

U.S.C.G. Merchant Marine Exam
Master/Chief Mate of Unlimited Tonnage
Q108 Navigation Problems – Near Coastal
(Sample Examination)

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

1. The true course between two points is 337° . Your gyrocompass has an error of 3°E and you make an allowance of 5° leeway for a west wind. Which gyro course should be steered to make the true course good?
- A. 345°pgc
 - B. 329°pgc
 - C. 335°pgc
 - D. 339°pgc

Correct answer: B

2. If the speed necessary for reaching port at a designated time is 19.2 knots and the pitch of the propeller is 22.7 feet, how many revolutions per minute will the shaft have to turn, assuming a 4% positive slip?
- A. 82 RPM
 - B. 96 RPM
 - C. 103 RPM
 - D. 89 RPM

Correct answer: D

3. You are on a voyage from Limoy, Costa Rica to Los Angeles, CA. The distance from departure to arrival is 3150 miles. The speed of advance is 14.0 knots. You estimate 24.0 hours for bunkering at Colon, and 12.0 hours for the Panama Canal transit. If you take departure at 1836 hours (ZD +6), 28 January, what is your ETA (ZD +8) at Los Angeles?
- A. 1736, 9 February
 - B. 1736, 8 February
 - C. 1336, 8 February
 - D. 0536, 8 February

Correct answer: C

4. On 23 October your vessel's 1722 zone time DR position is LAT $27^\circ36'\text{S}$, LONG $96^\circ16'\text{W}$, 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 246° per standard compass. Variation in the area is 14.0°E . The chronometer reads 11h 24m 19s and is 01m 43s fast. What is the deviation of the standard compass?
- A. 2.3°E
 - B. 2.7°E
 - C. 2.7°W
 - D. 3.1°W

Correct answer: D

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5. On 9 November 2023 at 0130, you are inbound at Charleston Harbor Entrance Buoy "10" (ACT6611). Your vessel will transit 15nm and make good 10.0 knots to a berth where the nearest tidal current station is ACT6706. What will be the direction and velocity of the current as you approach the dock? See illustration D058NG.

- A. 0.6kts at 172°T
- B. 0.2kts at 280°T
- C. 0.6kts at 335°T
- D. 0.2kts at 104°T

Correct answer: C

6. On 3 October 2023, you will be docking at the Dundalk Marine terminals in Baltimore, MD at the first high tide. The berth is located between NOAA reference tidal station #8574680 and subordinate station #8574821. What time (LST) will you be docking? See illustration D056NG.

- A. 1508
- B. 0856
- C. 0812
- D. 1430

Correct answer: B

7. A vessel steams 1650 miles on course 077°T from LAT 12°47'N, LONG 45°10'E. What is the latitude and longitude of the point of arrival by Mercator sailing?

- A. LAT 18°58'N, LONG 72°52'E
- B. LAT 18°54'N, LONG 72°58'E
- C. LAT 19°02'N, LONG 72°44'E
- D. LAT 19°06'N, LONG 72°36'E

Correct answer: A

8. You have steamed 989 miles at 16.5 knots and consumed 215 tons of fuel. If you have 345 tons of usable fuel remaining, how far can you steam at 13 knots?

- A. 3245 miles
- B. 1025 miles
- C. 1993 miles
- D. 2557 miles

Correct answer: D

9. On September 9 your 2130 zone time (ZD +5) DR position is LAT 45°08'N, LONG 82°38'W. At that time, you observe Polaris bearing 000.5°pgc. The chronometer time of the observation is 02h 26m 09s, and the chronometer is 1m 43s slow. The variation is 8.7°W. What is the gyro error?

