

RADAR NAVIGATION –EXERCISE FIVE

NAME: _____

Activity 1

Use deviation card linked at ([Appendix B](#)).

1 Your ship steering 135° compass: Variation 7° East. Target bearing 230° Rel. Find the true bearing of the target?

2 Your ship steering 330° compass: Variation 7° West. Target bearing 015° Rel. Find the true bearing of the target?

3 Your ship steering 060° compass: Variation 5° East. Target bearing R30°. Find the true bearing of the target?

4 Your ship steering 350° compass: Variation 5½° East. Target bearing G130°. Find the true bearing of the target?

Activity 3

1 Calculate the theoretical detection range of an object 36 metres high, from a ship with an aerial height of 9 metres.

2 Calculate the theoretical detection range of an object 1000 metres high, from a ship with an aerial height of 4 metres.

3 What would be the theoretical detection range of an object 250 metres high, from a ship with an aerial height of 9 metres.

Activity 4

Use [chartlet Broken Bay](#), deviation card linked at. ([Appendix B](#)).

Remember to allow for beamwidth distortion when taking bearings of edges of targets.

1 At 12:00 your vessel is on a course of 270°T steaming at 6.4 knots when you take the following radar bearings of the closest point on:

Bangalley Hd. 289°T

Little Reef. 272°T

Turimetta Hd. 258°T

Your vessel's radar is in North-Up mode Find your position in latitude and longitude?

2 At 12:30 on a course of 270°T steaming at 6.4 knots you take further radar bearings:

North edge of Barrenjoey Hd. 321°T

Middle of Little Reef 273°T

Eastern most part of Long Reef Point 227°T

Your vessel's radar is in North-Up mode and has a beam width of 6°. Find your position in latitude and longitude? Remember to allow for beamwidth distortion.

3 At 12:30 you changed course to 166°C and 6.5 knots. At 13:00 you select SHU and take the following relative bearings: (deviation card linked at (Appendix B).)

South East edge of North Head. 042°Rel

North East edge of Barrenjoey Hd. 154°Rel

Your vessel's radar is in SHU mode and has a beam width of 6°. Find your position in latitude and longitude?

Activity 5

Use [Chartlet Wilsons Promontary](#)

1. While entering the West bound Traffic Separation Zone you take the following poor radar ranges. Your scanner is at a height of 2 Metres above sea level:

Closest edge of Cape Wellington 5.3 miles

Eastern edge of South East Pt. 8.3 miles

Faint trace that could be Rodondo I. or the nearest of Forty Foot Rocks 12.8 miles

Justify your choice of the most reliable and Fix your position in latitude and longitude.

2. While travelling North you take the following radar ranges:

Redondo I. abeam to port 4.9 miles

South East Pt 6.9 miles

West Moncoeur I. 0.4 miles

Fix your position in latitude and longitude.

3. From the position of Question 2 , you steam 283°C to lift fish traps at the western most of Forty Foot Rocks. Skull Rock shows at 000° Relative and 6.2 miles distant on the SHU radar. If the North West edge of Anser I. shows 022° Relative, then what is the HBW of your radar.

Activity 6

Use [Chartlet Wilson Promontary](#), Deviation card linked at . ([Appendix B](#)).

Height of scanner 6 metres.

You are approaching Wilsons Promontary from the south west. Calculate the ranges at which (given perfect conditions) that you would expect the echoes of the following to appear:

- South East Point
- Norman I.
- Redondo I.

ANSWERS

Activity 1

1 $015\frac{1}{2}^\circ$

2 335°

3 032°

4 $124\frac{1}{2}^\circ$

Activity 3

1 19.9 nm

2 74.3 nm

3 41.5 nm

Activity 4

1 $33^\circ 40'S$ $151^\circ 39' E$

2 $33^\circ 40'S$ $151^\circ 35.3'E$

3 $33^\circ 43.2'S$ $151^\circ 35.3'E$

Course $180T-12.5E-167.5M-1.5E-166C$ $042Rel-222Rad-225T$

$154Rel-334Rad-331T$

Activity 5

1 $39^\circ 05'S$ $146^\circ 35.6'E$

2 $39^\circ 14'S$ $146^\circ 30' E$

3 10° HBW Course $295T-12E-283M-0-283C$ $022Rel+295T =317-$ Charted $312^\circ T = 5 \times 2 = 10^\circ$

Activity 6

(a) South East Point 29.3 miles Norman I. 27 Redondo I. 46.7.