U.S.C.G. Merchant Marine Exam

Mate Offshore Supply Vessels

Q214 Navigation Problems – Near Coastal

(Sample Examination)

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

1. On 14 October 2023, you will be docking on the Southern Branch Elizabeth River, VA at the first high tide. The berth is located between NOAA reference tidal station #8638660 and reference station #8639348. What time (LST) will you be docking? See illustration D063NG.

   A. 0840
   B. 0845
   C. 0946
   D. 0848

   Correct answer: B

2. If the pitch of the propeller is 19.4 feet, and the revolutions per day are 96,713, calculate the day's run allowing 6% positive slip.

   A. 327.1 miles
   B. 308.6 miles
   C. 290.1 miles
   D. 266.4 miles

   Correct answer: C

3. You swung ship and compared the magnetic compass against the gyrocompass to find deviation. Gyro error is 2°W. The variation is 8°W. Find the deviation on a true heading of 319°.

NP-0115

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. 0.5°E
   B. 1.0°W
   C. 2.5°E
   D. 2.5°W

   Correct answer: C

4. On 10 November 2023 at 2030, you are inbound at Charleston Harbor Entrance Buoy “10” (ACT6611). What is the direction and velocity of the current you are encountering as you pass Buoy “10”? See illustration D058NG.

   A. 0.4kts at 104°T
   B. 2.1kts at 172°T
   C. 0.4kts at 280°T
   D. 2.1kts at 335°T

   Correct answer: A

5. The propeller on a vessel has a diameter of 24.6 feet and a pitch of 26.1 feet. What would be the apparent slip if the vessel cruised 462 miles in a 24 hour day (observed distance) at an average RPM of 72?

   A. -2.7%
   B. -3.8%
   C. +3.8%
   D. +2.7%

   Correct answer: B

6. 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

   A. 1.9°W
   B. 2.6°W
   C. 1.4°E
   D. 2.6°E

   Correct answer: A

7. A vessel at LAT 40°42.0'N, LONG 74°01.0'W, heads for a destination at LAT 14°41.0'N, LONG 17°26.0'W. Determine the true course and distance by Mercator sailing.

   A. 118°T, 3365.0 miles
   B. 118°T, 3066.5 miles
   C. 123°T, 3066.5 miles
   D. 123°T, 3065.6 miles

   Correct answer: A

8. On 31 October your 1700 zone time DR position is LAT 27°17.0'N, LONG 116°10.0'W, when an amplitude of the Sun is observed. The Sun's center is on the visible horizon and bears 246.5° per standard magnetic compass. Variation in the area is 8.5°E. The chronometer reads 01h 01m 23s and the chronometer error is 01m 54s slow. What is the deviation of the standard compass?

A. 0.8°E
B. 0.8°W
C. 2.5°E
D. 2.5°W

Correct answer: B

9. You are taking a time tick using the 1930 signal from Rio de Janeiro, Brazil. You hear the preparatory signal "CQ DE PPE" repeated several times followed by a short dash (0.4 sec), 60 dots (0.1 sec each) and another short dash. At the beginning of the last dash, the comparing watch reads 07h 30m 08s. When compared to the chronometer, the comparing watch reads 07h 31m 48s, and the chronometer reads 07h 32m 16s. What is the chronometer error?

