

U.S.C.G. Merchant Marine Exam

Master Less than 100 GRT to Master or
Mate Less than 200 GRT Oceans or Near Coastal

Q157 Navigation Problems – Oceans

(Sample Examination)

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Illustrations: 0

Choose the best answer to the following Multiple-Choice Questions.

1. In the horizon system of coordinates what is equivalent to the equator on the Earth?

- A. Horizon
- B. Parallels of altitude
- C. Principal vertical circle
- D. Prime vertical circle

Correct answer: A

2. The great circle distance from LAT 24°25.3'N, LONG 83°02.6'W to LAT 35°57.2'N, LONG 5°45.7'W is 3966.5 miles. Determine the latitude of the vertex.

- A. 38°46.2'N
- B. 38°16.4'N
- C. 38°09.4'N
- D. 37°57.3'N

Correct answer: C

3. On 12 September your 0600 zone time (ZT) fix gives you a position of LAT 22°51.9'N, LONG 133°40.1'W. Your vessel is on course 062°T, and your speed is 12.3 knots. Local apparent noon (LAN) occurs at 1142 ZT, at which time a meridian altitude of the Sun's upper limb is observed. The observed altitude (H_o) for this sight is 70°33.2'. What is the calculated latitude at LAN?

- A. 23°23.0'N
- B. 23°24.8'N
- C. 23°26.5'N
- D. 23°27.9'N

Correct answer: B

4. On 17 May your 0300 ZT DR position is LAT 27°21.0'N, LONG 146°14.0'E. You are on course 107°T at a speed of 18 knots. What will be the zone time of sunrise at your vessel?

- A. 0457
- B. 0511
- C. 0519
- D. 0522

Correct answer: D

5. A vessel steams 666 miles on course 135°T from LAT 40°24.0'N, LONG 74°30.0'W. What is the latitude and longitude of the point of arrival by Mercator sailing?

- A. LAT 32°39.0'N, LONG 64°53.0'W
- B. LAT 32°33.0'N, LONG 64°46.0'W
- C. LAT 32°36.0'N, LONG 64°49.0'W
- D. LAT 32°30.0'N, LONG 64°41.0'W

Correct answer: B

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6. You have steamed 746 miles at 14.0 knots and consumed 152 tons of fuel. If you have 201 tons of usable fuel remaining, how far can you steam at 10 knots?
- A. 1934 miles
 - B. 2707 miles
 - C. 2263 miles
 - D. 1381 miles

Correct answer: A

7. On 2 April your 0900 zone time DR position is LAT 28°04.0'S, LONG 94°14.0'E. Your vessel is on course 316°T at a speed of 18.5 knots. What is the zone time of local apparent noon (LAN)?
- A. 1138
 - B. 1143
 - C. 1146
 - D. 1149

Correct answer: D

8. At 0100 zone time on 23 September your DR position is LAT 24°25.0'N, LONG 83°00.0'W. You are steering course 315°T. The speed over the ground is 10.0 knots. You observed 3 morning sun lines. Determine the latitude and longitude of your 1100 running fix.

NP-0002

ZONE TIME	GHA	OBSERVED ALTITUDE (Ho)	DECLINATION
0700	17°20.1'	21°09.0'	S 00°09.7'
0900	47°03.0'	46°05.0'	S 00°11.6'
1100	77°06.4'	63°16.1'	S 00°13.5'

- A. LAT 25°35.3'N, LONG 84°17.0'W
- B. LAT 25°42.6'N, LONG 84°18.7'W
- C. LAT 25°30.4'N, LONG 84°28.6'W
- D. LAT 25°28.3'N, LONG 84°34.3'W

Correct answer: A

9. On 12 March your 1846 zone time DR position is LONG 129°16.5'W. At that time you observe Polaris with a sextant altitude (hs) of 28°01.5'. The chronometer time of the sight is 03h 44m 10s, and the chronometer error is 01m 55s slow. The index error is 2.2' off the arc, and the height of eye is 59.8 feet (18.2 m). What is your latitude by Polaris?
- A. 27°33.7'N
 - B. 27°40.9'N
 - C. 27°54.4'N
 - D. 28°06.9'N

Correct answer: A

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10. You are on course 042°T. To check the course of your vessel you should observe a celestial body on which bearing?

- A. 090°
- B. 132°
- C. 180°
- D. 222°

Correct answer: B