

## Navigation Question bank

Find the chart extracts as may be required at:

<http://www.splashmaritime/Marops/data/chts/Chartindex.htm>

### Question 1 (1 Mark)

Depths marked on navigation charts are:

- maximum navigable depths.
- depths when height of tide is zero.
- depths at mean high water springs.
- depths at mean low water springs.

### Question 2 (1 Mark)

On the chart supplied, the coastline of Rodondo Island is shown as:

- gently sloping.
- wooded.
- steep to.
- mud flats

### Question 4 (2 Marks)

List 5 common chart symbols.

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### Question 5 (2 Marks)

On the chart supplied, explain the meaning of the symbol 3 cables north west of Waterloo Point.

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**Question 6 (1 Mark)**

Leeway can be best estimated by observing the:

- a. direction of the prevailing wind and current.
- b. prevailing wind strength and direction.
- c. wind speed and direction of the current.
- d. angle between the vessel's course and her wake.

**Question 7 (4 Marks)**

At 0800 your vessel is in position  $39^{\circ} 04'.8$  S  $146^{\circ} 09'.2$  E. You then steer the following courses at a speed of 9 knots:

- $131^{\circ}$ T for 1 hour.
- $071^{\circ}$ T for 8 miles.

Then steer a course to a position with Waterloo Point Light bearing  $270^{\circ}$ T distance 2.0 miles. Using Deviation Card No 1 (attached), and a variation of  $12^{\circ}$ E, determine the compass courses to steer on each of these three legs. Also, determine the estimated time

- of arrival (ETA) at the position off Waterloo Point

**Question 8 (1 Mark)**

What speed would you be steaming to cover a distance of 48 Miles in 8 hours?

- a. 10 knots
- b. 8 knots
- c. 4 knots
- d.....6 knots

**Question 9 (1 Mark)**

When two charted objects come into line they are said to be:

- a. in transit.
- b. in alignment.
- c. leading marks.
- d. on a bearing.

**Question 10 (1 Mark)**

The term "range" of tide means the:

- a. maximum height of tide.
- b. difference between MHWS and MLWS.
- c. height of tide above chart datum.
- d. height difference between a successive HW & LW.

**Question 11 (1 Mark)**

Using your vessel's magnetic compass, you observe the bearing of an object as  $175^{\circ}$ C. Calculate the true bearing of the object, if the Deviation for that heading is  $3^{\circ}$  W and the Variation from the chart is  $12^{\circ}$  E.

- a.  $160^{\circ}$ T.
- b.  $166^{\circ}$ T.
- c.  $190^{\circ}$ T.
- d.  $184^{\circ}$ T.

**Question 12 (4 Marks)**

Complete the following compass error table.

True Course	Variation	Magnetic Course	Deviation	Compass Course
015°T			3°E	000°C
	13°E		1°E	312°C
	8°W	136°M		132°C
	11°E	230°M	6°W	

Ships Compass Head	Deviation	Magnetic Heading
000°	4°W	356°
020°	5°W	015°
040°	6°W	034°
060°	4°W	056°
080°	2°W	078°
100°	1°W	099°
120°	1°E	121°
140°	3°E	143°
160°	4°E	164°
180°	6°E	186°
200°	8°E	208°
220°	10°E	230°
240°	8°E	248°
260°	6°E	266°
280°	3°E	283°
300°	1°E	301°
320°	1°W	319°
340°	2°W	338°
360°	4°W	356°

**Question 13 (1 Mark)**

On a navigational chart, one nautical mile equals:

- a. one-tenth of one minute of longitude.
- b. one-tenth of one minute of latitude.
- c. one minute of latitude.
- d. one minute of longitude.

**Question 14 (1 Mark)**

On the chart supplied, the chart symbol shown in a position which is bearing 265°T from the light on the western side of Dent Island, at a distance of 1.5 miles indicates:

- a. mud.
- b. gravel.
- c. shell.
- d. coral.

