
Q305 - Navigation Problems: Chart Plot

2. The following questions are to be answered using Chart 12221TR, Chesapeake Bay Entrance, and supporting publications. It is July 13th and you are on a voyage to Baltimore. You are observing daylight savings time. You are turning for 9.8 knots. The maximum draft is 18 feet. The gyro error is 2°E. The visibility is obscured by patchy fog. Use 10°W variation where required. DEVIATION TABLE Magnetic Heading Deviation 315° 1.0°W 330° 0.5°W 345° 0.5°E 000° 2.0°E 015° 3.0°E 030° 1.5°E At 2038 you are on course 272°T when Chesapeake Light is bearing 348° true at a range of 5.3 nm. Based on this fix, which statement is TRUE?

- **You are inside a ten fathom depth curve.**
- You are inside the contiguous zone.
- You are 0.6 mile north of a wreck.
- You are less than five miles from Chesapeake Light.

Note:
Plotting the range and reciprocal bearing from Chesapeake Light on Chart 12221TR reveals the vessel's position is shoreward of the ten-fathom depth curve.

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3. You are proceeding towards the inbound lane of the Chesapeake Bay Entrance Deep Water Route. What is your ETA to abeam of the "CB" buoy?

- 2104
- 2115
- **2058**
- 2109

Note:
Calculate the ETA to abeam of buoy "CB" by dividing the distance from your last fix to that point on the trackline by your speed, then adding the result to your last fix time.

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4. Your ETA at Chesapeake Bay Bridge and Tunnel between trestles B + C is 2300. If your engine speed is 9.8 knots, what will be your approximate speed over the ground, at that time, allowing for the predicted current?

- 7.0 knots
- **12.5 knots**
- 8.2 knots
- 11.4 knots

Note:
The speed over ground is calculated by adding the engine speed and the favorable current. Therefore, the speed over ground is 9.8 knots + 2.7 knots = 12.5 knots.

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4. 4.1.1.4C1-27) Your height of eye is 40 feet (12.2 meters). What is the approximate geographical distance at which Ambrose Light, NY, could be visible? Refer to "Reprints from the LIGHT LISTS AND COAST PILOTS".

- 19.5 nm
- **21.0 nm**
- 22.8 nm
- 18.3 nm

Note:
The geographical range is the sum of the observer's horizon distance and the light's horizon distance. With a 40-foot eye height and Ambrose Light's height, the combined geographical range is approximately 21.0 nautical miles.

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5. At buoy "CB" you change course to follow the inbound traffic lane. What is the course to steer per gyrocompass if you correct your heading for a current of 315° at 1.0 knot and allow 3° leeway for northeasterly winds?

- **302°pgc**
- 297°pgc
- 305°pgc
- 299°pgc

Note:
The correct course is 302 per gyrocompass, determined by correcting for the current's effect and then accounting for leeway due to northeasterly winds.

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6. At 2216 CBJ Buoy is close abeam to port. Your lookout reports several sound signals with their relative bearings. Which would you judge to be coming from a vessel?

- A bell, broad on the port bow
- A gong, two points on the starboard quarter
- **A whistle, broad on the starboard beam**
- A bell, dead ahead

Note:
A whistle on the starboard beam is the most likely sound signal from a vessel underway, as bells and gongs are typically associated with buoys or anchored/aground vessels, and whistles are required equipment for vessels under the Navigation Rules.

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7. As you enter Chesapeake Bay, visibility improves. At 2235 you are between Chesapeake Channel Buoys "5" and "6" in the 41 foot dredged section of Chesapeake Channel. At that time, you change course to pass between buoys "9" and "10". If buoys "11" and "12" are extinguished, what would be your best leading light to keep you in deep water in the Chesapeake Channel, as you approach the Chesapeake Bay Bridge and Tunnel?

- fixed red light on trestle "B"
- Thimble Shoal Light
- **fixed green light on trestle "B"**
- fixed red light on trestle "C"

Note:
The fixed green light on trestle “B” is the best leading light to maintain the deep-water Chesapeake Channel track when buoys 11 and 12 are extinguished, as it aligns with the charted centerline of the channel.

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8. At 2306, as you pass through Trestle "C", you take a gyro bearing of the trestle when it is in line. The bearing is 049.0°. What is the gyro error?

- 2.5°W
- 1.0°W
- **0°**
- 1.5°E

Note:
The gyro error is 0 because the observed gyro bearing matches the true bearing of the transit line.

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9. As you proceed up York Spit Channel, what are the three base courses that you must steer to conform to the channel, if steering by standard magnetic compass?

- 324.0°, 352.5°, 009.5°
- **340.0°, 000.5°, 025.0°**
- 337.5°, 357.5°, 026.0°
- 337.5°, 359.5°, 028.0°

Note:
The correct base courses for York Spit Channel, when steering by standard magnetic compass, are 340.0, 000.5, and 025.0. These values are derived by converting the true courses of the channel's straight reaches, accounting for variation and deviation using the TVMDC sequence.

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10. You are abeam of buoy "18" at 2325. What is your ETA at Baltimore if you average 9.5 knots?

- 1342
- 1424
- 1456
- **1400**

Note:
The ETA at Baltimore is 1400. The steaming time from buoy 18 to Baltimore, calculated by dividing the charted distance by 9.5 knots, when added to the departure time of 2325, results in an ETA of 1400 the following day.
