



ASA 105-Coastal Navigation Examination Review Questions & Answers

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Questions & Answers

Based on Chart 1210 TR, Use the Deviation table on page 4 for all problems, Year 1985

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Introduction

The following questions are meant to simulate those you will find on the ASA 105 navigation test. You will be using the same chart as you will for the ASA 105 test, 1210 TR. Take your time, compare your answers with those found in the back, and be sure you understand how these problems were solved. In an age of GPS, piloting and plotting have become less and less prevalent on boats. However, understanding the principals involved in these problems remains as relevant today as it has ever been. Do not wait till the last minute before attempting this test.

Review Questions

1) Plot a course from the G "1B1" Fl G 4sec. (Lat 41° 15.5'N, 71° 34.5' W) to a point 0.5NM South (True) of the W Or "H", Fl 2 sec bell (Lat 41° 24.7'N, 71° 24' W). At 0730, you depart the green buoy "1B1" on the course just plotted, and proceed at a speed of four (4) knots.

- a) What is the course? True: _____
 Magnetic: _____
 Compass: _____

b) What is the position and ETA of a point 0.5 NM. South of the W Or "H" buoy?

- Lat: _____
 Long: _____
 ETA: _____

2) Continuing along the course plotted in the previous question, at 1000,

- a) Plot your DR position: Lat: _____
 Long: _____
- b) The following bearings are obtained with a hand-bearing compass (assume no deviation):
 Point Judith Light (GP Occ (1+2)), (41°21.7N, 71°28.9W): **283°M**
 Brenton Reef Light (41°25.6N, 71°23.3W): **012°M**
 Onshore Tower (41° 24.9'N, 71° 27.5'W): **328°M**

What is the 1000 fix? Lat: _____

Long: _____

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2 (contd)

- c) The difference between the 1000 fix and the 1000 DR was caused by a current.

What is the set and drift of the current?

Set: _____ °T

Drift: _____ kt

- 3)** Later, from a position $41^{\circ} 22.5'N$, $71^{\circ} 06.7'W$, plot a course to pass 1.5 NM west of BW “SR” Mo(A) Whistle ($41^{\circ} 26.5'N$, $071^{\circ} 13.5'W$). Allow for a set of $230^{\circ}T$ and drift of 1.5 kt. Boat speed is five (5) knots.

a) What is the course? Magnetic: _____

b) What is the heading? Magnetic: _____

Compass: _____

c) What will be the Speed Made Good? _____

- 4)** At 1345, from a position $41^{\circ} 15.3'N$, $071^{\circ} 20.0'W$, plot a course to “1B1” buoy ($41^{\circ} 15.5' N$, $071^{\circ} 34.5'W$). Allow for a leeway of 7° caused by a strong N wind.

a) What is the course? Magnetic: _____

b) What is the heading? Magnetic: _____

c) The Speed Made Good is five (5) knots. What is the ETA at the buoy? _____

- 5)** Plot a course from the W Or “A” ($41^{\circ} 16.6'N$, $071^{\circ} 24'W$.) to Whale Rock buoy ($41^{\circ} 26.7'N$, $071^{\circ} 25.2'W$)

a) What is the course? Magnetic: _____

Compass: _____

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5 (contd.) From a DR position abeam of R"2" ($41^{\circ} 20'N$, $71^{\circ} 28.6'W$), plot a danger bearing to avoid the wreck east of your course line (wreck is east of buoy W Or "E"). Use Brenton Reef Light for your bearing.

b) The danger bearing is: Magnetic: _____

c) Brenton Reef Light should bear NO MORE/NO LESS (delete one) than the danger bearing to remain safe.

