

12. A lighthouse is found to be 13 miles distant from the vessel :  
Find the angle on the bow to which it should be brought  
so as to enable the vessel to pass 4 miles off it.

## 2. CHART.

Time allowed—3 hours.

1. Deviation card 12 : In a vessel steaming towards Cape Brett Lt. Ho., steering by compass N. 30° W. at 9 knots, Henry Is. bore by compass S. 22° W. and Home Pt. extreme bore S. 75° W. by compass.  
State the position of the vessel, and the distance from Home Point.
2. From the position as found in question 1 set courses to reach a position with Coal Point bearing 310° 4 miles distant ; maintaining a distance of 1 mile off Cape Brett Lt. Ho. and 2 miles off outer end of the eastern island of the Cavalli Group. On the last course allow for a current which set 340° (N. 34° 5 W. mag.) at the rate of 2.5 knots.  
Required—The compass courses steered, the distance made good on each course, and the distance that the log should show when in final position supposing it to have been set at the position off Home Point.
3. When steering the second compass course Ngakotu Raranui Pt. bore by compass S. 6° W., and after continuing on the same course for 4 miles the south end of Cavalli Is. bore by compass S. 58° W. Assuming that the vessel has made good her course and distance between the bearings :  
State the position of the vessel and the distance from the south end of Cavalli Is. at the time of taking the second bearing.
4. The following horizontal angles were taken to determine the position of the ship : Between G and D, 42° 20' ; between D and F, 37° 40'.  
Required—The position of the ship by station pointer.
5. Arriving off Manukau Bar at 14 h. 00 m., New Zealand mean time, on 16th September, 1925, state the depth of water you would expect to find on the bar if the soundings on the chart showed 3½ fathoms.
6. Chart 695 : Find approximately (without the use of Admiralty or other tide tables) the time of high water on the afternoon of 14th June, 1925, off Stephens Island, and state also the direction of the tidal stream at 10 h. 00 m. on that day.

**189. Specimen Set of Examination-papers for Master (H.T.) :—**

## 1. ARITHMETIC AND NAVIGATION.

Time allowed 2 hours.

1. Express in figures—Eighteen millions seventy thousand and three ; seven hundred and three thousand five hundred and two.
2. Add the following quantities together : 48567, 30928, 6079, 405, 3268, also add together 4862, 90486, 382, 90, 2079.
3. From 7048629 take 6099893 ; from 92804 take 80993 ; from 721984 take 719932 ; from 4806 take 999.
4. Multiply 6439 by 47 ; multiply 2961 by 983.
5. Divide 8320968 by 4289 ; divide 68406 by 97.
6. Add the following quantities together : £62548 3s. 7d., £4862 10s. 8d., £1984 3s. 6½d., £1829 4s. 11¾d. Also add together 6284 tons 2 cwt. 3 qr. 22 lb. ; 184 tons 2 cwt. 1 qr. 3 lb. ; 5086 tons 18 cwt. 2 qr. 14 lb. ; 40527 tons 16 cwt. 2 qr. 18 lb.
7. From £8726 14s. 11¾d. take £908 16s. 3¾d. ; from 14872 tons 18 cwt. 1 qr. 9 lb. take 8042 tons 19 cwt. 1 qr. 10 lb.
8. Multiply the following quantities by 92 : £872 18s. 2½d. ; 6432 tons 14 cwt. 2 qr. 16 lb.
9. Divide the following quantities by 87 : £943 11s. 6d. ; 804 tons 13 cwt. 3 qr. 17 lb.
10. On 2nd February, 1925, long. by A/c 176° E., the observed meridian altitude of the sun's lower limb was 72° 18' north of observer ; index error of sextant 1' 10" to subtract ; height of eye 22 ft.  
Compute the latitude.