
Q185 - Navigation Problems: Near Coastal

1. You will be loading in Boston Harbor to a maximum draft of 32'06". The charted depth of an obstruction in the channel near Boston Light is 30 feet and you wish to have 3 feet of keel clearance. The steaming time from the pier to the obstruction is 01h 05m. What is the latest time (ZD +4) you can sail on 17 May 1983 and meet these requirements?

- 1610
- **1728**
- 1821
- 2350

Note:
To ensure adequate keel clearance, the latest safe departure time is calculated by determining the required tidal height at the obstruction, finding the latest time that height is available based on tide tables, and subtracting the steaming time to the obstruction. This results in a departure time of 1728 (ZD +4).

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2. The predicted time that the flood begins at the entrance to Delaware Bay is 1526. You are anchored off Chestnut St. in Philadelphia. If you get underway bound for sea at 1430 and turn for 11 knots, at what point will you lose the ebb current?

- New Castle
- **Liston Pt.**
- Arnold Pt.
- Ship John Shoal Lt.

Note:
You lose the ebb current at Liston Point because your estimated time of arrival there, traveling at 11 knots, aligns with the local time the current transitions from ebb to flood, as determined by the Tidal Current Tables.

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3. You are steering 142°pgc to make good your desired course. The gyro error is 1°E. The variation is 8°W. What should you steer by standard magnetic compass to make good the desired course?
DEVIATION TABLE Magnetic Heading Deviation 120° 4°E 135° 2°E 150° 0

- 133°psc
- 146°psc
- 148°psc
- **151°psc**

Note:
To determine the standard magnetic compass course, first correct the gyro course for gyro error, then for variation, and finally apply deviation from the provided table. The gyro course of 142pgc, with a 1E gyro error, becomes 143T. Applying the 8W variation yields a magnetic course of 151M. Consulting the deviation table, the deviation at 150M is 0, therefore the standard magnetic compass course is 151psc.

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4. You swung ship and compared the magnetic compass against the gyrocompass to find deviation. Gyro error is 2°E. The variation is 8°W. Find the deviation on a magnetic compass heading of 143°. PSC
PGC 030.5° 020° 061.5° 050° 092.0° 080° 122.5° 110° 152.0° 140° 181.0° 170° 210.0° 200° 239.5° 230° 269.0° 260° 298.0° 290° 327.5° 320° 358.5° 350°

- **2.0°W**
- 1.5°W
- 0.5°W
- 0.0°

Note:
Deviation at 143 is determined by converting gyro headings to true and then to magnetic, accounting for gyro error and variation, resulting in a deviation of 2.0W.

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5. The true course between two points is 312°. Your gyrocompass has an error of 3°W. You make an allowance of 4° leeway for a west by south wind. What gyro course should be steered to make the true course good?

- 315°pgc
- 305°pgc
- 318°pgc
- **311°pgc**

Note:
To achieve a true course of 312, a gyrocompass with a 3W error requires a steering correction for leeway (4) and gyro error, resulting in a gyro course of 311.

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6. You are underway on course 160°T while turning for an engine speed of 10 knots. The current is 210°T at 0.9 knots. What is the speed being made good?

- **10.7 knots**
- 11.0 knots
- 11.6 knots
- 12.3 knots

Note:
The speed made good is calculated by combining the vessel's speed through the water and the current as vectors. The angle between the ship's course and the current is 50 degrees, resulting in a speed over ground of approximately 10.7 knots.

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7. Your vessel is proceeding up a channel, and you see a pair of range lights that are in line dead ahead. The chart indicates that the direction of this pair of lights is 283°T, and the variation is 13°E. If the heading of your vessel at the time of the sighting is 278° per standard compass, what is the deviation?

- 5°E
- 5°W
- 8°E
- **8°W**

Note:
The deviation is 8W. The true heading (283T) is converted to magnetic heading by subtracting the variation (13E), resulting in 270M. The deviation is then calculated as the difference between the magnetic heading (270M) and the compass heading (278C), which is -8, indicating a west deviation.

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8. You wish to check the deviation of your standard magnetic compass. You find a natural range that you steer for and note that the gyrocompass heading is 034°, and the heading by standard magnetic compass is 026°. The gyro error is 1°W. Variation is 9°E. What is the deviation for that heading?

- **2°W**
- 0°
- 2°E
- 9°E

Note:
The correct deviation is 2W. This is determined by calculating the magnetic heading from the gyro heading and gyro error, then subtracting the compass heading from the magnetic heading to find the deviation.

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9. At 1200 zone time on 10 October, you depart San Francisco, LAT 37°48.5'N, LONG 122°24.0'W (ZD +8). You are bound for Yokohama, LAT 35°27.0'N, LONG 139°39.0'E, and you estimate your speed of advance at 22 knots. The distance is 4,536 miles. What is your estimated zone time of arrival at Yokohama?

- 0111, 19 October
- 0211, 19 October
- 1011, 19 October
- **1911, 19 October**

Note:
The correct arrival time is determined by converting the departure zone time to GMT, adding the steaming time, and then converting the result to the destination zone time, yielding 1911 on 19 October.

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10. At 1845 zone time on 24 October, you depart Bimini Island, LAT 25°50.0'N, LONG 77°00.0'W (ZD +5). You are bound for Bishop Rock, LAT 49°40.0'N, LONG 6°34.0'W, and you estimate your speed of advance at 13.6 knots. The distance is 3,491 miles. What is your estimated zone time of arrival at Bishop Rock?

- 0627, 3 November
- 1642, 3 November
- 0939, 4 November
- **1627, 4 November**

Note:
The estimated arrival time is determined by calculating the travel time (distance divided by speed), converting that time to days and hours, adjusting for time zone differences, and accounting for the date change.
