

U.S.C.G. Merchant Marine Exam

Master TV to Master Less than 500 Gross Registered Tons
Oceans or Near Coastal

Q134 Navigation Problems – Near Coastal

(Sample Examination)

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

1. Your vessel is proceeding up a channel, and you see a pair of range lights that are in line ahead. The chart indicates that the direction of this pair of lights is $196^{\circ}T$, and the variation is $7^{\circ}E$. If the heading of your vessel at the time of the sighting is 192° per standard magnetic compass, what is the deviation?
A. $3^{\circ}E$
B. $3^{\circ}W$
C. $4^{\circ}E$
D. $4^{\circ}W$

Correct answer: B

2. Your vessel arrives in port with sufficient fuel to steam 595 miles at 14 knots. If you are unable to take on bunkers, at what speed must you proceed to reach your next port, 707 miles distant?
A. 12.8 knots
B. 12.5 knots
C. 12.2 knots
D. 14.4 knots

Correct answer: A

3. You swung ship and compared the magnetic compass against the gyrocompass to find deviation. Gyro error is $2^{\circ}W$. The variation is $8^{\circ}W$. Find the deviation on a magnetic compass heading of 022° .

NP-0121

HEADING	
PSC	PGC
030.5°	024°
061.5°	054°
092.0°	084°
122.5°	114°
152.0°	144°
181.0°	174°
210.0°	204°
239.5°	234°
269.0°	264°
298.0°	294°
327.5°	324°
358.5°	354°

- A. $1.5^{\circ}E$
B. $0.5^{\circ}E$
C. 0.0°
D. $0.5^{\circ}W$

Correct answer: C

4. The spin axis of a gyroscope tends to remain fixed in space in the direction in which it is started. How does this gyroscope become north seeking so that it can be used as a compass?
- A. By starting the compass with the spin axis in a north/south position
 - B. By taking advantage of the property of gyroscopic inertia
 - C. By mechanically or electrically applying forces to precess the gyroscope
 - D. The rotation of the Earth (Earth rate) automatically aligns the gyroscope with north, except for speed errors

Correct answer: C

5. A vessel at LAT 32°14.7'N, LONG 66°28.9'W, heads for a destination at LAT 36°58.7'N, LONG 75°42.2'W. Determine the distance by Mercator sailing.
- A. 270.2 miles
 - B. 241.2 miles
 - C. 538.2 miles
 - D. 300.2 miles

Correct answer: C

6. Your vessel consumes 268 barrels of fuel per day at a speed of 19.0 knots. What will be the fuel consumption of your vessel at 15.0 knots?
- A. 212 bbls
 - B. 243 bbls
 - C. 132 bbls
 - D. 167 bbls

Correct answer: C

7. You are turning 93 RPM, with a propeller pitch of 25 feet, and an estimated slip of 0%. What is the speed of advance?
- A. 22.9 knots
 - B. 21.9 knots
 - C. 20.2 knots
 - D. 22.4 knots

Correct answer: A

8. You are on a voyage from Boston, MA to the South Pass, LA. The distance is 1870 miles, and the speed of advance is 13.6 knots. You estimate 16.5 hours for bunkering enroute at Port Everglades, FL. If you sailed at 0836 hours (ZD +5), 26 February, what was your ETA (ZD +6) at the South Pass?
- A. 2336, 3 March
 - B. 1136, 4 March
 - C. 1236, 4 March
 - D. 1736, 4 March

Correct answer: D

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Illustrations: 0

9. What is the gyrocompass error resulting from your vessel's movement in OTHER than an east-west direction?
- A. Quadrantal error
 - B. Damping error
 - C. Ballistic deflection
 - D. Speed error

Correct answer: D

10. The propeller on a vessel has a diameter of 21.2 feet and a pitch of 20.0 feet. What would be the apparent slip if the vessel cruised 391 miles in a 24-hour day (observed distance) at an average RPM of 88?
- A. +6.2%
 - B. +11.5%
 - C. -11.5%
 - D. -6.2%

Correct answer: A