Vol. I

Positions of Nebulae.

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← 8257 vol II, X

← 8288 vol VI, X

1908phae.proj.229SB

Determination of Positions of Nebulae.

Form.

(Copy from Record book of S. 1β page 102)

A 7447. No. 63. Feby 14, 1908.

Object rather large & elongated. Set on centre of Nucleus.

		C.P.D. R.A.	C.P.D. Dec.		R.A.		Dec.
a =	−47 9367	19h 41m 11s.5	−47° 33′.1	+30s.4 =	19h 41m 41s.9	−8′.0 =	−47° 41′.1
b =	" 9371	19 42 54.1	−47 47.2	−71s.0	19 41 43.1	+6.2 =	−47 41.0
(c =	" 9368	19 41 51.3	−47 0.4)	Mean	19 41 42.5		−47 41.0

x

c − a = 39s.8

cos 47.0 / 2 = .341

13.~~57~~ 6 div.

	R.A. x	Dec. y	R.A. x	Dec. y
a	70.0	40.0	80.0	48.3
b	103.7	11.7	113.7	19.8
N	80.1	24.0	90.1	32.3

	x		x		y		y
n − a	+10.1	n − b	−23.6	n − a	−16.0	n − b	+12.3
	+10.1		−23.6		−16.0		+12.5
	+10.1		−23.6		−16.0		+12.4
	~~+10.20~~		~~−23.84~~		−8′.0		+6′.2
.168)	+ 5.10	168)	−11.92				
	+ 30s.4		~~70.95~~				
			− 71s.0				

cos mean dec of a & b / 4

{ Slightly shorter. Take 10.20 ÷ cos dec. / 2 }

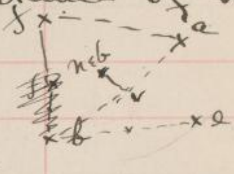
i.e. 1% [illegible]

1/100 was added as correction since scale div was not exactly 1/2 mm.

Directions.

The form on the preceding page is intended to cover all necessary written work and computation.

The determination requires three stars, two, a + b, to be used for the diff. of position, the third, c, only for orientation. Of catalogue (C.P.D) stars near the nebula select the two the distance of whose central point is least from the nebula, e.g. of the stars a, b, e, + f., select a + b. if the distance v – neb. is least of all such distances.



Take for orientation c as near as pos. in R.A. to a or b. but somewhat distant in declination.

Mark nebulae & comparison stars on glass side of negative. Place negative film up, N edge up or away from observer, & numbered end (following) to the right. Place scale over a neb. & its comparison stars.

To orient; Take cos of the declination of c; multiply by dif in R.A. exp. in seconds of time bet. c and a (or b as case may be) dividing by 4 to reduce to minutes of arc. + mult. by 2 to reduce to div. of scale, since 1' = 1mm, and each div. = 0.5mm, (about). In forms this is done by × no. sec. (number of sec) by $\frac{\cos \text{dec. } c}{2}$.

Measures. Place scale film down on film of plate, carefully. Orient by differencing as indicated above. from c.

Read pos. by scale of a, b, + neb: move scale to a new pos.; re-orient, & read pos. of a. b. & neb. again. Find values of difference as indicated in form + apply to pos. of a + b. Take means as in upper right hand corner. e.g. $19^h\ 41^m\ 42.5^s$ $-47°\ 41.0'$

Use H.C.O. Reduction Tables. + Crelle or some other table for × and ÷. If results are discordant, check.

A. 7443 No. 67 April 3rd 1908.

Object

	R.A.			Dec.		1900 pr.	^{h} 19	$_m$ 21	$_s$ 54.2	− 53	3.5 6.4
	h	m	s								
a = − 53 9568	19	19	18.3	− 53	20.6	+ 37.4 =	19	19	55.7	+ 14.2 =	− 53 ~~34.9~~
b = − 52 11459	19	20	59.7	− 52	59.0	− 64.2 =	19	19	55.5	− 7.4 =	− 53 6.4
c = − 52 11456	19	19	53.0	− 52	34.9		19	19	55.7		− 53 6.4