6) At 1600, on the same course established in question 5, the Point Judith Light (GP Occ (1+2)) bears $300^{\circ}M$. At 1620, the same light bears $270^{\circ}M$. Both bearings are taken with a hand-bearing compass (assume no deviation). Plot a running fix for 1620. Boat Speed is 4 knots.

a) What is your Running fix position? Lat: _____ Long: _____

b) What is the Course Made Good/Track from the W Or "A" buoy? Magnetic: _____

Assume the difference between the Course Made Good and the heading to be due to leeway (no current).

c) What is the leeway? _____

Considering leeway, plot a new course to the Whale Rock buoy.

d) What is the course? True: _____

e) What is the heading? Magnetic: _____

Compass: _____

7) You are approaching Whale Rock on a heading of 040° Per Ship's Compass (PSC). River Ledge C1 buoy bears 45 degrees off your port bow. Approximately, what should the magnetic bearing of CI, River Ledge be? _____ PSC

8) While sailing 0.5 nm west of Brenton Reef Light, the 2 towers on Beavertail Point (Conanicut Island) are directly in line, bearing 013° PSC. Calculate your compass deviation.

Deviation: _____

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STEERING COMPASS
DEVIATION TABLE

Deviation
Table to be
used with
problems

BOAT'S HEADING BY COMPASS	DEVIATION	BOAT'S HEADING MAGNETIC
000 ^o	5 ^o W	355 ^o
010 ^o	5 ^o W	005 ^o
020 ^o	5 ^o W	015 ^o
030 ^o	5 ^o W	025 ^o
040 ^o	5 ^o W	035 ^o
050 ^o	4 ^o W	046 ^o
060 ^o	4 ^o W	056 ^o
070 ^o	3 ^o W	067 ^o
080 ^o	2 ^o W	078 ^o
090 ^o	1 ^o W	089 ^o
100 ^o	1 ^o E	101 ^o
110 ^o	4 ^o E	114 ^o
120 ^o	7 ^o E	127 ^o
130 ^o	9 ^o E	139 ^o
140 ^o	10 ^o E	150 ^o
150 ^o	10 ^o E	160 ^o
160 ^o	10 ^o E	170 ^o
170 ^o	11 ^o E	181 ^o
180 ^o	10 ^o E	190 ^o
190 ^o	9 ^o E	199 ^o
200 ^o	7 ^o E	207 ^o
210 ^o	5 ^o E	215 ^o
220 ^o	4 ^o E	224 ^o
230 ^o	2 ^o E	232 ^o
240 ^o	0 ^o	240 ^o
250 ^o	2 ^o W	248 ^o
260 ^o	4 ^o W	256 ^o
270 ^o	5 ^o W	265 ^o
280 ^o	6 ^o W	274 ^o
290 ^o	6 ^o W	284 ^o
300 ^o	6 ^o W	294 ^o
310 ^o	6 ^o W	304 ^o
320 ^o	6 ^o W	314 ^o
330 ^o	5 ^o W	325 ^o
340 ^o	5 ^o W	335 ^o
350 ^o	5 ^o W	345 ^o
360 ^o	5 ^o W	355 ^o

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Answers

- 1) a) What is the course? True: 043°
Magnetic: 058°
Compass: 062°
- b) What is the position and ETA of a point 0.5 NM. South of the W Or "H" buoy
Lat: 41°24.2'N
Lon: 071°24'
ETA: 1027
- 2) a) Plot your 10:00 DR position: Lat: 41°22.85N
Long: 71°25.6W
- b) What is the 10:00 fix position? Lat: 41°21.8'N
Lon: 071°23'W
- c) What is the set and drift of the current?
Set: 118°T
Drift: .88 (2.2nm ÷ 2.5hrs = .88 kts)
- 3) a) What is the course? Magnetic: 316°
b) What is the heading? Magnetic: 332°
Compass: 337°
c) What will be the Speed Made Good? 5.3 kt
- 4) a) What is the course? Magnetic: 286°
b) What is the heading? Magnetic: 293° (+7° leeway)
c) What is the ETA at the buoy? 1557 (11 miles in 2.2 hrs = 2h, 12m)