- A. 0.7°E
- B. 1.2°E
- C. 0.8°W
- D. 9.4°W

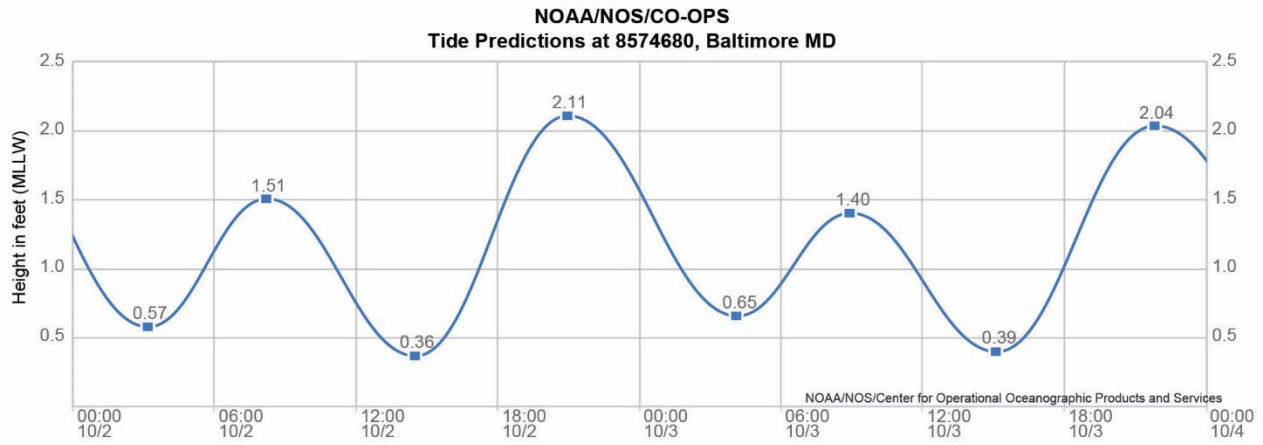
Correct answer: A

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10. You are taking a time tick using the 2000 signal from Kekaha-Kauai, Hawaii (WWVH). You hear a series of 1 second dashes followed by a 9 second silent period, then a long 1.3 second dash. At the beginning of the long dash, your comparing watch reads 07h 59m 54s. When compared to the chronometer, the comparing watch reads 08h 00m 00s, and the chronometer reads 08h 00m 06s. What is the chronometer error?
- A. 0m 06s fast
 - B. 0m 12s fast
 - C. 0m 06s slow
 - D. No error

Correct answer: D

D056NG

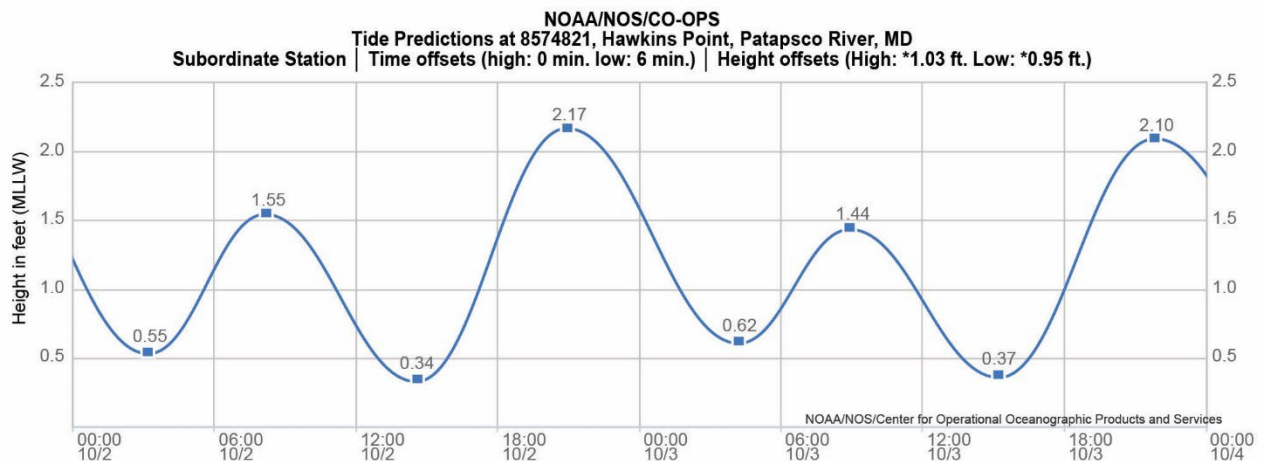


Station Name: Baltimore, MD
Action: Daily
Product: Tide Predictions
Start Date & Time: 2023/10/2 00:00
End Date & Time: 2023/10/3 23:59