+0.4 − 0.4

0.0 0.0

$\frac{c\,a - 52.6}{2} =$

X

c − a = + 34.7

.304

+ 10.5

	X	Y	X	Y
a	110.0	9.9	90.0	11.0
b	140.3	52.9	120.5	54.0
n	121.2	38.2	101.2	39.2

	X		X		Y		Y
n − a	+ 11.2	n − b	− 19.1	n − a	+ 28.3	n − b	− 14.7
	+ 11.2		− 19.3		+ 28.2		− 14.8
	+ 11.2		− 19.2		+ 28.25		− 14.75
	+ 11.31		− 19.39		+ 28.53		− 14.90
	~~5.6~~		− ~~9.6~~		+ 14.26		− 7.45
	÷ .302 =		÷ .302 =				
	+ 37.4^s		− 64.2^s				

A. 7443 No. 71 April 7th, 1908.

	Object h m s		° ′		1900 pos.	19 18 29.4	−52 55.7
a = −53 9550	19 15 11.8	−53	3.6	+ 79.2 =	19 15 31.0	+ 5.05 =	−53 58.6
b = −52 11449	19 17 46.0	−52	50.6	− 75.8 =	19 16 30.2	−7.8 =	−52 58.4
c = −52 11443	19 16 20.0	−52	12.7		19 16 30.6		−52 58.5

x α δ

c − a = 168.2

$\cos\frac{52.2}{2} =$ .306

+ 20.9

+ ~~2.5~~

	x	y	x	y
a	60.0	8.8	40.0	78.4
b	106.2	34.0	86.2	32.9
n	83.6	18.6	63.6	17.6

x	x	y	y
n − a + 23.6	n − b − 22.6	n − a + 9.8	n − b − 15.4
+ 23.6	− 22.6	+ 10.2	− 15.3
+ 23.6	− 22.6	+ 10.0	− 15.35
23.84	− 22.83	10.10	15.50
÷ .301	÷ .301	+ 5.05	− 7.75
+ 79.2	− 75.8		

α: +0.4 −0.4 δ: +0.2 −0.1

A 7443 No. 69 April 10, 1908.

Object.

					1900 pos. 19 19 24.7	−52 59.4
		h m s			h m s 57	+4.3
a = −53 9556	19 16 16.8	−53	6.4	+68.8 =	19. 17 26.4	+8.6 = −53 2.1
b = −53 9562	19 17 50.3	−53	1.3	−24.2 =	19 17. 26.2	−0.9 = −53 2.2
c = −53 9559	19 16 58.5	−53	22.0		19 17 26.3	−53 2.2
					+0.3 −0.2	+0.1 0.0

x

c − a = +41.5

cos $\frac{53.4}{2}$ = .298

+12.4

	x	y	x	y
a	60.0	54.9	40.0	49.9
b	87.9	65.1	67.9	60.1
n	80.7	63.4	60.6	58.4

x	x	y	y
n − a = +20.7	n − b − 7.2	n − a = +8.5	n − b − 1.7
+20.6	−7.3	+8.5	−1.7
+20.6	−7.2	+8.5	−1.7
+20.81	−7.27	÷ 8.58	−1.72
+ 69.8	~~−24.3~~	+ 8.6	−0.86
÷ .299	÷ .2989	+ 4.3	−0.9
+ 69.6	−24.3		

A 7443 — No. 68 April 15th 1908

a = − 53 9568	~~19~~	~~19~~	~~18.3~~	~~− 53~~	~~20.6~~	−27.8 = 19. 18. 50.5		+13.5 = − 53 7.1
b = − 52 11452	~~19~~	~~18~~	~~47.0~~	~~− 52~~	~~53.3~~	+ 4.8 = 19 18. 51.5		− 13.9 = − 53 7.2
c = − 53 9565	~~19~~	~~18~~	~~48.3~~	~~− 53~~	~~32.1~~	19. 18 51.2		− 53. 7.1

1950 pos. 19 20 49.7 − 53 4.3

c − a = ~~+ 31.0~~ + 1.5

−0.4 +0.5 0.0 − 0.1

Cos − 53.5 / 2

.297

~~+ 3.11~~

± 9.2

	x	y	x	y
a	90.0	35.0	75.0	35.0
b	80.3	89.4	65.4	89.3
n	81.7	61.8	66.8	61.7

x	x	y	y
n − a = − 8.3	n − b = + 1.4	n − a = + 26.8	n − b = − 27.6
− 8.2	+ 1.4	+ 26.7	− 27.6
− 8.25	+ 1.4	+ 26.75	− 27.6
− 8.33	+ 1.41	+ 27.02	− 27.88
÷ 299	÷ 299	+ 13.51	− 13.94
− 27.8	+ 4.7		

A 7443 No. 84. April ~~17~~ 15th 1908.