**Question 15 (2 Marks)**

Identify 5 common chart abbreviations.

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**Question 16 (2 Marks)**

On the chart supplied, explain the meaning of the symbol which is bearing 088°T from Workington Island (320) at a range of 1.2 miles.

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**Question 17 (1 Mark)**

The rule of thumb for estimating leeway direction is to observe and estimate the:

- a. angle between the vessel's course and her wake.
- b. angle of wind direction and the vessel's course.
- c. prevailing wind strength and direction.
- d. direction of the current and the wind.

**Question 18 (4 Marks)**

You are taking a diving party from the recommended anchorage in position 20° 27'.5 S 149° 04'.5 E to dive in White bay, and intend to anchor there in position 20° 17'.2 S 149° 06'.1 E.

After examining the chart, you plan the following track from the anchorage to the diving ground:

- First steer 340°T, directly toward Whitsunday Craig (1140).
- Then alter course to 018°T, directly toward the highest point of Workington Island (320).
- When Nicholson Island (356) is abeam, alter course to 345°T directly toward the intended anchorage in White bay.

Using Deviation Card No 1, and a variation of 9°E, determine the compass courses to steer on each of these three legs. Also, determine the estimated time of arrival (ETA) at the proposed anchorage in White Bay if you depart the anchorage to the south east of Lindeman Island at 0645 and proceed at a speed of 11 knots.

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**Question 19 (1 Mark)**

You have sailed for 6 hours at a speed of six knots, you would have covered a distance of:

- a. 24 miles.
- b. 48 miles.
- c. 36 miles.
- d. 18 miles.

**Question 20 (1 Mark)**

The term “range” of tide means the:

- a. height difference between a successive HW & LW.
- b. difference between MHWS and MLWS.
- c. maximum height of tide.
- d. height of tide above chart datum.

**Question 21 (1 Mark)**

A transit bearing indicates a compass error of  $1^\circ$  E. The chart shows a Magnetic Variation of  $7^\circ$  W. The deviation of the compass is therefore:

- a.  $6^\circ$  E.
- b.  $8^\circ$  W.
- c.  $8^\circ$  E.
- d.  $6^\circ$  W.

**Question 22 (4 Marks)**

Complete the following compass error table.

True Course	Variation	Magnetic Course	Deviation	Compass Course
	$12^\circ$ E	$003^\circ$ M	$3^\circ$ E	
$326^\circ$ T	$13^\circ$ E		$1^\circ$ E	
	$8^\circ$ W		$4^\circ$ E	$132^\circ$ C
	$11^\circ$ E	$230^\circ$ M		$236^\circ$ C
Ships Compass Head		Deviation	Magnetic Heading	
$000^\circ$		$4^\circ$ W	$356^\circ$	
$020^\circ$		$5^\circ$ W	$015^\circ$	
$040^\circ$		$6^\circ$ W	$034^\circ$	
$060^\circ$		$4^\circ$ W	$056^\circ$	
$080^\circ$		$2^\circ$ W	$078^\circ$	
$100^\circ$		$1^\circ$ W	$099^\circ$	
$120^\circ$		$1^\circ$ E	$121^\circ$	
$140^\circ$		$3^\circ$ E	$143^\circ$	
$160^\circ$		$4^\circ$ E	$164^\circ$	
$180^\circ$		$6^\circ$ E	$186^\circ$	
$200^\circ$		$8^\circ$ E	$208^\circ$	
$220^\circ$		$10^\circ$ E	$230^\circ$	
$240^\circ$		$8^\circ$ E	$248^\circ$	
$260^\circ$		$6^\circ$ E	$266^\circ$	
$280^\circ$		$3^\circ$ E	$283^\circ$	
$300^\circ$		$1^\circ$ E	$301^\circ$	
$320^\circ$		$1^\circ$ W	$319^\circ$	
$340^\circ$		$2^\circ$ W	$338^\circ$	
$360^\circ$		$4^\circ$ W	$356^\circ$	

**Question 24 (1 Mark)**

State what period of time is covered by a small craft meteorological forecast which is issued in the afternoon.

