

**SQA**

**OOW -Navigation**

**Answers**

## **July 2016**

Q1.

Q2.

a) It is not possible to find intermediate heights and times at St. John Harbour on 17<sup>th</sup> March morning ebb tide as duration of tide is more than 7 hours. Harmonic constant method may be used to calculate intermediate heights, for which data is not available.  
Based on the information from available resources it is not safe to cross the shoal at the time of departure.

b) 1305

Q4.

a) 3680.2 nm

b) 12 kts (3680.2nm / 307hrs = 11.98kts)

## **May 2016**

Q1.

a) DR 51° 29.6'N; 004° 01.5'W

b) EP 51° 28.5'N; 004°09.3'W

c) 244.5°R

Q2. 1953hrs

Q4. a) Cruise Ship = 306.4°T x 311.6nm; Tanker = 180°T x 260nm

b) Cruise Ship = 10.8kts; Tanker = 9.0 kts

## **March 2016**

Q1.

Q2.

Q4. a) Co. 311°T; Distance 6827 nm

b) ETA 16<sup>th</sup> August, 0400hrs

Q5.

## **February 2016**

- Q1. a) i) GE 0° ii) 50° 39.4'N 001° 50.1'W  
b) i) 081° 1.5k ii) 210°G iii) 12nm iv) 2210hrs
- Q2. 22<sup>nd</sup> 0054hrs
- Q4. a) Co. S45°E or 134.9°T Distance. 1349 nm  
c) ETA 2<sup>nd</sup> Dec 0100 (Western Australia Standard Time)
- Q5. 2.4° E

## **December 2015**

- Q1. a) 51° 29.7N 004° 09.4W b) 51° 27.2N 004° 29.6W  
c) 1218hrs 1.2nm d) 165°C
- Q2. b) 0601hrs, 1.0m
- Q4. a) 182.5nm, b)13h 34m

## **October 2015**

- Q1. a) 50° 35.5N 000° 43.4E b) 50° 33.7N 000° 34.8E  
c) 347.5°C

## **July 2015**

- Q1. a) i) 2 Low ii) 51° 37.8'N 8° 19.7'W iii) 51° 43.7'N 7° 59.8'W  
iv) 218°T 1.4nm 0.9kts  
b) 047°G 12.4kts
- Q2. 2036 HoT 1.9m
- Q4. a) 207°T 206.6nm b) 1838 ST

Q5. a) i) 10<sup>th</sup> 1931 ii) 0.4°H

## June 2015

Q1. a) CTS 235°C      b) 095°T x 2.7k (From SP)      c) 0610hrs 5.0nm  
d) NW'ly wind, actual barometric pressure, prior rainfall ashore

## March 2015

Q1. a) 50° 21.7'N    1° 43.4'W      b) 016°C      c) 2340hrs

## Feb 2015

Q1. a) i) 51° 54.9'N    7° 34.0'W      ii) 058½°    15.0k  
b) i) 064½°C      ii) 12.0k

Q2.

a. 2052      1.2  
0306      2.8

Earliest time to cross the shoal is 11<sup>th</sup>/0008hrs

Q4.

a. CMG = N53.9°W;      DMG = 419.4nm  
b. (i) 16.8kts  
(ii) 270° x 0.8kts

Q5.

a. 0.8°H

## Nov 2014

Q1.

a) LR = 6.0nm    GR = 13.5nm therefore    Pos'n = 293T x 6.0'

Pos'n @ 2130 = 50° 22.2'N    0° 8.4'E

b) i) DR 50° 29.0'N    0° 56.7'E      ii) 50° 30.4'N    0° 55.4'E

Q2.

HW Times 14/0940, 15/1018, 16/1053  
LW Times 15/0340, 16/0418

HW heights 8.7m, LW heights 1.0m

## **Oct 2014**

Q1.

- a) i)  $50^{\circ} 21.9'N$   $3^{\circ} 23.7'W$  ii)  $7^{\circ}E$  iii)  $6^{\circ}E$   
b)  $083^{\circ}T$   
c)  $285^{\circ}T$  3.3nm 1.7kts

Q2.