Object

1900.0 pr. 19 20 53.~~2~~ 1 -53 17.1

		h m s	° ″		h m s		
a = -53	9563	19 18 24.3	-53 26.9	+3~~6.5~~ 0.3 =	19 18 54.6	+ ~~7.0~~ 6.9 =	-53 ~~19.9~~ 20.0
b = -53	9568	19 19 18.3	-53 20.6	-2~~5.6~~ 4.4 =	19 18 53.~~7~~ 9	+0.6 =	-53 20.0
c = -52	11452″	19 18 47.0	-52 53.3		19 18 54.~~2~~ 1		-53 ~~19.9~~ 20.0

+0.2 -0.2 0.0 0.0

cos. 52.9
2

x
c - a = +22.7
.302
+6.8

	x	y	x	y
a	70.0	40.0	45.0	40.0
b	86.0	52.~~5~~ 6	61.0	52.6
n	78.9	53.7	53.8	53.8

x	x	y	y
n - a = + 8.9	n - b = - 7.1	n - a = + 13.7	n - b = + 1.1
+ 8.8	- 7.2	+ 13.8	+ 1.2
+ 8.85	- 7.2	+ 13.85	+ 1.2
+ 8.94	- 7.27	+ 13.99	+ 1.21
÷ .2~~4~~ 95	÷ .2~~4~~ 95	+ 7.0	+ 0.6
+ ~~36.5~~ 30.3	- ~~25.8~~ 24.6		

Note: see pg 7 - for computation of neb. 68.

A. 7443 No. 68. April 15th, 1908.

	h	m	s		
a = − 53 9568	19	~~18~~ 19	18.3	− 53	20.6
b = − 53 9561	19	17	32.9	− 53	1.0
c = − 53 9565	19	18	47.3	− 53	32.1

x − 31.0

c − a = + 29.0

.297

cos. $\frac{53.5}{2}$

8.6

− 9.2

	x	y	x	y
a	90.0	35.0	75.0	35.0
b	80.2	74.3	65.1	74.3
n	81.8	61.7	66.8	61.7

	x		x		y		y
n − a =	− 8.2	n − b =	+ 1.6	n − a =	+ 26.7	n − b =	− 12.6
	− 8.2		+ 1.6		+ 26.7		− 12.6
	− 8.2		+ 1.65		+ 26.7		− 12.6
	− 8.28		+ 1.81		+ 26.97		− 12.73
					+ 13.48		6.36

A 7443 No. $\overset{85}{\overset{84}{\cancel{68}}}$ April 17. 1908

1900 pos. 19 17 33.9 . −53 30.4

	h m s				
a = −53 9548	19 15 0.3	−53 27.9	$+34.\overset{0}{\cancel{3}}$ = 19 15 $34.\overset{3}{\cancel{6}}$	$-5.\overset{x}{\cancel{1}}$ = −53 $33.\overset{x}{\cancel{0}}$
b = −53 9557	19 16 $\overset{20.8}{\cancel{36.2}}$	−53 36.2	$-46.\overset{4}{\cancel{9}}$ = 19 15 $\overset{4.4}{\cancel{33.7}}$	$+3.\overset{0}{\cancel{5}}$ = −53 $\overset{3.1}{\cancel{32.7}}$
c = −53 9556	19 16 $16.\overset{8}{\cancel{4}}$	−53 6.4	19 15 $34.\overset{4}{\cancel{7}}$	−53 $\overset{3.1}{\cancel{32.9}}$

−0.1 0.0 −0.1 +0.1

x
c − a = +76.5

Cos − 53.1 / 2

.300

+22.9

	x	y	~~y~~ x	y
a	70.0	55.0	50.0	55.0
b	93.9	38.8	73.9	38.7
n	80.1	$\overset{4}{48}.8$	60.1	44.8

x	x	y	y
n − a = +10.1	n − b = −13.8	n − a = −10.2	n − b = +6.0
+10.1	−13.8	−10.2	+6.1
+10.1	−13.8	−10.2	+6.05
+10.20	−13.94	−10.30	+6.11
÷ .297	÷ .297	$-5.\overset{1}{\cancel{2}}5$	$+3.\overset{0}{\cancel{5}}\overset{6}{\cancel{5}}$
+34.3	−46.9		

A 7443 No. 94 April $\overset{20}{\cancel{29}}$th, 1906.