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**Question 25 (1 Mark)**

The atmosphere in the vicinity of a high pressure area is called:

- a. an occluded front.
- b. a cold front.
- c. a cyclone.
- d. an anticyclone.

**Question 27 (1 Mark)**

What is the most useful information for predicting the weather?

- a. The current reading of the barometer.
- b. The direction and rate of change of barometric readings.
- c. The current temperature and temperature gradient.
- d. The reading of the barometer three hours ago.

**Question 28 (2 Marks)**

Describe what causes a "sea breeze", and state when they usually occur.

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**Question 29 (1 Mark)**

The wind speed of a moderate breeze is in the range:

- a. 11 to 16 knots.
- b. 4 to 6 knots.
- c. 7 to 10 knots.
- d. 1 to 3 knots.

**Question 30 (1 Mark)**

The purpose of the "set" hand on an aneroid barometer is to:

- a. adjust the barometer on a daily basis.
- b. correct the barometer for the height above sea level.
- c. indicate any change in the reading of the barometer.
- d. correct the barometer for temperature changes.

**Question 31 (1 Mark)**

You are master of a vessel off the Queensland coast, steering east into an increasing wind which is backing slowly. A tropical revolving storm is known to be approaching. Where is the tropical revolving storm in relation to the vessel?

- a. East.
- b. West.
- c. North.
- d. South.

**Question 32 (1 Mark)**

A transit bearing:

- a. must be corrected for variation and deviation before plotting on a chart.
- b. must be corrected for deviation before plotting on a chart.
- c. must be corrected for variation before plotting on a chart.
- d. needs no correction for variation and deviation before plotting on a chart.

**Question 33 (4 Marks)**

Complete the following compass error table.

True Course	Variation	Magnetic Course	Deviation	Compass Course
015°T	12°E		3°E	
	13°E	313°M		312°C
128°T			4°E	132°C
241°T		230°M	6°W	

Ships Compass Head	Deviation	Magnetic Heading
000°	4°W	356°
020°	5°W	015°
040°	6°W	034°
060°	4°W	056°
080°	2°W	078°
100°	1°W	099°
120°	1°E	121°
140°	3°E	143°
160°	4°E	164°
180°	6°E	186°
200°	8°E	208°
220°	10°E	230°
240°	8°E	248°
260°	6°E	266°
280°	3°E	283°
300°	1°E	301°
320°	1°W	319°
340°	2°W	338°
360°	4°W	356°

**Question 34 (1 Mark)**

On a navigational chart, one nautical mile equals:

- one minute of longitude.
- one minute of latitude.
- one-tenth of one minute of longitude.
- one-tenth of one minute of latitude.

**Question 35 (1 Mark)**

On the chart supplied, the chart symbol which is in position 33° 59'.3 S, 150° 15'.85 E indicates a:

- wreck which has 28 metres or more of water over it at chart datum.
- wreck, depth unknown, but which is not considered dangerous to surface navigation.
- wreck which has less than 28 metres of water over it at chart datum.
- wreck, depth unknown, but which is not considered dangerous to surface navigation.

**Question 36 (2 Marks)**

The light on Flagstaff Hill at Wollongong has the characteristics "Oc WR 6s 40m 19/15M". Explain the meaning of these characteristics.

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**Question 37 (2 Marks)**

What is the meaning of the chart symbol in position (33° 34'.75 S, 151° 20'.7 E approx.)?

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**Question 38 (1 Mark)**

Courses and bearings must be plotted on marine charts as:

- magnetic courses or bearings.
- true courses or bearings.
- compass courses or bearings.
- true or compass courses or bearings.