- a) 2.8m  
b) i) 1335/26<sup>th</sup> ii) 2005/26<sup>th</sup>

## **July 2014**

Q1.

- a) i)  $2\frac{1}{2}^{\circ}H$  ii)  $50^{\circ} 41.4'N$   $2^{\circ} 52.1'W$   
b) i)  $281^{\circ}T$  x 0.9k ii)  $216^{\circ}G$   
c) 'B' –  $034^{\circ}T$  x 0.7K

Q2.

- a. Actual Height of tide = 2.0  
Predicted height of tide = 2.4

Q4.

- a.  $S82.9^{\circ}W$ , 5523.9 nm  
b. Steaming time 17d 21h  
ETA 15<sup>th</sup> Feb 1000hrs

## **June 2014**

Q1.

- a) i)  $41^{\circ} 14.8'S$   $174^{\circ} 21.4'E$  ii)  $2^{\circ}H$

b) 051°T x 1.1k

c) 143°G

c) 2151hrs LST

Q2.

a) 2.3m

b) i) 1738

ii) 2305

## **March 2014**

Q1.

a) 264°C

b) 321°T x 1.4k

c) 0024hrs 1.6nm

d) Wind speed & direction / Geographical shape of the channel

Q2.

a) 8.0m

b)

c) 0228

Q3.

c) GR 20.1nm / **LR 13.5nm**

d) 285°T

## **Feb 2014**

Q1.

a) 51° 27.8'N 007°07.9'W

b) i) 286°C @ 11.5k    ii) 016°C    iii) 10.8k

c)

Q2.

a)

b)

c) 5.4m

## **November 2013**

Q1.

i)  $51^{\circ} 15.8'N$   $004^{\circ}40.8'W$       ii)  $51^{\circ} 19.8'N$   $004^{\circ}35.2'W$ i)  $048^{\circ}C$     ii)  $318^{\circ}C$ 

Ans. = 13.0nm

Set =  $138^{\circ}T$     Rate = 0.1knot

Q2.

1700hrs

## **October 2013**

Q1.

a)  $36^{\circ} 43.5'S$   $175^{\circ}07.4'E$       ii)  $1^{\circ}$  Lowb) i)  $020\frac{1}{2}^{\circ}G$       ii) Geog. Rge = 23.8nm    Lum. Rge. = 13.0

Ans. = 13.0nm

Set =  $138^{\circ}T$     Rate = 0.1knot

## **July 2013**

Q1.

a)  $51^{\circ} 50.2'N$   $007^{\circ}44.0'W$ b)  $51^{\circ} 46.2'N$   $007^{\circ}51.7'W$ 

Q3.

a) 19.5nm

## **May 2013**

Q1.

a)  $239^{\circ}T$  x 1.65kb) i) 0829hrs      ii)  $058^{\circ}C$

## **March 2013**

Q1.

- a) i)  $51^{\circ}20.2'N$   $3^{\circ}58.6'W$  ii)  $2^{\circ}L$
- b)  $258^{\circ}G$
- c) i)  $51^{\circ}18.1'N$   $4^{\circ}24.0'W$  ii)  $51^{\circ}16.8'W$   $4^{\circ}28.5'W$  iii)  $066^{\circ}T$ , 3.1nm, 2.5k

Q2.

Hot 2.9m

UKC 2.5m

Yes, it is safe to cross the shoal at this time.

Q3.

- b) i) 2 Fixed Green lights in a vertical line. ii)  $233^{\circ}$  x 1.3k

Q4.

- a. i)  $067.8^{\circ}T$ , 201.2nm
- ii)  $270^{\circ}T$ , 155nm
- b. Warship 16.4kts
- Fleet Aux Vessel 12.6kts

## **February 2013**

- 1. a)  $40^{\circ}51.2'S$   $174^{\circ}16.7'E$
- b)  $40^{\circ}59.6'S$   $174^{\circ}29.2'E$
- c)  $090^{\circ}R$

2.