					1900 pos. 19 20 34.0		$-5\overset{3}{9}$ 35.8
	h	m	s	°	"		
b. α = -53 $9\overset{5}{4}66$	19	19	11.8	-53	46.5	$-3\overset{1}{7}.5$ = 19 18 $34.\overset{7}{3}$	+ 6.4 = -53 $38.\overset{6}{5}$
a. δ = -53 $956\overset{5}{3}$	19	18	$\overset{47.3}{24.3}$	-53	$\overset{32.1}{26.9}$	$-12.\overset{5}{6}$ = 19 18 $\overset{4.8}{35.7}$	∓ $\overset{6.4}{8.0}$ = -53 38.5
C = -53 9567	19	19	15.3	-53	2.0	19 18 $\overset{4.8}{35.0}$	-53 $38.\overset{6}{5}$

x

C - a = + 8.5 + 28.0 -0.1 0.0 0.0 -0.1

cos = -53.0 / 2

	.301	
	.249	.301
	+10.5	+8.4

	x	y	x	y
a.	80.0	40.0	65.0	40.0
b.	87.3	11.6	72.3	11.6
n	76.3	27.4	61.3	$2\overset{7}{2}.3$

x	x	y	y
n - a = - 3.7	n - b = ∓ 11.0	n - a = ∓ 12.6	n - b = + 15.8
- 3.7	- 11.0	- 12.7	+ 15.7
- 3.7	∓ 11.0	- 12.7	+ 15.75
- 3.74	∓ 11.11	- 12.83	+ 15.91
÷ ~~3.7~~ .296	÷ .296	- 6.42	+ 7.96
= -12.6	= - 37.5		

A 7443 No. $\overset{5}{\cancel{4}}$ Apr. 20, 1908

1900 pos. 19 19 34.5 −53 39.0

a = 53 9557 19 16 20.8 −53 36.2 +$\overset{3.8\ 6}{74.7}$ = 19 17 $\overset{6}{34.8}$ −$\overset{6}{5.7}$ = −53 $\overset{8}{41.9}$

b = 53 9566 19 19 $\overset{11.8}{\cancel{46.5}}$ −53 46.5 −$\overset{6}{97.4}$ = 19 17 $\overset{5}{34.4}$ +4.8 = −53 41.7

c = 53 9562 19 17 $\overset{50.3}{\cancel{.8}}$ −53 1.3 19 17 $\overset{50}{34.6}$ −53 41.8

x

C−a = +89.5 −0.4 +0.4 0.0 −0.1

Cos. 53.0/2 .301

+26.9

	x	y	x	y
a	60.0	25.0	40.0	35.0
b	110.4	4.$\overset{2}{8}$	90.4	14.$\overset{2}{8}$
n	81.9	13.$\overset{8\ 7}{9}$	61.8	23.$\overset{6}{5}$

x	x	y	y
n−a +21.9	n−b −28.5	n−a −11.$\overset{3}{2}$	n−b +9.$\overset{5}{4}$
+21.8	−28.6	−11.$\overset{4}{5}$	+9.$\overset{4}{5}$
+21.85	−28.55	−11.35	+9.45
+22.07	−28.83	−11.46	+9.54
÷ .296	÷ .296	−5.73	+4.77
= +74.$\overset{6}{7}$	= −97.4		

A. 7443 No. 89. April 20, 1908

1900 pr. 19 24 57.3 − 53 39.9

a −53 9584 19 22 51.8 −53 43.4 +6.~~2~~1 = 19 22 5~~8.0~~ 7.9 +0.4 = −53 ~~43.0~~

b −53 9589 19 23 30.8 −53 44.9 −33.~~2~~3 = 19 22 57.~~6~~ 85 + ~~2.9~~ 3.1 = −53 4~~2.0~~ 1.8

c −53 9585 19 23 1.3 −53 26.6

19 22 57.8 −53 42.~~5~~ 9

x
c − a = + 9.5

Coo = 53.4 / 2

.298

+ 2.8

+0.1 0.0

+0.1 −0.1

	x	y	x	y
a	70.0	40.0	50.0	40.0
b	81.5	36.8	61.~~5~~6	36.7
n	71.~~9~~8	40.9	51.8	40.9

x	x	y	y
n − a = + 1.8	n − b = − 9.7	n − a = + 0.9	n − b = + 4.1
+ 1.8	− 9.8	+ 0.9	+ 4.2
+ 1.8	− 9.75	+ 0.9	+ 4.~~2~~15
+ 1.82	− 9.85	+ 0.9	+ 4.19
÷ .296	÷ .296	+ 0.45	+ 2.~~9~~095
= + 6.2	− 33.~~2~~3		