**Question 39 (1 Mark)**

If you covered 120 miles in 10 hours, you would be travelling at:

- 16 knots.
- 12 knots.
- 8 knots.
- 10 knots.

**Question 40 (4 Marks)**

At 1630 your dive charter vessel departs from position 33° 42'.0 S 151° 21'.0 E, having spent the day diving on a wreck in that area. You then steer the following courses and distances at a speed of 9 knots:

- 000°T for 7.5 miles.
- 270°T for 1.6 miles.
- 203°T for 1.3 mile.
- 229°T for 1.0 mile to moor at a buoy in Coasters Retreat (in position 33° 36'.3 S 151° 17'.7 E).

Using the Deviation, and a variation of 12°E, determine the compass courses to steer on each of these four legs. Also, determine the estimated time of arrival (ETA) at the chosen diving ground.

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**Question 41 (1 Mark)**

You are entering a port and steering on a pair of leading lights. If you observe that the rear leading light is to starboard of the front leading light you should:

- a. alter course to starboard.
- b. check the transit bearing.
- c. alter course to port.
- d. maintain your present course.

**Question 42 (1 Mark)**

The height of High Water at Sydney on the afternoon of 1 June 1998 is:

- a. 1.6 metres.
- b. 1.5 metres.
- c. 1.3 metres.
- d. 1.2 metres.

**Question 43 (1 Mark)**

A magnetic compass bearing:

- a. must be corrected for variation and deviation before plotting on a chart.
- b. must be corrected for variation before plotting on a chart.
- c. must be corrected for deviation before plotting on a chart.
- d. needs no correction for variation and deviation before plotting on a chart.

**Question 44 (4 Marks)**

Complete the following compass error table.

True Course	Variation	Magnetic Course	Deviation	Compass Course
015°T	12°E		3°E	
	13°E	313°M		312°C
128°T			4°E	132°C
241°T		230°M	6°W	
Ships Compass Head		Deviation	Magnetic Heading	
000°		4°W	356°	
020°		5°W	015°	
040°		6°W	034°	
060°		4°W	056°	

080°	2°W	078°
100°	1°W	099°
120°	1°E	121°
140°	3°E	143°
160°	4°E	164°
180°	6°E	186°
200°	8°E	208°
220°	10°E	230°
240°	8°E	248°
260°	6°E	266°
280°	3°E	283°
300°	1°E	301°
320°	1°W	319°
340°	2°W	338°
360°	4°W	356°

**Question 45 (1 Mark)**

Depths marked on navigation charts are:

- a. maximum navigable depths.
- b. depths when height of tide is zero.
- c. depths at mean high water springs.
- d. depths at mean low water springs.

**Question 46 (1 Mark)**

On the chart supplied, the chart symbol which is in position 33° 59'.3 S, 150° 15'.85 E indicates a:

- a. wreck which has 28 metres or more of water over it at chart datum.
- b. wreck, depth unknown, but which is not considered dangerous to surface navigation.
- c. wreck, depth unknown, but which is not considered dangerous to surface navigation.
- d. wreck which has less than 28 metres of water over it at chart datum.

**Question 47 (2 Marks)**

Draw the chart symbols for rocks.

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**Question 48 (2 Marks)**

What is the depth contour in position ( $33^{\circ} 44'.0$  S,  $151^{\circ} 26'.8$  E approx.)?

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**Question 49 (1 Mark)**

Leeway:

- a. can only be estimated for individual vessels.
- b. is known exactly for all vessels.
- c. can only be applied in strong winds.
- d. is only applied in light winds.

**Question 50 (1 Mark)**

After hearing a distress message being broadcast at 1305, you determine that you are 33.7 miles away from the vessel in distress. If your maximum speed was 15.5 knots, your ETA at the vessel in distress would be:

- a. 1516.
- b. 1422.
- c. 1416.
- d. 1522.