0449 2.6

1048 0.2

1730 4.8

Q3. d) i) 7.0nm

- ii) Wreck, haz to surface nav., Position approx.



iii) To warn ships of the presence of dangerous rocks which are awash and surrounded by rips.

iv)  $\underline{2}_3$

4.

- a.  $076.3^\circ\text{T}$ , 6133nm
- b. ETA (Chile Time) 15<sup>th</sup> August 1306hrs

## **NOVEMBER 2012**

Q1.a) i)  $36^\circ 25.4'S$   $175^\circ 26.1'E$       ii) 2238      iii) 1.6nm

b) i)  $262^\circ\text{C}$       ii) 0032

Q2. 1915hrs

Q3. b) 6nm

- c) ii) Rock, charted depth by sounding of 16.4m, dangerous.
- iii) Remains of wreck or other foul area. Position approximate. Not hazardous to surface navigation

Q4.

- a.  $N57^\circ 44.6'E$  T, 2456.4nm
- b. ETA 31<sup>st</sup> May 2145hrs

Q5.

a. Gyro 1.4°L

## October 2012

Q1. a)  $41^{\circ}51.6'N$   $174^{\circ}16.1'E$

b) i)  $031^{\circ}C$  11.2k    ii)  $301^{\circ}$     iii) 11.7k

Q2.

- a. As duration of the given tide is more than 7 hours, the intermediate time/height cannot be calculated by Pacific curve. It would require Harmonic Constant data to calculate the height of the required time. So, with present available data, it will be unsafe to cross the shoal at 0500hrs. The earliest safe time to cross the shoal is 1405hrs on 16<sup>th</sup> Feb.
- b. i. Full Moon    ii. Spring Tide
- c. Each tidal curve on the worksheet Q2, Pacific Curve, represent tidal duration of 5hrs, 6hrs and 7hrs. Intermediate heights and times can only be calculated on this curve if the duration of the corresponding tide is between 5hrs and 7hrs and then interpolating accordingly.

Q3. b) 19.0nm

Q4.

- a. Total Distance =  $180 + 1254 + 1544.3 + 11 = 2989.3nm$
- b. 13.1kts

Q5.

- a.  $1.9^{\circ}H$

## July 2012

Q1. a)  $51^{\circ}23.0'N$   $007^{\circ}50.3'W$

b)  $51^{\circ}25.9'N$   $007^{\circ}53.7'W$

c)  $356^{\circ}C$

Q2.

a. 4.8m

b. 2.5m

c. 0905hrs

Q3.

Q4.

a. Co.  $054^{\circ}T$ , Dist. 419.4nm

b. i. 18.2

ii. 1.1kts,  $090^{\circ}T$

Q5.

## May 2012

Q1

- a) 50 43.0'N 000 53.5'E
- b) i) 50 36.0'N 000 29.4'E  
ii) 50 37.9'N 000 32.9'E
- c) 036(t) x 1.1k

## March 2012

Q1.

- a)  $51^{\circ} 28.9'N$   $004^{\circ} 2.4'W$ ,  $8.0^{\circ}E$
- b) i.  $238.5^{\circ} (C)$
- ii.  $9.5nm$
- iii.  $1823hrs$
- iv.  $342^{\circ} R$

Q2.

2145 3.5m

0335 3.8m

Q4.

- a. Co.  $303.8^{\circ}T$ , Dist.  $504.9nm$
- b. 21kts
- c. Set  $270^{\circ}$ , rate 1.2kts

## February 2012

Q1.

- a) i) 50 19.6'N 000 02.6'E  
ii) 50 29.8'N 000 36.4'E  
iii) 50 29.7'N 000 33.8'E
- b) i) 50 29.2'N 000 31.5'E  
ii) 083(t)

Q2.

0008 3.1  
0605 0.4  
1235 3.4  
1841 0.5

Q4.

Dist. 430.6nm  
Course 307.1°T

ETA 1<sup>st</sup> May 1806hrs.

**DECEMBER 2011**

Q1.

- a.  $51^{\circ} 44.7'N, 007^{\circ} 56.5'W$
- b.  $65.5^{\circ}T, 7.5kts$
- c. 0524hrs,  $330^{\circ}T$
- d.  $330^{\circ}C$

Q2.