A 7443 No. 92 April 20, 1908

object – rather elongated

.2 1900 pos. 19 23 41.1 −53 45.6

a = −53 9573	19 21 6.3	−53 50.6	+35.6 =	19 21 41.9	+2.1 =	−53 48.5
b = 53 9581	19 22 5.3	−53 51.1	−23.8 =	19 21 41.7	+2.6 =	−53 48.5
c = 53 9577	19 21 42.8	−53 30.7		19 21 41.6		−53 48.5

x

c − a = +36.5 −0.1 +0.1 0.0 0.0

Cos $\frac{53.5}{2}$ .297

+10.8

	x	y	x	y
a	60.0	35.0	50.0	35.0
b	77.4	33.9	67.3	33.8
n	70.4	39.1	60.4	39.1

x	x	y	y
n−a = +10.4	n−b = −7.0	n−a = +4.1	n−b = +5.2
+10.4	−6.9	+4.1	+5.3
+10.4	−6.95	+4.1	+5.25
+10.50	−7.02	+4.14	+5.30
÷ .295	÷ .295	+2.07	+2.65
= +35.6	= −23.8		

A 7443 No. 91 April 21, 1908

			1900 pr. 19 24 3.0	−53 46.7
a = −53 9579	19^h 21^m 57.8^s	−53° 37.0″	+ 5.$\overset{2}{3}$ = 19 22 3.$\overset{0}{\cancel{1}}$	−12.$\overset{6}{\cancel{7}}$ = −53 49.$\overset{6}{\cancel{7}}$
b = −53 9581	19 22 5.3	−53 51.1	−2.0 = 19 22 3.3	+1.5 = −53 49.6
c = −53 9582	19 22 20.3	−53 18.0	19 22. 3.2	−53 49.$\overset{6}{\cancel{7}}$

x

c − a = + 22.5 −0.2 +0.1 0.0 0.0

Cos. $\frac{53.3}{2}$ = .299

+ 6.7

	x	y	x	y
a	80.0	60.0	70.0	55.0
b	82.2	32.0	72.$\overset{1}{\cancel{9}}$	26.9
n	81.6	34.9	71.5	29.8

x	x	y	y
n − a + 1.6	n − b − 0.6	n − a − 25.1	n − b = + 2.9
+ 1.5	− 0.6	− 25.2	+ 2.9
+ 1.55	− 0.6	− 25.15	+ 2.9
+ 1.5$\overset{7}{\cancel{6}}$	− 0.6	− 25.40	+ 2.93
÷ .296	÷ 296	− 12.7	+ 1.4$\overset{6}{\cancel{7}}$
+ 5.27	− 2.0		

A 7443 No. 93. April 21st 1908

Object rather large but hazy

α

1900 pos. 19 $\overset{2.9}{23}$ 2.3 − 53 45.1

a = −53 9571 19 20 4.8 −53 52.3 $+58.\overset{1}{\cancel{7}}$ = 19 21 $\cancel{3.5}$ +4.2 = −53 48.1

b = −53 9579 19 21 57.8 −53 37.0 $-55.\overset{0}{\cancel{6}}$ = 19 21 $2.\overset{8}{\cancel{7}}$ $-10.\overset{8}{\cancel{9}}$ = −53 $47.\overset{8}{\cancel{9}}$

C = −52 11459 19 20 59.7 −52 59.0

19 21 $2.\overset{8}{\cancel{9}}$ · −53 48.0

x

+0.1 0.0 +0.1 −0.2

Cos 53.0 / 2

C − a = +54.9

.301

+16.5

	x	y	x	y
a	40.0	15.0	60.0	15.0
b	73.5	44.9	93.5	44.9
n	57.2	23.4	77.2	23.3

x	x	y	y
n − a + 17.2	n − b − 16.3	n − a + 8.4	n − b − 21.5
+ 17.2	− 16.3	+ 8.3	− 21.6
+ 17.2	− 16.3	+ 8.35	− 21.55
+ 17.37	− 16.46	+ 8.43	− 21.76
÷ .296	÷ .296	+ 4.22	$-10.\overset{8}{\cancel{8}}8$
= + 58.7	= − 55.6		

A 7443 No. 90 April 21, 1908.

