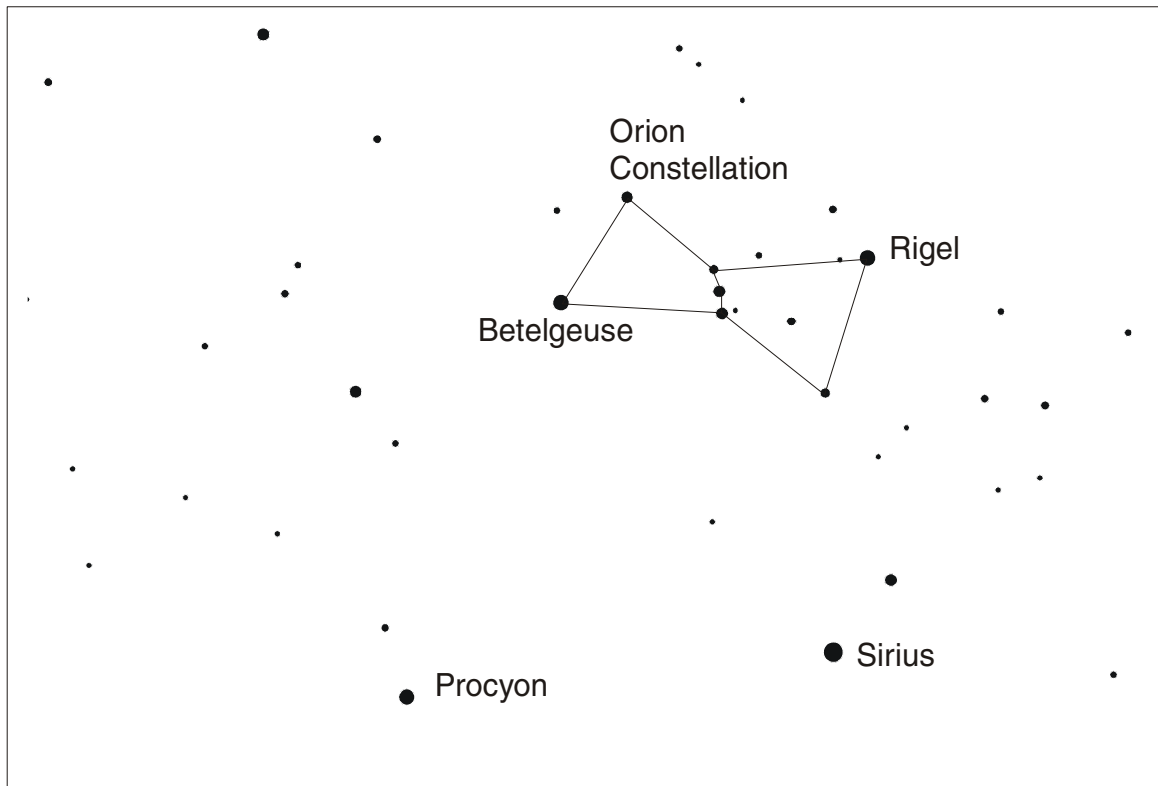

Name (Last, first)

Astronomy 110 Homework 2

Write the answers to the questions on this sheet.
Homework due by 11.20 am February 2nd 2005



1. Go outside one evening this week between 6.30 and 7.30 pm. Look to the East (opposite from the sunset) and identify the constellation of Orion and the four bright stars named on the picture.
2. Make a "Shaka" sign and hold it at arms length in front of the Orion constellation. Estimate the ratio between the angular size of your Shaka sign and the separation of Betelgeuse and Rigel. Use one decimal place if necessary (e.g ratio = 0.7 or 1.3)

$$\frac{\text{Angle of "Shaka"}}{\text{Angle between stars}} = \underline{\hspace{2cm}}$$

[OVER]

3. Using the fact that the angle between Rigel and Betelgeuse is 18 degrees, calculate the angle on the sky (in degrees) that your “Shaka” sign corresponds to. (Note that this will be different for different people).

One “Shaka” = _____ degrees

4. Note the date and time, and measure how many “Shakas” there are between the star Rigel and the horizon directly below it. Convert the number of Shakas to degrees.

Date	Time	Angle to horizon in Shakas	Angle in degrees

5. Wait for between 60 and 90 minutes and repeat the same measurements as in question 4.

Date	Time	Angle to horizon in Shakas	Angle in degrees
(Must be same as in question 4)			

6. Calculate the following results:

Change in angle to horizon between the two measurements _____ degrees

Time between the two measurements _____ minutes

From these data deduce:

Speed of sky’s apparent rotation _____ degrees per minute

Speed of sky’s apparent rotation _____ degrees per hour

7. Use the result from question 8 to calculate:

Total number of degrees the sky rotates in 24 hours _____ degrees.

8. Comment on whether your answer for section 7 corresponds to what you learned in class.

If you have an evening job which prevents you from observing at the recommended time, you can do the exercise as Orion sets to the WEST after 1 am. Note that Orion will be at a very different angle in the sky if you do this experiment in the early morning. **Do not attempt this homework between 9 pm and 1 am.**