**Question 51 (4 Marks)**

At 0730 your dive charter vessel is moored to a buoy in Coasters Retreat (in position  $33^{\circ} 36'.3$  S  $151^{\circ} 17'.7$  E). After weighing anchor at 0730 you then steer the following courses and distances at a speed of 8 knots:

- $049^{\circ}$ T for 1.0 mile.
- $023^{\circ}$ T for 1.3 mile.
- $090^{\circ}$ T for 1.6 miles.
- $180^{\circ}$ T for 7.5 miles and stop to dive on a wreck which is approximately 1.8 miles east of Turimetta Head.

Using Deviation Card No 1, and a variation of  $12^{\circ}$ E, determine the compass courses to steer on each of these four legs. Also, determine the estimated time of arrival (ETA) at the chosen diving ground.

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**Question 52 (1 Mark)**

When navigating into a port at night you would:

- steer straight for the front leading light.
- steer along the recommended track.
- stay on the starboard side of the channel.
- stay in the middle of the channel.

**Question 53 (1 Mark)**

The height of High Water at Sydney on the afternoon of 1 June 1998 is:

- 1.2 metres.
- 1.5 metres.
- 1.3 metres.
- 1.6 metres.

**Question 54 (1 Mark)**

Using your vessel's magnetic compass, you observe the bearing of an object as  $175^{\circ}\text{C}$ . Calculate the true bearing of the object, if the Deviation for that heading is  $3^{\circ}\text{W}$  and the Variation from the chart is  $12^{\circ}\text{E}$ .

- $184^{\circ}\text{T}$ .
- $160^{\circ}\text{T}$ .
- $166^{\circ}\text{T}$ .
- $190^{\circ}\text{T}$ .

**Question 55 (4 Marks)**

Complete the following compass error table.

True Course	Variation	Magnetic Course	Deviation	Compass Course
	$12^{\circ}\text{E}$	$003^{\circ}\text{M}$		$000^{\circ}\text{C}$
$326^{\circ}\text{T}$		$313^{\circ}\text{M}$	$1^{\circ}\text{E}$	
$128^{\circ}\text{T}$	$8^{\circ}\text{W}$		$4^{\circ}\text{E}$	
	$11^{\circ}\text{E}$		$6^{\circ}\text{W}$	$236^{\circ}\text{C}$
Ships Compass Head		Deviation	Magnetic Heading	
$000^{\circ}$		$4^{\circ}\text{W}$	$356^{\circ}$	
$020^{\circ}$		$5^{\circ}\text{W}$	$015^{\circ}$	
$040^{\circ}$		$6^{\circ}\text{W}$	$034^{\circ}$	
$060^{\circ}$		$4^{\circ}\text{W}$	$056^{\circ}$	
$080^{\circ}$		$2^{\circ}\text{W}$	$078^{\circ}$	
$100^{\circ}$		$1^{\circ}\text{W}$	$099^{\circ}$	
$120^{\circ}$		$1^{\circ}\text{E}$	$121^{\circ}$	
$140^{\circ}$		$3^{\circ}\text{E}$	$143^{\circ}$	
$160^{\circ}$		$4^{\circ}\text{E}$	$164^{\circ}$	

180°	6°E	186°
200°	8°E	208°
220°	10°E	230°
240°	8°E	248°
260°	6°E	266°
280°	3°E	283°
300°	1°E	301°
320°	1°W	319°
340°	2°W	338°
360°	4°W	356°

**Question 55 (1 Mark)**

The latitude scale on a chart is used for measuring distances in:

- any direction on the chart.
- the north-south direction only.
- the east-west direction only.
- coastal waters only.

**Question 56 (1 Mark)**

On the chart supplied, the symbol in position 39° 04'.1 S, 146° 30'.3 E indicates a:

- a coral bottom.
- mud bottom
- tide rip.
- sandy bottom.

**Question 57 (2 Marks)**

Draw the chart symbols for wrecks.

