



DAY SKIPPER CHARTWORK ANSWERS

1. 086°T; 150°T; 244°T; 347°T
2. 032°C; 120°C; 221°C; 308°C
3. 088°T; 153°T; 197°T
4. 009°T; 113°T; 208°T
5. From chart 3002, the transit is 140°T. So dev = 5°E
6. From chart 3002, the transit is 114°T. So dev = 6°W
7. at 347°C, deviation is 7°E. So total compass error is 20°W - 7°E = 13°W. The true bearings are 354°T; 086°T; 186°T; 286°T
8. Variation 2020 = 23° 32'W + 21 x 2'W = 24° 14'W Transit = 294° 45'T + 24° 14'W = 318° 59'M. Say 319°M. Deviation = 320° - 319° = 1°W
9. 352°T; 097°T; 177°T; 310°T
10. 021°C; 103°C; 226°C; 004°C
11. 340°T; 123°T
12. 33° 51.4'S and 018° 19.4'E
13. 34° 09.4'S and 018° 18.4'E
14. 34° 06.1'S and 018° 18.2'E
15. 34° 28.8'S and 018° 38.0'E
16. 33° 47.5'S and 018° 24.0'E
17. CTS 107°T to 108°T SOG 4.2 to 4.3 knots
18. Course = 190M = 1.66T. Set 353°T or 017°M, rate 2.0 knots
19. COG 343°T SOG 8.0 knots
20. Set 344°M to 345°M, better stated as 320°T to 321°T (current should always be given in true). Rate 2.1 to 2.2 knots
21. COG 297°T to 298°T. SOG 3.4 knots
22. CTS 063°T. SOG 4.6 to 4.7 to 4.8 knots
23. You helmsman is sailing 065°T but with 15° leeway your water track will be 050°T.
COG = 025°T
SOG = 3.5 knots
24. From your vector diagram, you require a water track of 118°T. However with 10° leeway on a port tack you will need to steer 108°T to achieve this water track.
SOG = 4.9 knots



25. You are steering 095°M but with 15° leeway, your water track will be 080°M
Set = 286°T or 310°M
Rate = 1.9 knots
26. Your helmsman is sailing 110°T but with 15° leeway your water track will be 125°T.
COG = 103°T
SOG = 3.8 to 3.9 knots
27. From your vector diagram, you require a water track of 201°T. However with 10° leeway on a port tack you will need to steer 191°T to achieve this water track.
SOG = 5.3 knots
28. You are steering 280°M but with 10° leeway, your water track will be 290°M.
Set = 151°T or 175°M
Rate = 1.8 knots
29. Your helmsman is sailing 050°T but with 15° leeway your water track will be 065°T.
COG = 046°T
SOG = 5.9 knots
30. From your vector diagram, you require a water track of 141°T. However with 10° leeway on a starboard tack you will need to steer 151°T to achieve this water track.
SOG = 6.0 knots
31. You are steering 110°T but with 10° leeway, your water track will be 100°T. Set = 313°T
Rate = 1.8 knots
32. Your helmsman is sailing 310°T but with 15° leeway your water track will be 295°T. COG = 318°T SOG = 3.2 knots
33. From your vector diagram, you require a water track of 188°T. However with 10° leeway on a starboard tack you will need to steer 198°T to achieve this water track. SOG = 6.3 knots
34. Your helmsman is sailing 275° but with 15° leeway your water track will be 260°T.
COG = 272°T
SOG = 3.5 knots
35. From your vector diagram, you require a water track of 288°T. However with 10° leeway on a port tack you will need to steer 278°T to achieve this water track.
SOG = 5.0 knots
36. Your helmsman is sailing 045°T but with 5° leeway your water track will be 040°T.
COG = 024°T
SOG = 6.2 to 6.3 knots
37. From your vector diagram, you require a water track of 141°T to 142°T. However with 15° leeway on a port tack you will need to steer 126°T to 127°T to achieve this water track.
SOG = 4.6 knots
38. Your helmsman is sailing 220°T but with 10° leeway your water track will be 210°T. COG 243°T SOG = 4.6 knots



39. From your vector diagram, you require a water track of 054T to 055°T. However with 15° leeway on a starboard tack you will need to steer 069T to 070°T to achieve this water track. SOG = 4.7 knots
40. You are steering 080°T but with 15° leeway, your water track will be 065°T. Set = 021°T Rate = 2.1 knots
41. Your helmsman is sailing 350°T but with 15° leeway your water track will be 005°T. COG = 028°T, SIG = 5.1 knots
42. From your vector diagram, you require a water track of 229°T. However with 10° leeway on a port tack you will need to steer 219°T to achieve this water track. SOG = 4.1 to 4.2 knots
43. 33° 55.7'S and 018° 17.6'E
44. 34° 08.4'S and 018° 37.8'E
45. Earliest time = 14h28. Tide at 16h00 = 2.42m. Depth = 3.32m. See the worked answer at the end of this document.
46. Earliest time = 10h15 Tide at 12h00 = 2.24m Depth = 3.84m
47. Tide at 11h00 = 1.30m. When the tide is 1.7m the time will be 0958

48. a. Add East.

C	071°	120°	
Variation	24°W	24°W	Add East (so subtract West)
T	047°	096°	

Position = 34°22.7'S and 018° 43.9'E

- b. CTS = 017°T + 24°W = 041°M - 4°E = 037°C. Distance = 12.0 nm. Time = 12.0/8 = 01h30m. ETA 12h30.
- c. Log = 15.7 - 11.3 = 4.4 nm Set = 286°T Drift = 1.6 nm Rate = 3.2 knots
- d. CTS = 047°T + 24°W = 071°M -2°E = 069°C. SOG = 8.8 knots. ETA = 11h30 + (60 x 8.0/8.8) = 12h25
49. a. Add East

C	122°	172°	Add East
V	24°W	24°W	
T	098°	149°	

Position = 33° 48.6'S and 018° 20.2'E

- b. CTS = 198°T + 24°W = 222°M + 4°W = 226°C. Distance = 14.4 nm. Time = 14.4/9 = 1h36m. ETA = 12h36.
- c. Set = 310°T Drift = 1.9 nm Rate = 2.8 knots
- d. CTS = 172°T + 24°W = 196°M + 6°W = 202°C. SOG = 7.0 knots



50. a. Position 34° 25.9'S and 018° 23.1'E
 b. CTS = 358°C. Distance = 17.5 nm Time = 17.5/11 = 1h35m. ETA 12h35
 c. Set = 279°T. Drift = 2.1 nm Rate = 3.1 to 3.2 knots
 d. CTS = 027°C SOG = 9.8 knots. Time = 9.0/9.8 x 60 x 55 min. ETA = 12h35

Worked answer to question 45

Draft 1.9m
 Plus clearance required 0.5m
 Depth required 2.4m
 Less charted depth 0.9m
 Tide required 1.5m

TIME	HEIGHT
1210	72
1312	92
1414	132
1516	192
1618	252
1720	292
1822	312

Tidal interval = 06h12 Tidal hour = 01h02
 Tidal range = 2.4m One twelfth = 0.2m

For those who are at home with simple proportion, the easiest way to interpolate is probably mathematically, thus:

Earliest time = 14h14 + (62 x 18/60) = 14h33
 Height of tide at 16h00 = 192cm + (60 x 44/62) = 235cm = 2.35 m

For those who find it difficult to interpolate mathematically, it is quite acceptable to draw a rough graph or to interpolate by eye. An exact answer is not required. The rule of twelfths is an approximation in any case.

