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## Exercise A3: The Local Coordinate System

Student name: \_\_\_\_\_ Class: \_\_\_\_\_ Date: \_\_\_\_\_

*Check the box with the correct answer.*

**Question 1:** What are the approximate coordinates of the star Regulus as shown in the main window?

- a. Altitude =  $20^\circ$  Azimuth =  $90^\circ$
- b. Altitude =  $90^\circ$  Azimuth =  $20^\circ$
- c. Altitude =  $28^\circ$  Azimuth =  $111^\circ$
- d. Altitude =  $66^\circ$  Azimuth =  $95^\circ$

**Question 2:** The time has advanced by two hours. Which of these statements is correct?

- a. Regulus and the coordinate grid have shifted westward.
- b. The altitude and azimuth of Regulus have changed as the local coordinate grid shifts westward.
- c. The altitude and azimuth of Regulus have changed and the local coordinate grid has remained fixed.
- d. The constellations have shifted westward but the local coordinates of Regulus have not changed.

**Question 3:** Choose the correct statement regarding the altitude of Antares.

- a. The altitude of Antares increases as time advances.
- b. Antares reaches its maximum altitude as it crosses the meridian.
- c. The altitude of Antares is greater west of the meridian.
- d. East of the meridian the altitude of Antares is negative.

**Question 4:** When is the Sun most likely to be on the local meridian?

- a. At midnight.
- b. At sunrise.
- c. At noon.
- d. At sunset.

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**Question 5:** How does the changing altitude of Antares relate to the different latitudes of these particular observers?

- a. The altitude of Antares is equal to the observer's latitude.
- b. The altitude of Antares increased as the observer's latitude increased.
- c. The altitude of Antares increased as the observer's longitude increased.
- d. The altitude of Antares increased as the observer's latitude decreased.

**Question 6:** What fraction of a circle does the difference in the Sun's altitude represent?

- a.  $1/7$
- b.  $7/360$
- c.  $360/7$
- d.  $82/89$

**Question 7:** What is the circumference of the Earth using Eratosthenes' method?

- a.  $950 \text{ km} \times 7$
- b.  $950 \text{ km} \times (82/89)$
- c.  $950 \text{ km} \times (7/360)$
- d.  $950 \text{ km} \times (360/7)$