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**Question 58 (2 Marks)**

Using the chart supplied, explain the meaning of the abbreviated light characteristics shown for Citadel Island Light in position ( $39^{\circ} 07'.0$  S,  $146^{\circ} 14'.1$  E approx.).

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**Question 59 (1 Mark)**

Leeway is the:

- a. vessel's set and drift.
- b. vessel's course over the ground.
- c. effect of wind on vessel's course.
- d. loss of vessel's speed due to wind.

**Question 60 (4 Marks)**

You are taking a fishing party from the recommended anchorage in Oberon Bay ( $39^{\circ} 04'.1$  S  $146^{\circ} 19'.5$  E) to fish off the entrance to Fenwick Bight 0.5 miles east of South Point.

After examining the chart, you plan the following track from the anchorage to the fishing ground:

- First steer  $252^{\circ}$ T, directly toward the highest point of Great Glennie Island (138).
- Then alter course to  $158^{\circ}$ T, directly toward the highest point of Rodondo island (350).
- Then alter course to  $085^{\circ}$ T, with the north end of Kanowna Island directly astern.
- Then alter course to  $000^{\circ}$ T and run into the 30 metre depth contour line, with the highest point of Rodondo Island (350) directly astern.

Using Deviation Card No 1, and a variation of  $12^{\circ}\text{E}$ , determine the compass courses to steer on each of these four legs. Also, determine the estimated time of arrival (ETA) at the position off the entrance to Fenwick Bight if you depart the anchorage in Oberon Bay at 0615 and proceed at a speed of 8 knots.

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**Question 61 (1 Mark)**

You have sailed for 12 hours at a speed of six knots. You would have covered a distance of:

- a. 36 miles.
- b. 60 miles.
- c. 96 miles.
- d. 72 miles.

**Question 62 (1 Mark)**

When two charted objects come in line when viewed from the boat, they are said to be

- a. leading lights.
- b. guide leads.
- c. in position
- d. in transit.

**Question 63 (1 Mark)**

The term "range" of tide means the:

- a. difference between MHWS and MLWS.
- b. height difference between a successive HW & LW.
- c. maximum height of tide.
- d. height of tide above chart datum.

**Question 64 (1 Mark)**

If the variation is  $8^{\circ}\text{W}$ , and the deviation is  $4^{\circ}\text{E}$ , then the compass error is:

- a.  $4^{\circ}\text{W}$ .
- b.  $8^{\circ}\text{E}$ .
- c.  $12^{\circ}\text{E}$ .
- d.  $12^{\circ}\text{W}$ .

**Question 65 (4 Marks)**

Complete the following compass error table.

True Course	Variation	Magnetic Course	Deviation	Compass Course
015°T	12°E		3°E	
	13°E	313°M		312°C
128°T			4°E	132°C
241°T		230°M	6°W	
Ships Compass Head		Deviation	Magnetic Heading	
000°		4°W	356°	
020°		5°W	015°	
040°		6°W	034°	
060°		4°W	056°	
080°		2°W	078°	
100°		1°W	099°	
120°		1°E	121°	
140°		3°E	143°	
160°		4°E	164°	
180°		6°E	186°	
200°		8°E	208°	
220°		10°E	230°	
240°		8°E	248°	
260°		6°E	266°	
280°		3°E	283°	
300°		1°E	301°	
320°		1°W	319°	
340°		2°W	338°	
360°		4°W	356°	

**Question 66 (1 Mark)**

The chart symbol for the 5 metre depth contour is:

- a continuous dashed line.
- a line with '5' written on it.
- a line with '5 metres' written on it.
- a continuous dotted line.

**Question 67 (1 Mark)**

On the chart supplied, the coastline to the south of Oberon Point ( $39^{\circ}05'.0$  S,  $146^{\circ} 19'.5$  E approximately) is shown as:

- a. gently sloping.
- b. wooded.
- c. steep to.
- d. mud flats.

