

Demo PDF file. This file includes questions: 10 from 54. 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

Q214 - Navigation Problems: Near Coastal

1. You desire to make good a true course of 203°. The variation is 19°E, magnetic compass deviation is 2°W, and gyrocompass error is 1°E. A westerly wind produces a 3° leeway. What is the course to steer per standard magnetic compass to make the true course good?

- 223°psc
- 210°psc
- 183°psc
- **189°psc**

Note:

To make good a true course of 203, correct for leeway (3), then convert true to magnetic and magnetic to compass, accounting for variation (19E) and deviation (2W). This results in a course to steer of 189 per standard magnetic compass.

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.

3. You are underway on course 241°T at a speed of 18.2 knots. You sight a daymark bearing 241°T at a radar range of 3.9 miles at 1006. If you change course at 1009, what is the course to steer to leave the daymark abeam to starboard at 1.0 mile?

- 260°T
- 218°T
- **222°T**
- 257°T

Note:

To achieve a 1.0 NM starboard abeam passing distance from a daymark initially at 3.0 NM range on 241T, a course alteration of 19.5 to port is required, resulting in a new course of 222T.

4. Your vessel is steering course 352°psc, variation for the area is 11°E, and deviation is 9°W. The wind is from the northeast, producing a 1° leeway. What true course are you making good?

- **353°T**
- 349°T
- 351°T
- 355°T

Note:

Applying leeway to the compass heading, then correcting for deviation and variation in the proper order results in a true course made good of 353T.

5. On 1 September your 1115 zone time DR position is LAT 25°20.0'N, LONG 28°24.0'W. At that time, you observe the Sun bearing 160.5°psc. The chronometer reads 01h 14m 58s, and the chronometer error is 01m 17s fast. The variation is 13.5°W. What is the deviation of the standard compass?

- 2.1°E
- 4.1°E
- 11.0°W
- 11.0°E

Note:

The deviation is 2.1E, calculated by subtracting the variation and compass bearing from the true bearing obtained through sight reduction.

6. On 10 August your vessel's 0426 zone time DR position is LAT 52°07'N, LONG 142°16'E, when an amplitude of the Sun is observed. The Sun's lower limb is about 20 minutes of arc above the visible horizon and bears 074.5° per standard compass. Variation in the area is 12°W. The chronometer reads 07h 24m 19s and is 02m 34s fast. Which of the following is the deviation of the standard compass?

- 0.0°
- 1.3°W
- 1.3°E
- 2.3°W

Note:

The deviation is 1.3E, calculated by subtracting the observed compass bearing and variation from the computed true bearing.

7. On 13 October your vessel's 1722 zone time DR position is LAT 27°36'S, LONG 136°16'E, when an amplitude of the Sun is observed. The Sun's center is on the celestial horizon and bears 266° per standard magnetic compass. Variation in the area is 2°W. The chronometer reads 08h 24m 19s and is 01m 43s fast. What is the deviation of the standard magnetic compass?

- 2.3°E
- 2.8°W
- 4.8°E
- 6.8°W

Note:

The observed Sun's bearing of 266M, after accounting for 2W variation, yields a true bearing of 263.2T. Calculating the true amplitude from the latitude and declination results in a true bearing of 261.2T, indicating a compass deviation of 2.8W.

8. On 14 January your 0746 zone time DR position is LAT 26°37.0'N, LONG 153°19.0'W. At that time, you observe the Sun bearing 123°psc. The chronometer reads 05h 49m 16s, and the chronometer error is 02m 29s fast. The variation is 3°W. What is the deviation of the standard magnetic compass?

- 1.4°W
- 1.6°E
- 3.4°E
- 4.4°W

Note:

The deviation of the standard magnetic compass is 1.4W. This is determined by calculating the Sun's true azimuth using the Nautical Almanac, then applying the TVMDC formula (True → Variation → Magnetic → Deviation → Compass) to account for variation and solve for deviation.

9. At 1444 ZT on 28 July, in DR position LAT 40° 56.8' N, LONG 167° 12.4' E, you observe an amplitude of the Moon. The upper limb of the Moon is on the visible horizon and bears 299.3° psc. The variation is 1° E. What is the deviation?

- **3.1°W**
- 3.1°E
- 2.1°W
- 2.1°E

Note:

The deviation is 3.1W. The total compass error is 2.1W, calculated by subtracting the true bearing from the compass bearing. Subtracting the known variation of 1E from the total compass error yields the deviation of 3.1W.

10. On 20 July your vessel's 1626 zone time DR position is LAT 27°13.0'N, LONG 63°42.0'W, when you take an azimuth of the Sun. Determine the gyro error using the azimuth information. Chronometer time: 08h 24m 18s Chronometer error: slow 02m 12s Gyro bearing: 279.3° Variation: 15°W

- **1.9°W**
- 2.6°W
- 1.4°E
- 2.6°E

Note:

The gyro error is 1.9 West because the computed true azimuth of the Sun (281.2) differs from the observed gyro bearing (279.3) by 1.9, and the true bearing is greater than the gyro bearing, indicating a West error.