Latest time to cross the shoal 1758hrs

Q4.

Total Distance = 2196.5 nm,      Steaming Time = 8d 1h

Q5.

- a) Dev =  $9^{\circ}E$
- b) 37 min



**OCTOBER 2011**

Q1.

- a) i.     49° 56.0'N, 002° 25.2'W  
      ii.    49° 57.5'N, 002° 20.0'W
- b) 031°G,     11.3kts

Q2.

11.4m

Q4.

Distance     170.4nm,  
Sunrise     0411 LMT  
Req. Spd.    14.8kts

**JULY 2011**

Q1.

- a. Brg =  $120^{\circ}\text{T}$ , distance 4.9'
- b. Dev =  $4^{\circ}\text{W}$
- c. Compass CTS =  $202^{\circ}\text{C}$
- d. Estimated time = 235hrs

Q2.

Predicted reading on the echo sounder = 4.5m

Q4.

- a) Course =  $\text{S}82.9^{\circ}\text{E}$ ,      Distance = 5846.4 nm

## **JUNE 2011**

Q1.

- a. Position at 0120hrs
- b. 0430 DR  $50^{\circ} 05.3'N$   $003^{\circ} 38.9'W$
- c. 0430 EP  $50^{\circ} 05.5'N$   $003^{\circ} 28.7'W$

Q2.

Air Clearance = 2.8m

Q4.

- a) Total distance = 299.4nm
- b) Total steaming time = 23h 25m

## **March 2011**

Q1.

Q2.

Latest time to cross the shoal 2044hrs

Q4.

- a) S76°W - 6972.7 nm
- b) 18<sup>th</sup> August 0100hrs

**FEB 2011****Q1.**

Water Track (TC <sub>o</sub> to counter act tide only)	036 ° T
Leeway	7 ° NW'y
T Course to steer (T ship's Heading)	029° T
Gyro Error	2 ° H
<b>Gyro Course to steer</b>	<b>031 ° G Ans (b)</b>

## c) ii.

D.R Run 029 ° T X 15.9 n.miles (10.6 x 1.5 hrs)

**D.R. Position ast 0915****Lat 51° 36.7' N****Long 007° 45.2' W Ans**

d) Apply Water Track 1.5 hours x 10.6 kts = 15.9 n. miles on water track 036° T

i. **Set 251 ° T Drift 5.4 n.miles . Rate = 5.4/1.5 hrs = 3.6 knots.**  
**Ans**ii. **Actual Course made good 020 ° T, Total distance made good = 12**  
**Speed made good = 12/1.5 hrs = 8 knots. Or 11.9/1.5 = 7.9 knots.**  
**Ans****Q2.**

- a) 13<sup>th</sup> 1902hrs
- b) 14<sup>th</sup> 0202hrs

**Q4.**

- a. 111.2°T, 110.8nm
- b. 16<sup>th</sup> May 1735hrs
- c. 16<sup>th</sup> May 1535hrs

## Dec 2010

### Q1.

- a.  $51^{\circ} 47.5'N, 07^{\circ} 25.0'W$   
b. Water Track =  $034^{\circ}T$   
Leeway =  $003^{\circ}SE'ly$   
TCTS =  $037^{\circ} T$   
V =  $005^{\circ} W$   
M =  $042^{\circ}M$   
D =  $003^{\circ} W$   
C =  $045^{\circ} C$   
c. Set  $080^{\circ}T$ , Rate 1.8kts

### Q2.

23 <sup>rd</sup> Feb	0153	0.7
	0815	1.4
	1435	0.9
	2039	1.2

### Q4.

- a)  $807.7 + 3576.7 = 4384.4nm$   
b) 6<sup>th</sup> May 8h 33m

## Oct 2010

### Q1.

Since the  $081^\circ \text{ C}$  and  $261^\circ \text{ C}$  are reciprocal compass bearings, therefore v/l is somewhere on the base line. By taking the base line and reading the True Reciprocal bearings at the compass rose the results are as follows;