**Question 68 (2 Marks)**

What is the meaning of the sea bed the abbreviations of - S, M, G, Sh

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**Question 69 (2 Marks)**

On the chart supplied, explain the meaning of the symbol at the south western end of Norman Island (96) in position  $39^{\circ} 02'.1$  S,  $146^{\circ} 14'.0$  E.

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**Question 70 (1 Mark)**

Leeway is the:

- a. vessel's set and drift.
- b. loss of vessel's speed due to wind.
- c. vessel's course over the ground.
- d. effect of wind on vessel's course.

**Question 71 (4 Marks)**

At 0800 your vessel is in position  $39^{\circ} 04'.8 \text{ S } 146^{\circ} 09'.2 \text{ E}$ . You then steer the following courses at a speed of 9 knots:

- $131^{\circ}\text{T}$  for 1 hour.
- $071^{\circ}\text{T}$  for 8 miles.
- Then steer a course to a position with Waterloo Point Light bearing  $270^{\circ}\text{T}$  distance 2.0 miles.

Using Deviation Card No 1, and a variation of  $12^{\circ}\text{E}$ , determine the compass courses to steer on each of these three legs. Also, determine the estimated time of arrival (ETA) at the position off Waterloo Point.

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**Question 72 (1 Mark)**

You have sailed for 12 hours at a speed of six knots. You would have covered a distance of:

- 72 miles.
- 36 miles.
- 60 miles.
- 96 miles.

**Question 73 (1 Mark)**

A useful technique for determining the time at which to alter course is to use:

- the log distance and echo sounder
- a hand lead line to determine depths
- the echo sounder to determine depths
- beam marks which are in transit

**Question 74 (1 Mark)**

The time of High Water at Sydney on the afternoon of 1 June 1998 is:

- 1355.
- 0050.
- 1358.
- 0055.

**Question 75 (1 Mark)**

The bearing of a light house is  $320^\circ$  C. If the error of the compass is  $20^\circ$  W and the deviation is  $7^\circ$  W, then the true bearing of the lighthouse is:

- a.  $340^\circ$  T.
- b.  $307^\circ$  T.
- c.  $333^\circ$  T.
- d.  $300^\circ$  T.

**Question 78 (4 Marks)**

Complete the following compass error table.

True Course	Variation	Magnetic Course	Deviation	Compass Course
$015^\circ$ T	$12^\circ$ E		$3^\circ$ E	
	$13^\circ$ E	$313^\circ$ M		$312^\circ$ C
$128^\circ$ T			$4^\circ$ E	$132^\circ$ C
$241^\circ$ T		$230^\circ$ M	$6^\circ$ W	
Ships Compass Head		Deviation	Magnetic Heading	
$000^\circ$		$4^\circ$ W	$356^\circ$	
$020^\circ$		$5^\circ$ W	$015^\circ$	
$040^\circ$		$6^\circ$ W	$034^\circ$	
$060^\circ$		$4^\circ$ W	$056^\circ$	
$080^\circ$		$2^\circ$ W	$078^\circ$	
$100^\circ$		$1^\circ$ W	$099^\circ$	
$120^\circ$		$1^\circ$ E	$121^\circ$	
$140^\circ$		$3^\circ$ E	$143^\circ$	
$160^\circ$		$4^\circ$ E	$164^\circ$	
$180^\circ$		$6^\circ$ E	$186^\circ$	
$200^\circ$		$8^\circ$ E	$208^\circ$	
$220^\circ$		$10^\circ$ E	$230^\circ$	
$240^\circ$		$8^\circ$ E	$248^\circ$	
$260^\circ$		$6^\circ$ E	$266^\circ$	
$280^\circ$		$3^\circ$ E	$283^\circ$	
$300^\circ$		$1^\circ$ E	$301^\circ$	
$320^\circ$		$1^\circ$ W	$319^\circ$	
$340^\circ$		$2^\circ$ W	$338^\circ$	
$360^\circ$		$4^\circ$ W	$356^\circ$	