A. 0m 08s fast
B. 1m 40s slow
C. 0m 36s fast
D. 0m 28s slow

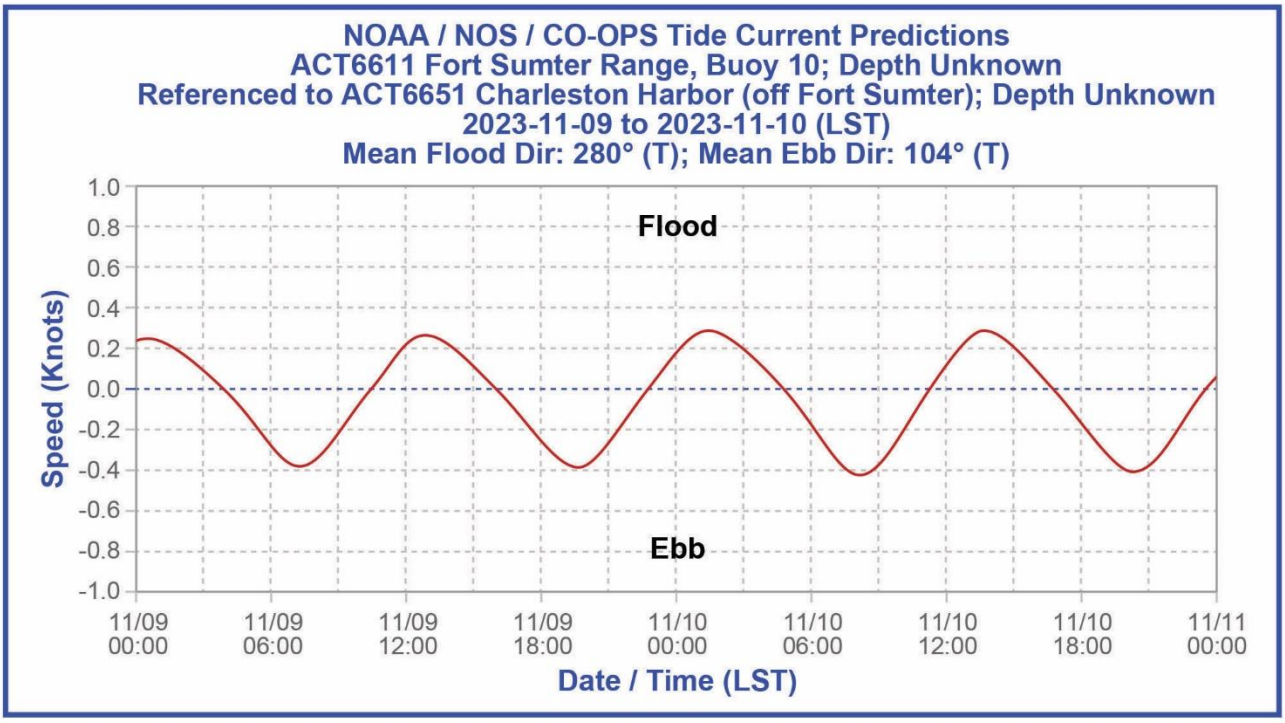
Correct answer: C

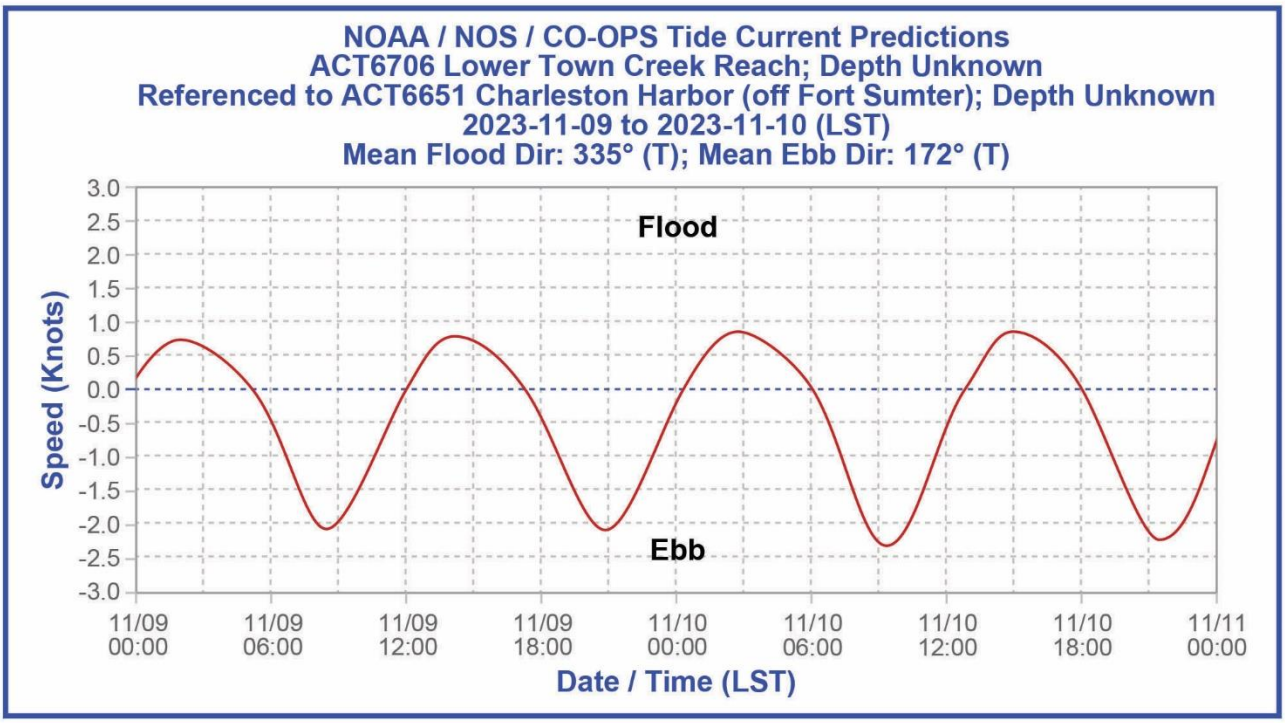
10. Your vessel is steering course 352°psc, variation for the area is 11°E, and deviation is 9°W. The wind is from the northeast, producing a 1° leeway. What true course are you making good?