	Sly Edge of Caldey Island	St Gowan's Head
A. Reciprocal Compass Bearings =	$081^\circ \text{ C}$	$261^\circ \text{ C}$
Reciprocal True Bearings =	$077.5^\circ \text{ T}$	$257.5^\circ \text{ T}$
Compass Error =	$3.5^\circ \text{ W}$	$3.5^\circ \text{ W}$
Variation =	$6^\circ \text{ W}$	$6^\circ \text{ W}$
Deviation =	$2.5^\circ \text{ E}$	$2.5^\circ \text{ E}$ Ans

Apply CE To Convert St Gowan Light Float Compass Bearing into True and Find the position of the vessel.

Position       $51^\circ 36'.5 \text{ W}$      $004^\circ 50.6 \text{ W}$       Ans

B. Water Track =	$153^\circ \text{ T}$	
Leeway =	$7^\circ$	
T Co to Steer =	$160^\circ \text{ T}$	
Variation =	$6^\circ \text{ W}$	
<b>Magnetic Co =</b>	<b><math>166 \text{ M}</math></b>	<b>For Deviation</b>
<b>Deviation =</b>	<b><math>3.5^\circ \text{ E}</math></b>	<b>Working Must be Shown</b>
Comp Course =	$162.5^\circ \text{ C}$ Ans	<b>Interpolation. Dev Card 7</b>

C. Total Distance to be made Good = 37.2 n.miles, Estimated Speed Made Good = 13.7 knots.  $37.2/13.7 = 2$  hours 43 minutes (Steaming Time) Ans

D. Geographical Range from Table = 21.4 n.miles, Nominal range 24 n.miles. Luminous Range = 13.5.  
First Sighted at 13.5 n.miles. Ans.

### Q2.

HoT	@ 2130hrs	3.1m
LW	@ 0107hrs	0.0m

### Q4.

- 6212 nm,     $076^\circ \text{ T}$
- 12<sup>th</sup> October 0000hrs

## **July 2010**

### **Q1.**

- a. Position at 0630hrs 40° 17.6'S 174° 18.4'E
- b. Gyro course to steer 168°G
- c. Set 325°, Drift 2.6nm, Rate 1.2kts
- d. 0917

### **Q2.**

0520hrs (Local Time)

### **Q4.**

- a) Co. 105°T, Dist. 420nm, Spd. 17.5kts
- b) Set 180°T, Drift 30nm, Rate 1.25kts



## March 2010

**Q1.**

**Card No: 12**

Course  
233°.0C  
E 4°.5D  
237°.5M  
W 2°.5V  
235°.0T

220°C 6°E  
240°C 3.5°E

$$7/20 = x/2.5, \quad x = 0.9$$

$$\text{Dev} = 4°.4\text{E} = 4 \frac{1}{2}$$

C. E 2°E

Brg 268°C  
E 2°Err  
Brg 270°T

044°T x 1.2knt

315°.5T  
00:39

9.6 kt SMG

$$22:30 + 1 \text{ hr} + (1.5/9.6 \times 60) =$$

E 2°Err  
313°.5C

- (a) 23:30 Lat 50°43'.4N Long 0°50'.1E
- (b) 22:30 Lat 50°48'.7N Long 1°03'.0E
- (c) 00:39 313°.5C

**Q2.**

- (a) MHWS
- MSL
- MLWN
- MLWS

- (c) (i) Mean Sea Level = page 4 of Pacific extract
- (ii) Charted Depth is that measured from Chart Datum down to the sea-bed.

