1. Using the diagram at right, what is the Local Sidereal Time (sidereal time at the local position)?

2. Using the diagram, what is the Greenwich Sidereal Time (GST)?

3. Using the diagram, what is the Right Ascension of the star?

4. Using the diagram, what is the Right Ascension of the sun?

5. From the diagram, what is the approximate date?

6. What is the longitude of a location where the LST is 3 hours and the GST is 11 hours? Answer must be between $0^\circ$ and $180^\circ$ E or W.

7. What is the LST at longitude $90^\circ$W if the GST is 3 hours? Your answer must be between 0h and 24h.

8. The star Pollux (RA=8h, Dec=+28°) is transiting at longitude $60^\circ$E. What is the GST? Your answer must be between 0h and 24h.

9. The longitude of a location is $45^\circ$E, the date is December 21, and the LMT is noon. What is the GST?

10. On October 21, what time (LMT) does the star Fomalhaut (RA=23h, Dec=-30°) transit for longitude $90^\circ$E?