3900 pos. 19 24 22.~~6~~8 -53 47.7

a = -53 9581 19 22 5.3 -53 51.1 +17.~~7~~5 = 19 22 2~~3.0~~2.8 +0.4 = -53 50.~~7~~6

b = -53 9584 19 22 51.8 -53 43.4 -2~~9.7~~8.8 = 19 22 2~~2.6~~3.3 -7.~~3~~2 = -53 50.~~7~~6

c = -53 9582 19 22 20.3 -53 18.0 19 22 ~~22.9~~ 23.0~~8~~ -53 50.~~7~~6

x

c - a = + 15.0 -0.4 +0.3 +0.1 0.0

Cos -53.3/2 .1299

+ 4.5

	x	~~x~~ y	x	y
a	80.0	20.0	55.0	25.0
b	93.5	35.3	68.5	40.3
n	85.1	20.9	60.1	25.9

x	x	y	y
n - a + 5.1	n - b - 8.4	n - a = + 0.9	n - b = -14.4
+ 5.1	- 8.4	+ 0.9	- 14.4
+ 5.1	- 8.4	+ 0.9	- 14.4
+ 5.15	- 8.48	+ 0.9	- 14.54
÷ .29~~8~~5	÷ .29~~8~~5	+ 0.45	- 7.27
+ 17.~~7~~5	- 2~~9.7~~8.8		

A 7443 No. 96 April 21, 1908.

Object

1900 pos. 19 17 27.1 -53 48.2

	h. m. s		° '			
a = -53 9537	19 13 5.1	-53	53.3	+14$\overset{2}{3}$.$\overset{4}{8}$ =	19 15 2$\overset{7}{8}$.$\overset{5}{9}$	+2.1 = -53 51.2
b = -53 $\overset{9}{8}$560	19 17 25.8	-53	48.0	-1$\overset{19}{70}$.$\overset{1}{3}$ =	19 15 2$\overset{6}{5}$.$\overset{7}{1}$	-2.6 = -53 50.6
c = -53 9550	19 15 11.8	-53	3.6		19 15 27.$\overset{1}{2}$	-53 50.$\overset{9}{8}$

+0.4 -0.4 +0.3 -0.3

$\cancel{n}$

c - a = +126.7

$\dfrac{\cos -53.0}{2}$ = .301

+38.1

	x	y	x	y
a	40.0	20.0	50.0	20.0
b	117.1	29.3	127.2	29.3
n	82.0	24.1	92.0	24.1

x		x		y		y
n-a	+42.0	n-b	-35.1	n-a	+4.1	n-b	-5.2

	x	x	y	y
n-a	+42.0	-35.1	+4.1	-5.2
	+42.0	-35.2	+4.1	-5.2
	+42.0	-35.15	+4.1	-5.2
	+42.42	-35.50	+4.14	-5.25
	÷ .295	÷ .295	+2.07	-2.63
	+14$\overset{3}{4}$.79	-120.34		

√√ A.J.B.
comp. stars are rather distant

A 7443 No 97 April 21, 1908

	Object		1900 pos. 19 17 14.5	−53 47.5
a = −53 9547	19 14 42.3	−53 36.9	+32.~~5~~2 = 19 15 14.~~8~~5	−13.~~3~~2 = −53 50.~~2~~1
b = −5~~3~~4 9358	19 15 52.1	−54 1.0	−3~~8.0~~7.6 = 19 15 14.~~1~~5	+10.~~8~~7 = −53 50.~~7~~3
c = −53 9550	19 15 11.8	−53 3.6	19 15 14.~~5~~5	−53 50.2
	x c − a = +29.5		0.0 0.0	−0.1 +0.1

cos −53.0 / 2 .301

+ 8.9

	x	y	x	y
a	40.0	55.5	60.0	55.0
b	60.6	7.8	80.5	7.2
n	~~7.8~~ 49.6	29.2	69.4	28.7

x	x	y	y
n − a + 9.6	n − b − 11.0	n − a −26.3	n − b + 21.4
+ 9.4	− 11.1	− 26.3	+ 21.5
+ 9.5	− 11.1	− 26.3	+ 21.45
+ 9.59	− 11.21	− 26.56	+ 21.~~5~~66
÷ .295	÷ .295	− 13.28	+ ~~21~~10.83
+ 32.5	− 38.0		