**Q3.**

- (c) (i) LW 01:20 2.4
- HW 06:48 5.6 range 3.2 = neaps

03:20 is about 3 ½ hrs before HW, &

04:20 is about 2 ½ hrs before HW

at 3 hrs before HW Dover at N in neaps Set 202°T rate 1.6 knot

- (ii) White light Flashing every 5 seconds, elevation above MHWS to the focal plane is 72 metres, nominal range 29 nautical miles, fog signal 1 blast on the siren every 60 seconds, Radio direction finding station & Non-directional marine or aeromarine radio beacon

**Q4.**

- a) 242.6°T, 511.4nm
- b) 10th Dec 1955hrs (Local time st. Helena)

**Q5.**

- a) 1.4°Low
- b) 9.4°E

**Dec 2009****Q1.**

Compass Course =  $110^{\circ}$  C  
 Deviation =  $8^{\circ}$  E CE =  $30^{\circ}$  E  
 Magnetic Co =  $118^{\circ}$  M T Brgs =  $280^{\circ}$  T (1st P/L), &  $212^{\circ}$  T (2<sup>nd</sup> P/L)  
 Variation =  $22^{\circ}$  E  
 True Ship's Heading =  $140^{\circ}$  T  
 Leeway =  $3^{\circ}$   
 Water Track =  $143^{\circ}$  T (Water Track Run for 1.5 hrs  $10 \times 1.5 = 15$  n.miles, Set  $170^{\circ}$  T Drift for 1.5 hrs = 1.5 n.miles)

a. **Lat  $40^{\circ} 54'.8$  S Longitude  $174^{\circ} 22'.9$  E.** **Ans**

b. Course made good =  $145^{\circ}$  T, CPA bearing =  $145^{\circ}$  T +  $90 = 235^{\circ}$  T

**CPA = 2.8 n.miles** **Ans**

c. **Compass Beam Bearing =  $110^{\circ}$  C +  $90 = 200^{\circ}$  C** **Ans**

d. Water Track =  $180^{\circ}$  T  
 Leeway =  $2^{\circ}$   
 T Co to steer =  $178^{\circ}$  T  
 Variation =  $22^{\circ}$  E  
 Magnetic Hdg =  $156^{\circ}$  M  
 Deviation =  $2.5^{\circ}$  E Dev Card 13 (interpolation)  
**Comp Co to Steer =  $153.5^{\circ}$  C** **Ans**

**Q4.**

- a) 2170
- b) 9.65 kts

**Oct 2009****Q1.**

- a. 0810hrs Dr  $50^{\circ} 27.6'N$   $000^{\circ} 24.6'E$
- b. EP 1300hrs  $50^{\circ} 30.3'N$   $000^{\circ} 37.2'E$
- c. Compass CTS =  $077^{\circ}C$

**Q2.**

- a) 1.8m
- b) (i) 0415hrs
- (ii) 1220hrs

**Q4.**

- a.  $340.7^{\circ}T$ , 496nm
- b. (i) Spd 21.56 kts
- (ii) Set  $000^{\circ}T$ , Rate 0.96kts

## **July 2009**

### **Q1.**

- a. i) CMG =  $026^{\circ}\text{T}$ , SMG = 14.2kts
  - ii) Set and rate exp between 1600 – 1700hrs =  $045^{\circ}\text{T} \times 1.8\text{kts}$
- b. Gyro CTS =  $013^{\circ}\text{G}$ , Ship speed required = 11.1kts
- c. Estimated time to call the Master = 1905hrs

### **Q4.**

- a.  $208.4^{\circ}\text{T}$ , 295.7nm
- b. 18.8kts

## **March 2009**

**Q1.** a) 50° 25.6'N, 003° 28.8'W  
Dev 2°E (3°E is also acceptable)

b.

i) 234°T, 1.1 knots

ii) 085°C

**Q2.** Highest HW 6.5m  
Lowest LW 1.0

Highest HW Times 14<sup>th</sup> 0440, 15<sup>th</sup> 0518, 16<sup>th</sup> 0553

