

Demo PDF file. This file includes questions: 10 from 74. 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

Q207 - Navigation Problems: Oceans

1. What is NOT an advantage of the rhumb line track over a great circle track?

- Plots as a straight line on Lambert conformal charts
- Negligible increase in distance on east-west courses near the equator
- Does not require constant course changes
- Easily plotted on a Mercator chart

Note:

Rhumb lines do not plot as straight lines on Lambert conformal charts, which is not an advantage over great circle tracks.

2. You desire to make good $152^{\circ}T$. The magnetic compass deviation is $4^{\circ}E$, the variation is $5^{\circ}E$, and the gyro error is $3^{\circ}E$. A southwesterly wind produces a 4° leeway. Which course would you steer per standard compass to make good the true course?

- $143^{\circ}psc$
- $137^{\circ}psc$
- $147^{\circ}psc$
- $141^{\circ}psc$

Note:

To steer a true course of $152^{\circ}T$, account for 4 leeway to port, then convert the resulting true heading to a compass course by subtracting the total easterly variation and deviation of 9. This yields a compass course of $147^{\circ}psc$.

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

- $223^{\circ}psc$
- $210^{\circ}psc$
- $183^{\circ}psc$
- $189^{\circ}psc$

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.

4. A great circle crosses the equator at $141^{\circ}E$. It will also cross the equator at what other longitude?

- $39^{\circ}W$
- $141^{\circ}W$
- $41^{\circ}E$
- $180^{\circ}E$

Note:

A great circle crossing the equator at $141^{\circ}E$ will also cross it at $39^{\circ}W$, as great circles intersect the equator 180° apart.

5. In which situation does a great circle track provides the maximum saving in distance?

- On easterly courses in high latitudes
- On southerly courses in high latitudes
- On easterly courses in low latitudes that cross the equator
- On westerly courses in low latitudes

Note:

Great circle tracks maximize distance savings on long east–west routes in high latitudes because rhumb lines must follow a more curved path due to meridian convergence.

6. The initial great circle course angle between LAT 23°00'S, LONG 42°00'W and LAT 34°00'S, LONG 18°00'E is 063.8°. What is the true course?

- 063.8°T
- 296.2°T
- 243.8°T
- 116.2°T

Note:

The initial great circle course angle of 063.8 is measured from the south pole toward the east, which converts to a true course of 116.2T using the formula $TC = 180 - \theta$.

7. 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.

8. The upper vertex of a great circle track is in LONG 156°00'E. Sailing eastward, the great circle track will cross the equator in which LONG?

- 66°00'E
- 110°00'W
- 114°00'W
- 66°00'W

Note:

The vertex of the great circle track is at 156E. Sailing eastward, the track crosses the equator 90 of longitude away, resulting in a crossing at 114W (156E + 90 = 246E, which is 114W).

9. Your 0830 DR position is LAT 27°33'S, LONG 79°17'E. Your vessel is on a course of 066°T, at a speed of 19.5 knots. Determine the time of LAN on 10 December.

- 1131
- 1136
- 1153
- 1215

Note:

To determine the time of Local Apparent Noon (LAN), advance the DR position to the approximate time of meridian passage, then use the Nautical Almanac to find the Sun's Greenwich Hour Angle (GHA) corresponding to the longitude at that advanced position.

10. On 1 December your 1600 ZT DR position is LAT 22°48.0'S, LONG 91°26.0'E. You are on course 327°T at a speed of 16 knots. What will be the zone time of sunset at your vessel?

- 1823
- 1827
- 1831
- 1847

Note:

Determine the zone time of sunset by obtaining the local mean time of sunset from the Nautical Almanac for the given latitude, then applying the longitude and time zone correction.
