
Q184 - Navigation Problems: Chart Plot

1. The nominal range of a light may be accurately defined as the maximum distance at which a light may be seen _____.

- **with ten miles visibility**
- with fifteen miles visibility
- under perfect visibility
- under existing visibility conditions

Note:
The nominal range of a light is defined as the maximum distance it can be seen under a standardized visibility of ten miles.

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2. The following questions are to be answered using Chart 12221 TR, Chesapeake Bay Entrance, and supporting publications. You are on an oceanographic research vessel equipped with standard navigational equipment. The gyro error is 2°W. The maximum draft is 13 feet. Use 10°W variation where required. DEVIATION TABLE Magnetic Heading Deviation 060° 1°W 075° 0° 090° 1°E Chesapeake Channel is temporarily closed to traffic. At 2215 you anchor on the following bearings: Wolf Trap Light: 358°pgc Light "HH": 301°pgc New Point Comfort Spit Light "2": 263°pgc What is your 2215 position?

- LAT 37°18.0'N, LONG 76°11.2'W
- **LAT 37°18.3'N, LONG 76°10.9'W**
- LAT 37°18.2'N, LONG 76°11.2'W
- LAT 37°18.1'N, LONG 76°10.8'W

Note:
Convert gyro bearings to true bearings using the gyro error, determine reciprocal bearings, and plot the lines of position on the chart; the intersection of these lines indicates your position at LAT 3718.3'N, LONG 7610.9'W.

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3. While you are at anchor, what will serve as a positive warning that you are drifting towards the wrecks located to the NW and SW of your 2215 position?

- The bearing of Wolf Trap Light changing to the left
- Increasing soundings
- A constant bearing on New Point Comfort Light.
- **The bearing of Wolf Trap Light changing to the right**

Note:
Drifting toward wrecks to the NW and SW from an anchored position would cause the bearing of Wolf Trap Light to increase (move to the right), serving as a positive warning.

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4. What course per gyrocompass would you need to steer from the anchorage to York Spit Channel buoy "29"?

- 181° pgc
- **172° pgc**
- 175° pgc
- 178° pgc

Note:
The gyrocompass course is determined by plotting the true course on the chart and correcting for gyro error using the formula G = T + GE, resulting in a steering course of 172 pgc.

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5. When you get underway, you will take the most direct route to buoy "CBJ", while remaining west of York Spit Channel. You will be turning for 9.7 knots and estimate an average ebb of 0.3 knot during the transit. How long will it take to steam from the anchor position to buoy "CBJ"?

- **2h 33m**
- 2h 42m
- 2h 51m
- 2h 16m

Note:
The correct steaming time is calculated by dividing the charted distance of 24.0 nautical miles by the effective speed of 9.4 knots, which accounts for a 0.3-knot ebb current reducing the 9.7-knot speed through the water, resulting in a time of 2 hours and 33 minutes.

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6. Which of the following describes the area west of your anchorage bounded by the buoys "C51" to "C47A" to "M6" to "M14"?

- an anchorage for ammunition barges
- **a fish trap area**
- restricted to oil and mineral exploration
- a training area for naval small craft

Note:
The charted area bounded by buoys C51–C47A–M6–M14 is designated as a fish trap area, indicating its use for fishing gear and not anchorage, exploration, or naval training.

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7. As you transit the Chesapeake Bay Bridge and Tunnel, you take a gyro bearing of trestle C when it is in line. The gyro bearing was 050°. At that time, the helmsman noted that he was heading 139°pgc and 146° per standard magnetic compass. What is the deviation?

- **2°E**
- 4°W
- 0°
- 2°W

Note:
The deviation is 2E. The gyro bearing of the trestle, combined with the charted true bearing and local variation, establishes the gyro error. Comparing the corrected true heading to the compass heading reveals a deviation of 2 east.

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8. At 1042 you take the following round of bearings: Cape Henry Light 259°T Chesapeake Light 101°T Cape Charles Light 006°T From this position, you set course 070°T What is the course per standard magnetic compass?

- **079.5°psc**
- 069.5°psc
- 060.5°psc
- 080.5°psc

Note:
The correct compass course is determined by adding the net westerly correction of 9.5 to the true course of 070, resulting in 079.5psc. This accounts for both variation and deviation, following the standard True → Magnetic → Compass conversion process where westerly corrections are added.

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9. At 1126 you take the following set of bearings: Chesapeake Light bears 143°T Cape Henry Light bears 254°T What was the current encountered since your 1042 fix?

- Set 272°, Drift 0.6 knot
- Set 272°, Drift 0.8 knot
- Set 092°, Drift 0.6 knot
- **Set 092°, Drift 0.8 knot**

Note:
The current's set is 092T and its drift is 0.8 knots, determined by measuring the vector from the 1126 DR position to the 1126 fix on the chart.

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10. You continue on course from your 1126 fix. At 1131 Cape Charles Light bears 322°T. At 1135 you change course to 000°T. At 1149 Cape Henry Light bears 247°T. Which statement concerning your 1149 running fix is TRUE?

- Chesapeake Light is due south of you.
- You are north of Smith Island Shoal.
- **You are in a danger area.**
- Your fathometer reads 47 feet.

Note:
Plotting the 1149 running fix by advancing the 1131 Cape Charles LOP and intersecting it with the 1149 Cape Henry LOP places the vessel within a charted danger area.