Lowest LW Times 14<sup>th</sup> 2240, 15<sup>th</sup> 2318, 16<sup>th</sup> 2354

**Q4.** Course S 37° 55.4' W; 218°T  
Distance 5626.0nm + 38nm

Steaming time 11d 03h 00m

ETA Auckland(ST) 11<sup>th</sup> April 1400hrs



## October 2008

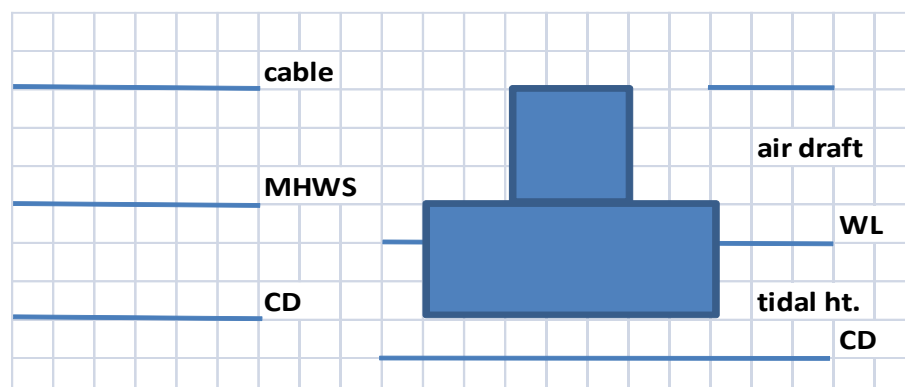
Answer 1:

- (a) the tide set 244°T at a rate of 2.8 knots
- (b) (i) the time of the alteration was 2135hrs
- (b) (ii) the required course is 265°C

Answer 2:

Avonmouth MHWS	13.2	Maximum tidal height	6.2
Charted height	<u>18.7</u>	Air draught	<u>23.2</u>
Height of cable	31.9	Max. allowable height	29.4
Max. ht. of ship	<u>29.4</u>		
Min. clearance	2.5		

- (a) the recommended minimum clearance is 2.5 metres



Avonmouth January  
 when the  
 23<sup>rd</sup> 12:08 11.2  
 elevation  
 23<sup>rd</sup> 18:34 3.1  
**different**  
 24<sup>th</sup> 00:36 10.5

The earliest that the vessel can pass after 12:30, is  
 elevation has fallen to 6.2, and the latest when the  
 has risen to 6.2. The requires consideration of two  
 high waters.

Falling range 8.1  $6.5 \sim 8.1 = 1.6$   $8.1 \sim 12.3 = 4.2$   
 Rising range 7.4  $6.5 \sim 7.4 = 0.9$   $7.4 \sim 12.3 = 4.9$

- (b) (i) the earliest time that the ship can pass is 15:40 23<sup>rd</sup>  
 (c) (ii) the latest time that the ship can pass is 21:14 23<sup>rd</sup>



## July 2008

### Answer 1.

- (a) the deviation of the ship's compass is  $6^{\circ}.2W$ .
- (b) the position of the ship at 10:30 is with  
Channel island lighthouse bearing  $130^{\circ}C$  ( $146.7T$ ) x 1.6 miles.  
At 10:30 the ship is in Latitude  $36^{\circ}24.7'S$  Longitude  $175^{\circ}18.1'E$ .
- (c) CMG  $233^{\circ}T$  19.6 miles in 1.5hrs = 13.1kts SMG

The required course is  $211\frac{1}{2}C$  and speed 11.1 knots.

- (d)  $5 \times 60 / 13.1 = 23$  minutes

The time of EOP/SBE is 11:37.

### Answer 2

- c. 34.8 m

### Answer 4

- a. CMG =  $129.8^{\circ}(T)$  ; DMG 359.5nm  
b. Drift 26.4, Set  $270^{\circ}(T)$ , Rate 1.1 knots

### Answer 5

$0.8^{\circ}$  (L)

## March 2008

Q1.

- a. 1400 DR  $41^{\circ} 43.3'S$ ,  $174^{\circ} 53.4'E$
- b. 1400 EP  $41^{\circ} 42.1'S$ ,  $174^{\circ} 49.9'E$
- c. Set  $327^{\circ}T$ , Drift 3.2' nm, Rate 1.3kts

Q2.

- a. 1159 0.1  
1654 1.0
- b. Since the duration of the tide is less than 5hrs so the curve cannot be used for this calculation. Harmonic constant method will be used here to get accurate answer.

Q4.

- a) (i) 149.8nm,  $270^{\circ}T$   
(ii) 215.0nm,  $180^{\circ}T$
- b) Sunrise 20<sup>th</sup> 1813hrs GMT  
Fleet Auxiliary Ship Speed 16.3 kts  
Warship Speed 23.2 kts

**Nov 2007**

Q1.

