答

**T.A.E.** 12°59′55″**S.**; **C.** Error 3°52′35″**W.**;

Dev. 6°7′25″**E.**

## 8.

答

(a) **C.** Co. **S.** 30°**W.**; Distance 40 miles;

Dev. 7°**W.**

(b) Lat. 50°20′**N.**; Long. 160°34′**E.**

(c) Lat. 50°23′**N.**; Long. 160°48′**E.**;

Distance 13 miles

## 9.

Approx. **S.M.T.** March $20^d 21^h 10^m 0^s$
$5\ 49\ 8-$
„ **G.M.T.** „ $20^d 15\ 20\ 52$

| | | |
|---|---|---|
| Dec. 31 | | 1st Error $20^m 7^s$ fast. |
| 30 | | 2nd Error 17 34 fast. |
| „ 1 | | 2 33 |
| Jan. 31 | | 60 |
| Feb. 13 | | 45)153 |
| 45 days | | 3.4 Losing. |
| Eeb. 29 | 36.6 | |
| 13 | 3.4 | |
| „ 16 | 1464 | |
| Mar. 20.6 | 1098 | |
| 36.6 days | 124.44 | |
| | $2^m 4^s 4$ | |



**C.T.** March $20^d 15^h 41^m 52^s 0$
$17\ 34.0-$
„ $20^d 15\ 24\ 18.0 = .6$
$2\ 4.4+$
**G.M.T.** „ $20^d 15\ 26\ 2.24 = 15.4+ = 8.6-$

N. Alm. March 21st **G.M.N.**

| Decl. | Sem. | **Eq. T. + A.T.** |
|---|---|---|
| 59.25 | 16′ 4″ | 0.750 |
| 8.6− | | 8.6− |
| 35550 | | 4500 |
| 47400 | | 6000 |
| 509.550− | | 6.4500− |
| 0°12′ 21″5 + **N.** | | $7^m 21^s 93-$ |
| 8 29.5− | | 6.45− |
| R$^d$ 0° 3 52.0 **N.** | | R$^d$ $7^m 28^s 38$ |

Noon Lat. 48°24′ 0″**S.**
D. Lat. 5 0 **N.**
Sight Lat. 48 19 0 **S.**

Dep. 12.0 **E.**
15.04
3.01
D. Long. 18.05 **E.** = 18′ 3″**E.**

Obs. alt. ☉ 28°43′ 15″
9 43+
**T.** alt. ☉ 28 52 58
**T.** z. 61 7 2

| | |
|---|---|
| *l* 48°19′ 0″**S.** | 0.177170 |
| *d* 0 3 52 **N.** | 0.000000 |
| z 61 7 2 | 9.912027 |
| 48 22 52 | 9.044990 |
| 109 29 54 | 9.134187 |
| 12 44 10 | 220 |
| 54 44 57 | +0.4 = 33 |
| 6 22 5 | |

| | | |
|---|---|---|
| **S.A.T.** | March $20^d$ $21^h$ $6^m44^s.4$ | |
| **Eq. T.** | 7 28.4+ | |
| **S.M.T.** | March $20^d$ 21 14 12.8 | |
| **G.M.T.** | March $20^d$ 15 26 22.4 | |
| **L.T.** | 5 47 50.4 | |
| Sight Long. | 86°57′36″**E.** | |
| D. Long. | 18 3 **E.** | |
| Noon Long. | 87°15′39″**E.** | |

**答**

Noon Long. 87°15′39″**E.**

## 10.

Alt-Azimuth.

| | | |
|---|---|---|
| Approx. **S.M.T.** | Feb. $20^d$ $22^h$ $0^m$ $0^s$ | |
| **L.T.** | 9 0 36− | |
| Approx. **G.M.T.** | Feb. $20^d$ 12 59 24 | |

**S.E./E.** 23′ = D. Lat. 12′.8 **S.** & Dep. 19′.1 **E.**
= D. Long. 26′.55 **E.** = 26′33″**E.** = $1^m46^s$+

| | | |
|---|---|---|
| **C.T.** | Feb. $20^d$ $25^h$ $37^m25^s$ | |
| | 3 13 15− | |
| | Feb. $20^d$ 22 24 10 | |
| | D. Long. 1 46+ | |
| **S.A.T.** | Feb. $20^d$ 22 25 56 | |
| **L.T.** | 9 0 36− | |
| **G.A.T.** | Feb. $20^d$ 13 25 20 | |
| | 13.4+ = 10.6− | |



