
Q343 - Navigation Problems: Chart Plot

1. You are on course 135° per standard magnetic compass when you take the following bearings per standard magnetic compass: Cape Henry Light: 266° Cape Charles Light: 353° Chesapeake Light: 124° What is your position?

- LAT 35°57.9'N, LONG 75°50.8'W
- LAT 36°57.5'N, LONG 75°50.1'W
- **LAT 36°57.3'N, LONG 75°50.9'W**
- LAT 36°57.6'N, LONG 75°51.6'W

Note:
The position is determined by converting compass bearings to true bearings, plotting reciprocal bearings from charted lights, and finding the intersection of the resulting lines of position, which is located at LAT 3657.3'N, LONG 7550.9'W.

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2. What correction should be applied to the charted depths of the Poquoson River at York Point at the PM low water on 18 December 1983?

- -0.1 feet
- No correction is necessary
- +1.9 feet
- **-0.4 feet**

Note:
The charted depths require a correction of -0.4 feet because the predicted low water height at York Point on December 18, 1983, was 0.4 feet below chart datum.

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3. Your position is LAT 37°00.0'N, LONG 75°30.0'W. What is the course to steer per standard magnetic compass to arrive at LAT 36°59.0'N, LONG 75°48.5'W, if you are turning for 8.7 knots, the current is 039°T at 1.3 knots, and a northwesterly wind is causing 3° of leeway?

- 267.5°
- 270.0°
- **273.0°**
- 264.0°

Note:
To arrive at the destination, calculate the true ground track, account for the current using a velocity triangle, correct for leeway due to wind, and convert the true course to a magnetic compass course by adding the total westerly compass error.

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4. While in the Back River, you sight the two tanks along the Northwest Branch (vicinity LAT 37°05.6'N, LONG 76°22.0'W) in line bearing 277° per standard magnetic compass. If your vessel is heading 243°psc, what is TRUE?

- The deviation table is incorrect.
- **The compass error is 12°W.**
- There is no deviation.
- The deviation is 3°E for bearings of 277°psc.

Note:
The observed compass bearing (277) exceeds the charted true bearing by 12, indicating a 12W compass error.

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5. You are considering anchoring approximately three miles northeast of Chesapeake Light. After examining the chart you decide not to because of the _____.

- area being designated as a National Marine Sanctuary
- large number of wrecks
- coral being designated as a special protected area
- **danger of unexploded mines**

Note:
Anchoring near Chesapeake Light is unsafe due to a charted danger area with unexploded mines. Mariners should avoid anchoring in charted mine danger areas to prevent detonation or disturbance of unexploded ordnance.

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6. At 0919 you are in Chesapeake Channel between Trestle B and Trestle C of the Chesapeake Bay Bridge and Tunnel. What is your ETA between York River Entrance Channel Buoys "17" and "18" if you are making 11.3 knots?

- 1034
- 1049
- **1044**
- 1039

Note:
A vessel traveling at 11.3 knots will take approximately 1 hour and 25 minutes to cover the 16 nautical mile distance between the specified locations, resulting in an ETA of 1044.

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7. What is the first course per standard magnetic compass (psc) in the outbound southeasterly traffic lane of the Chesapeake Bay entrance traffic separation scheme?

- **148°psc**
- 138°psc
- 133°psc
- 143°psc

Note:
The correct answer is 148psc. This is determined by converting the charted true course for the outbound southeasterly lane, accounting for variation and deviation using the chart's information and the vessel's deviation table.

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8. At 1919 your position is LAT 37°00.0'N, LONG 75°30.0'W. At 1950 your position is LAT 36°59.5'N, LONG 75°37.0'W. What is the speed made good?

- **10.9 knots**
- 5.6 knots
- 9.1 knots
- 8.2 knots

Note:
The speed made good is calculated by dividing the distance traveled by the time elapsed. The distance between the two positions is approximately 5.62 nautical miles, and the time elapsed is 31 minutes (0.5167 hours). Therefore, the speed made good is approximately 10.9 knots.

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9. Local magnetic disturbances of up to how many degrees have been noted from Cape Henry to Currituck Beach Light?

- 2 degrees
- **6 degrees**
- 17 degrees
- 11 degrees

Note:
Navigation publications indicate local magnetic disturbances between Cape Henry and Currituck Beach Light reach up to 6 degrees; therefore, 6 degrees is the correct answer.

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10. At 0919 your position is LAT 37°00.0'N, LONG 75°30.0'W. You are on course 270°T at 8.7 knots. At 1031 your position is LAT 36°59.5'N, LONG 75°44.9'W. What was the set and drift?

- 073° at 1.2 knots
- 060° at 0.7 knot
- 239° at 0.8 knot
- **252° at 1.3 knots**

Note:
The current's set and drift were determined by calculating the displacement between the dead-reckoned position and the actual position, resulting in a direction of 252 and a speed of 1.3 knots.