A. 351°T
B. 353°T
C. 349°T
D. 355°T

Correct answer: B

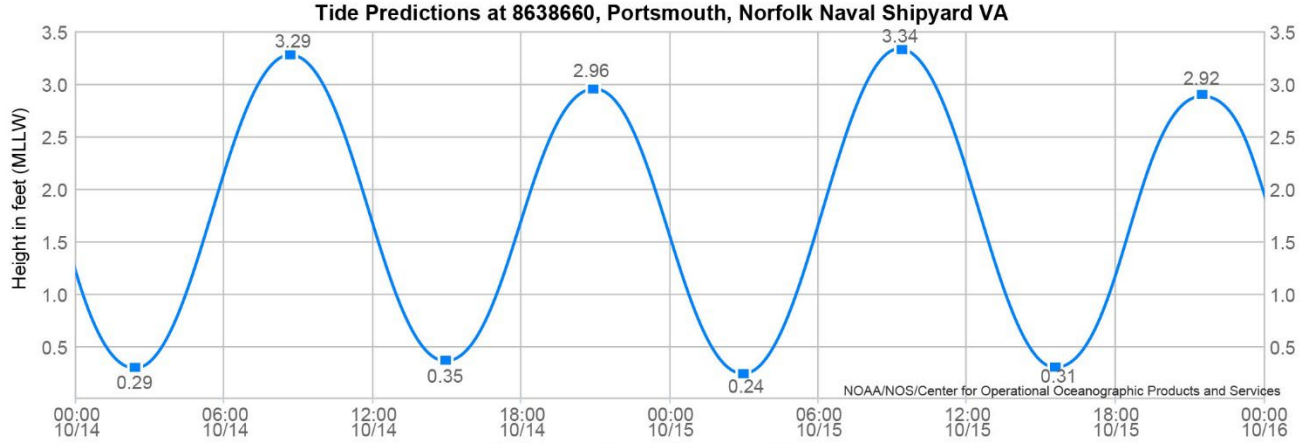
D058NG





D063NG

NOAA/NOS/CO-OPS
Tide Predictions at 8638660, Portsmouth, Norfolk Naval Shipyard VA



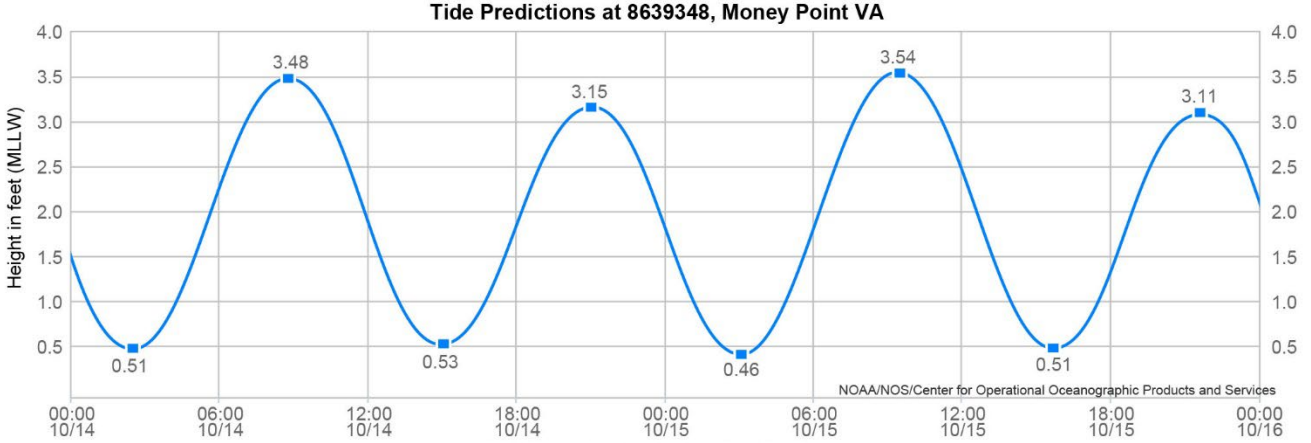
High/Low Tide Prediction Data Listing

Station Name: Portsmouth, Norfolk Naval Shipyard, VA
Action: Daily
Product: Tide Predictions
Start Date & Time: 2023/10/14 00:00
End Date & Time: 2023/10/15 23:59

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

Date	Day	Time	Hgt	Time	Hgt	Time	Hgt	Time	Hgt
2023/10/14	Sat	02:25	0.29 L	08:40	3.29 H	14:58	0.35 L	20:53	2.96 H
2023/10/15	Sun	03:00	0.24 L	09:17	3.34 H	15:37	0.31 L	21:32	2.92 H

NOAA/NOS/CO-OPS
Tide Predictions at 8639348, Money Point VA



High/Low Tide Prediction Data Listing

Station Name: Money Point, VA
Action: Daily
Product: Tide Predictions
Start Date & Time: 2023/10/14 00:00
End Date & Time: 2023/10/15 23:59

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

Date	Day	Time	Hgt	Time	Hgt	Time	Hgt	Time	Hgt
2023/10/14	Sat	02:25	0.51 L	08:48	3.48 H	15:00	0.53 L	21:02	3.15 H
2023/10/15	Sun	03:01	0.46 L	09:25	3.54 H	15:40	0.51 L	21:40	3.11 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.