- a) Variable Answer due to poor geometry. Error between 1H and 3L
- b) 353T x 0.5k
- c) 321G (variable answer due to 1a), 1706hr

Q2.

- a) 1.3m
- b) 30<sup>th</sup> Jan 0112hrs

Q4.

- a) 320.7°T, 584.0 nm
- b) 16.4kts

Q5.

- a) Amplitude = 91°T; Dev = 1° W

**Oct 2007**

Q1. DR0930 N51° 40.3', W07° 16.3', EP N51° 39.5', W07° 13.6'  
EP 1100 N51° 37.1' W07° 16.7'

Q2.

2.6metres

Q4. a) 312°T, 294.2 nm  
b) 22<sup>nd</sup> 0920hrs

## July 07

**Q1.**

- a. 0715hrs 36° 35.7S 174° 58.1'E
- b. Bearing 283°T, Time 0730hrs
- c. Compass bearing 265°C

**Q2.**

1844 1.1

0120 3.4

2054

**Q4.**

- a. 197.3 nm
- b. 13d18h45m

**Q5.**

2°L

## **March 07**

Q1.

N51° 28.4', W004° 42.7', 168° x 8.4k

Q2.

- a) 1648 6.9m
- b) Minimum UKC 1.1m on 1<sup>st</sup> March @ 1340hrs.

Q4.

## **December 06**

Q1.

- a) 50° 8.8' N, 002° 9.8'W
- b) 263° C
- c) 2300 hrs

Q4.

- a) 254°T, 2107 nm
- b) 3<sup>rd</sup> April 0500hrs

Q5.

- a) 1° H

## **October 06**

Q1.

- a) 50° 28.2'N, 002° 05.0'W
- b) 50° 33.6'N, 001° 45.6'W
- c) Relative Bearing = 270°R



**JULY 06**

Q1.

- a) 55° 19.1'N, 015° 04.5'E
- b) 013.8°(C) , Ship speed 10.6kts, Ground speed 12.4 kts

Q2.

1301 0.5  
1904 2.8  
Earliest time = 1629hrs

Q3.

087°T x (5063.4nm + 325nm)  
ETA 11<sup>th</sup> Nov 0200hrs (Standard Time)

## **March 06**

Q1.

DR N51° 43.5', W006° 59.2', EP N51° 47.5', W006° 49', Current 068°T x 1.8k

Q4.

- a) 76.9nm + 28.5nm + 20nm
- b) 11<sup>th</sup> July 14h 37m

Q5. 1.1°H

## **November 05**

Q1.

- a) 51° 26.3'N, 004° 26.3'W
- b) 123.4° (C)
- c) ET 1 hour notice 2357hrs

Q2.

- a) Tidal Range
- b) 3.9m
- c) 1001 hrs

Q4.

- a) Dep – WP1      270°(T) x 144.1nm
- b) WP1 – WP2     296°(T) x 248nm
- c) WP2 – Arr      000°(T) x 100nm

## October 05

Q1.

- a) 2130hrs 51° 07.1'N, 004° 30.7'W
- b) (i) 044°G
- c) (ii) Time taken = 2hrs 36min

Q2.

Required HoT	4.2m
Actual HoT	4.2m

Just safe.

Q4.

- a) 236.1°T x 4642.4nm
- b) ETA 18d 22h 00m

## **June 05**

Q1.

- a) 55°31.8'N, 014° 39.7'E
- b) Set 242°(T), Rate 1.4kts, (Drift 2.7miles)

Q4.

- a) 252.2° x 179.9nm
- b) 13h 51m

Q5.

130.8°(T), Error 1.2°H

## **March 05**

Q1.

- a)  $51^{\circ} 26.8'N, 007^{\circ} 47.8'W$
- b)  $311.1^{\circ}(C)$

Q2.

HoT = 1.4m; UKC = 0.7m

Q4.

- a) 511.2nm
- b)  $297.4^{\circ}T, 270^{\circ}T$