Source: NOAA/NOS/CO-OPS
Prediction Type: Harmonic
Datum: MLLW
Height Units: Feet
Time Zone: LST

High/Low Tide Prediction Data Listing

Date	Day	Time	Hgt	Time	Hgt	Time	Hgt	Time	Hgt
2023/10/02	Mon	03:10	0.57 L	08:12	1.51 H	14:30	0.36 L	20:57	2.11 H
2023/10/03	Tue	04:08	0.65 L	08:56	1.40 H	15:08	0.39 L	21:50	2.04 H



Station Name: Hawkins Point, Patapsco River, MD
Action: Daily
Product: Tide Predictions
Start Date & Time: 2023/10/2 00:00
End Date & Time: 2023/10/3 23:59

Source: NOAA/NOS/CO-OPS
Prediction Type: Subordinate
Datum: MLLW
Height Units: Feet
Time Zone: LST

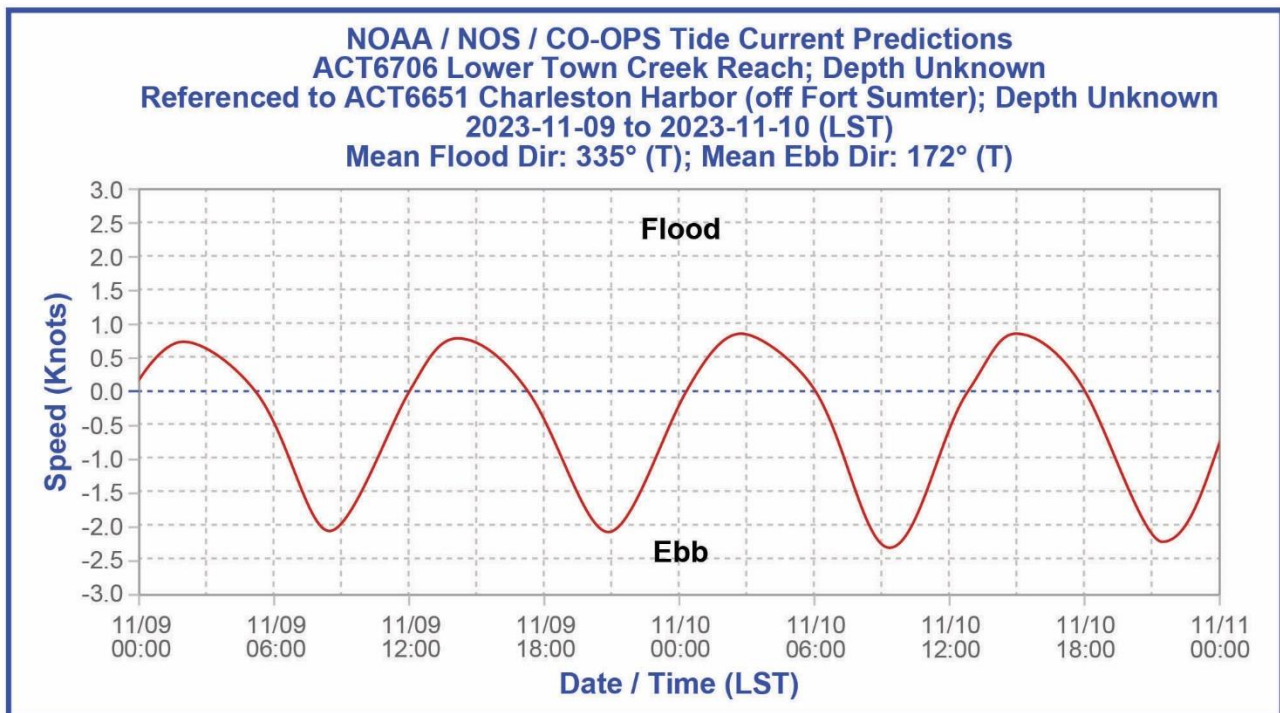
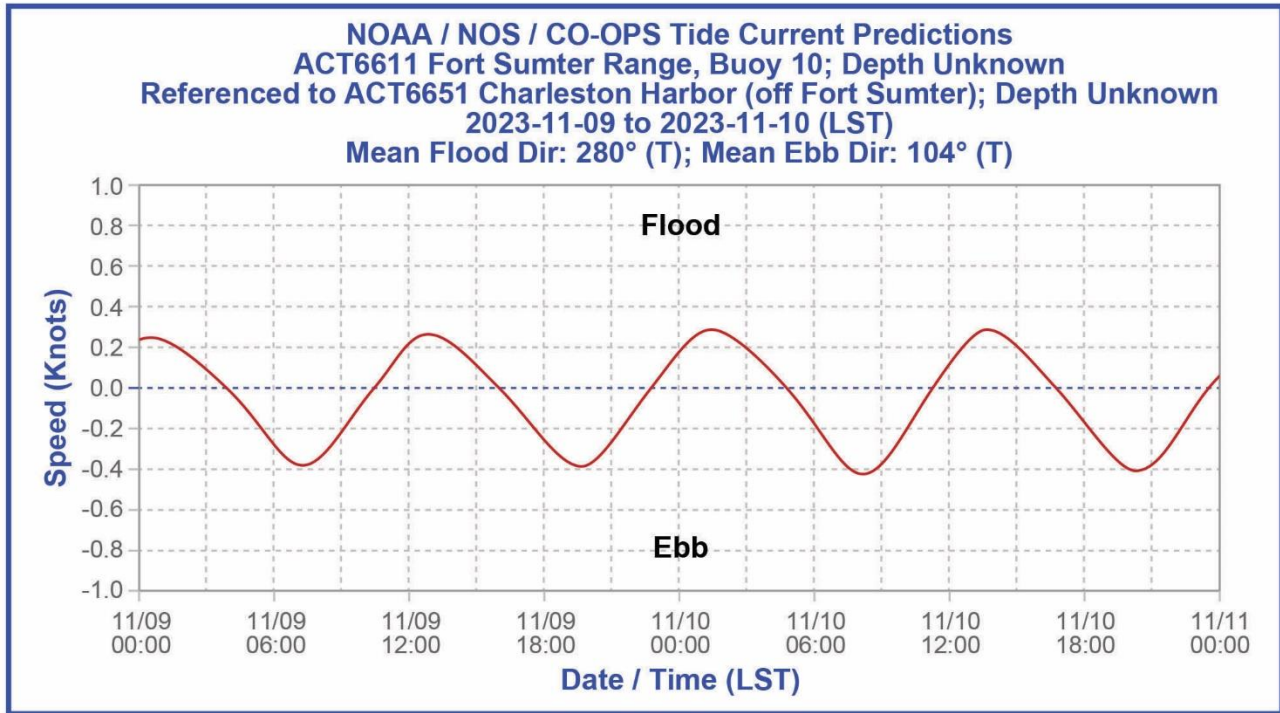
High/Low Tide Prediction Data Listing

Date	Day	Time	Hgt	Time	Hgt	Time	Hgt	Time	Hgt
2023/10/02	Mon	03:16	0.55 L	08:12	1.55 H	14:36	0.34 L	20:57	2.17 H
2023/10/03	Tue	04:14	0.62 L	08:56	1.44 H	15:14	0.37 L	21:50	2.10 H

Note: The interval is High/Low, the solid blue line depicts a curve fit between the high and low values and approximates the segments between.
Disclaimer: These data are based upon the latest information available as of the date of your request, and may differ from the published tide tables.

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D058NG



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