

10. In a vessel steering south by compass and steaming 10 knots a point of land bore S.  $15^{\circ}$  W. by compass, and after making good the course and speed for 15 minutes the point bore S.  $30^{\circ}$  W. by compass:  
Required—The distance of the vessel from the point of land when abeam.
11. Required the times of high and low water, a.m. and p.m., at Tauranga on 12th June, 1929, by the tide-tables in the New Zealand Nautical Almanac.

**SPECIMEN SET OF EXAMINATION-PAPERS FOR MATE (H.T.).**

**1. ARITHMETIC AND NAVIGATION.**

Time allowed: Two hours.

1. Express in figures—Five millions sixteen thousand seven hundred and six; thirteen millions four thousand two hundred and one.
2. Add the following quantities together: 684092, 78064, 90284, 70987, 45298; also add together 4624, 30897, 604838, 908421, 904.
3. From 6087241 take 904563; from 64889 take 38421; from 778794 take 389006; from 8296 take 999.
4. Multiply 86298 by 999; multiply 684682 by 787.
5. Divide 984629 by 378; divide 8406823 by 9984.
6. Add the following quantities together: £724 14s. 3d.; £680 19s. 6d.; £280 13s. 10d.; £60 4s. 10d.; Also add together 9846 tons 13 cwt. 2 qr. 3 lb.; 68 tons 3 cwt. 1 qr. 14 lb.; 806 tons 3 cwt. 3 qr. 10 lb.; 983 tons 19 cwt. 3 qr. 7 lb.
7. From £39802 14s. 6½d. take £986 17s. 7½d.; from 68422 tons 13 cwt. 2 qr. 8 lb. take 747 tons 18 cwt. 3 qr. 9 lb.
8. Multiply the following quantities by 89: £760 3s. 10½d.; 6089 tons 18 cwt. 2 qr. 16 lb.
9. Divide the following quantities by 72: £8049 3s. 6½d.; 7284 tons 1 cwt. 1 qr. 2 lb.
10. On 20th January, 1929, long. by A/c  $172^{\circ} 50'$  E., the observed meridian altitude of the sun's lower limb was  $70^{\circ} 14' 5''$  north of the observer; index error of sextant  $2' 40''$  to add; height of eye 27 ft. Compute the latitude.
11. On 15th May, 1929, at 06 h. 50 m., New Zealand mean time, at ship in lat.  $41^{\circ} 15'$  S., long.  $176^{\circ} 40'$  E., the sun rose bearing by compass N.E.:  
Required—the true amplitude and error of the compass; also the deviation, the variation being  $15^{\circ}$  E.
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: Three hours.

1. Deviation card 12: In a vessel steaming towards Cape Brett Lt. Ho., steering by compass N.  $30^{\circ}$  W. at 9 knots, Henry Is. bore by compass S.  $22^{\circ}$  W. and Home Pt. extreme bore S.  $75^{\circ}$  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  $310^{\circ}$  4 miles distant; maintaining a distance of 1 mile off Cape Brett Lt. Ho. and 2 miles off the outer end of the eastern island of the Cavalli Group. On the last course allow for a current which set  $340^{\circ}$  (N.  $34^{\circ} 5'$  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.  $6^{\circ}$  W., and after continuing on the same course for 4 miles the south end of Cavalli Is. bore by compass S.  $58^{\circ}$  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,  $42^{\circ} 20'$ ; between D and F,  $37^{\circ} 40'$ .  
Required—The position of the ship by station pointer.