N. Alm. Feb. 21st **G.A.N.**

| Decl. | Sem. |
|---|---|
| 53.85 | 16′12″ |
| 10.6− | |
| 32310 | |
| 5385 | |
| 570.810− | |
| 10°56′19″.2 **S.**− | |
| 9 30.8 − | |
| $R^d$ 11° 5′50″.0 **S.** | |
| $p$ 101° 5′50″ | |

| | |
|---|---|
| Obs. alt. ☉ | 30°38′15″ |
| | 10 19+ |
| | 12+ |
| **T.** alt. ☉ | 30 48 46 |

| | | |
|---|---|---|
| $l$ | 44°17′ 0″**N.** | 0.145150 |
| $a$ | 30 48 46 | 0.066085 |
| $p$ | 101 5 50 | 9.924982 |
| | 13 28 14 | 9.840302 |
| | 114 34 4 | 9.976519 |
| | 87 37 36 | 520 |
| | 57 17 2 | −1″ = 1 |
| | 43 48 48 | |

| | |
|---|---|
| $\phi$ **N.** | 153°28′29″ **E.** |
| **C. N.** | 185 37 30 **E.** |
| **C.** Error | 32 9 1 **W.** |
| Var. | 5 50 0 **E.** |
| Dev. | 26 19 1 **W.** |

Time-Azimuth.

| | | |
|---|---|---|
| $l$ 44°17′**N.** & $h$ $1^h34^m$... | +**A** | 2.243 |
| $d$ 11° 6 **S.** & „ ... | +**B** | 0.492 |
| | +**C** | 2.735 |

| | | |
|---|---|---|
| ø | S. 26°57′ | E. |
| C. | S. 5 37 | W. |
| C. Error | 32 34 | W. |
| Var | 5 50 | E. |
| Dev. | 26 44 | W. |

**答**

**S.A.T.** supposed to be about $10^h$ **A.M.**; **S.A.T.** at the time when the error of the chron. on **S.A.T.** was ascertained, $20^d 22^h 24^m 10^s$; **S.A.T.** at the time of observation, $20^d 22^h 25^m 56^s$; **G.A.T.** Feb. $20^d$ $13^h 25^m 20^s$; **T.** alt. 30°48′46″; Decl. 11°5′50″**S.**; *p* 101°5′50″; ø **N.** 153°28′29″**E.**; **C.** Error 32° 9′1″**W.**; Dev. 26°19′1″**W.**

## 11.

| | | | |
|---|---|---|---|
| Aug. | $25^d 10^h 46^m 7$ | $25^d 23^h 9^m 2$ | $26^d 11^h 31^m 1$ |
| | 17.0− | 17.0− | $25^d$ 10 46.7 |
| | $25^d$ 10 29.7 | $25^d$ 22 52.2 | Daily Var. 44.4 |
| | 15.0+ | 10.5+ | **Eq.T.** $2^m$ − **M.T.** |
| | $25^d$ 10 44.7 | $25^d$ 23 2.7 | Sem. |
| **C.T.** | 5 41.0+ | 5 41.0+ | Noon $25^{th}$ |
| | $25^d$ 16 25.7 | $26^d$ 4 43.7 | 14′44″ |
| D. Long. | 19.1− | 19.1− | Midnight $25^{th}$ |
| | $25^d$ 16 6.6 | $26^d$ 4 24.6 | 14′45″ |
| | $26^{th}$ $4^h$ 6.6 **A.M.** | $26^{th}$ 4 24.6 **P.M.** | 139°46′**E.** |
| | | | 135 0 **E.** |
| | | | 4 46 |
| | | | ... 4 |
| | | | $19^m 4^s$− |

**答**

中央標準時

$26^{th}$ $4^h 6^m 6$ **A.M.** & $26^{th} 4^h 24^m 6$ **P.M.**



# 航海術卷之貳

# 試驗問題解答終

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定價金壹圓

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