

**Demo PDF file. This file includes questions: 10 from 290. Full version of file looks the same as demo, but full version includes all questions. You may download file with all questions by link on bottom of this page**

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## **Q159 - Navigation Problems: Oceans**

### **1. Which condition exists at the summer solstice in the Northern Hemisphere?**

- The Sun shines equally on both hemispheres.
- The north polar regions are in continual darkness.
- **The Southern Hemisphere is having winter.**
- The Northern Hemisphere is having short days and long nights.

Note:

*The summer solstice in the Northern Hemisphere occurs when that hemisphere is tilted toward the Sun, resulting in winter in the Southern Hemisphere.*

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### **2. You are on course 138°T. To check the latitude of your vessel you should observe a celestial body on which bearing?**

- 270°
- 318°
- 138°
- **000°**

Note:

*A latitude check requires observing a celestial body on the meridian, which corresponds to a bearing of due north or due south. Therefore, the correct bearing is 000.*

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### **3. You are on course 312°T. To check the speed of your vessel you should observe a celestial body on which bearing?**

- **312°**
- 222°
- 090°
- 000°

Note:

*To accurately measure speed using celestial sights, the line of position should intersect your course at a right angle, requiring observation of a celestial body with a bearing equal to your course, which in this case is 312.*

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### **4. What is the equivalent of 2° 35' in time units?**

- 7 min. 06 sec.
- 9 min. 10 sec.
- **10 min. 20 sec.**
- 6 min. 43 sec.

Note:

*2 35' is equivalent to 10 minutes 20 seconds. One degree of arc represents 4 minutes of time, and one minute of arc represents 4 seconds of time. Therefore, 2 degrees is 8 minutes, and 35 minutes is 140 seconds, which is 2 minutes and 20 seconds. The total time is 10 minutes 20 seconds.*

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**5. What is the equivalent of 83°29.6' in time units?**

- **5h 33m 58.4s**
- 5h 01m 42.3s
- 5h 47m 34.8s
- 5h 18m 22.7s

Note:

*8329.6' is equivalent to 5h 33m 58.4s because 1 represents 4 minutes of time and 1' represents 4 seconds of time, resulting in a total time calculation of 5 hours, 33 minutes, and 58.4 seconds.*

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**6. A latitude line will be obtained by observing a body \_\_\_\_\_.**

- on the celestial horizon
- **at lower transit**
- on the Greenwich meridian
- on the prime vertical

Note:

*A body at lower transit is on the observer's meridian, resulting in a meridian altitude that produces a line of position aligned with a line of latitude.*

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**7. The measurement of local time is based on the passage of the Sun over the \_\_\_\_\_.**

- lower branch of the Greenwich meridian
- upper branch of the Greenwich meridian
- **lower branch of the observer's meridian**
- upper branch of the observer's meridian

Note:

*Local time is determined by the Sun's position relative to an observer's meridian, specifically its passage over the lower branch, which marks local midnight.*

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**8. The navigational triangle uses parts of two systems of coordinates, one of which is the celestial equator system, which is the other system?**

- **Horizon system**
- Ecliptic system
- Astronomical system
- Terrestrial system

Note:

*The navigational triangle correlates a celestial body's position in the celestial equator system with its position relative to the observer's horizon, therefore the other system is the horizon system.*

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**9. A sidereal day is approximately how much shorter than a solar day?**

- **4 minutes**
- 8 minutes
- 12 minutes
- 16 minutes

Note:

*A sidereal day is approximately 4 minutes shorter than a solar day due to Earth's orbital motion requiring an additional rotation to return the Sun to the same apparent position.*

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**10. While steering a course of 150°T, you wish to observe a body for a latitude check. What would the azimuth have to be?**

- 090°T
- 150°T
- 240°T
- 000°T

Note:

*A latitude check requires an east-west line of position, achieved with a body's azimuth of 000T.*

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