A. 7443 No. 102 April 22, 1908

Object =

1900 pos. 19 17 53.6 −54 1.1

a = −54 9357	19 15 39.8	−54 4.6	$\overset{12}{+14.3}$ = 19 15 $\overset{39}{54.1}$	+0.7 = −54 3.9	
b = −54 9358	19 15 52.1	−54 1.0	$\overset{9}{+0.8}$ = 19 15 $\overset{30}{52.9}$	~~+2.7~~ = −54 3.7	
c = $-\overset{3}{54}$ $9\overset{5}{3}5\overset{7}{9}$	19 16 20.8	−53 36.2	19 15 $\overset{4}{53.5}$	−54 3.8	
			+0.5 −0.4	+0.1 −0.1	

x

c − a = + 41.0

Cos −53.6 / 2

·297

+ 12.2

	x	y	x	y
a	60.0	15.0	40.0	15.0
b	63.9	21.8	43.9	21.8
n	64.2	16.4	44.1	16.4

x	x	y	y
n − a +4.2	n − b +0.3	n − a +1.4	n − b −5.4
+4.1	+0.2	+1.4	−5.4
+4.15	+0.25	+1.4	−5.4
+4.19	+0.25	+1.41	−5.45
÷ ·29$\overset{4}{3}$	÷ ·29$\overset{4}{3}$	+0.7	−2.7
+14.3	+0.$\overset{9}{8}$		

A. 7443 No. 101. April 22, 1908.

1900 pos. 19 20 16.4 − 54 3.7

	h. m. s.	° ″		
a = −53 9560	19 17 25.8	−53 48.0	+49.$\overset{0}{5}$ = 19 18 $\overset{4.8}{15.8}$	−18.$\overset{4}{6}$ = −5$\overset{4}{3}$ 6.$\overset{4}{6}$
b = −54 9376	19 19 11.8	−54 11.8	−$\overset{3.8}{54.2}$ = 19 18 $\overset{8.9}{17.6}$	+5.$\overset{2}{3}$ = −54 6.$\overset{6}{5}$
			19 18 16.$\overset{4}{5}$	−54.6$\overset{5}{6}$
c = −53 9563	19 18 24.3	−53 26.9		

x

C − a = +58.5 −1.6 + 1.6 −0.1 + 0.1

cos −53.4 / 2

.298

+17.4

	x	y	x	y
a	60.0	68.0	45.0	49.8
b	90.2	12.4	$\overset{7}{4}$5.2	2.4
n	74.4	23.0	59.4	13.0

x		x		y		y
n − a +14.4	n − b	−15.8	n − a	−37.0	n − b	+10.6
+14.4		−15.8		−36.8		+10.4
+14.4		−15.8		−36.9		+10.5
+14.54		−15.96		−3$\overset{7}{6}$.27		+10.60
÷ .294		÷ .294		−18.64		+5.3
+49.5		−.54.$\overset{3}{2}$				

A 7443 No. 64 april 23, 1908

			1900 pos. 19 27 14.9	-53 4.9
a = -53 9592	19 24 36.8	-53 10.1	+41.5 = 19 25 17.8	+2.4 = -53 7.7
b = -53 9604	19 26 15.8	-53 6.6	-58.8 = 19 25 17.0	-2.2 = -53 8.8
c = -53 9596	19 25 11.3	-53 47.2	19 25 17.2	-53 8.2
			17.0	8.0

x

c - a = +34.5

c₀ - 53.8 / 2

.295

10.2

~~void~~

+0.1 -0.2

-0.5 +0.6

(06 08 / 04 01)

(03 08)

	x	y	x	y
a	70.0	84.5	60.0	85.0
b	99.7	91.7	89.7	92.2
n	82.2	89.3	72.1	94.9

	x		x		y		y
n - a	+12.2	n - b	-17.5	n - a	+4.8	n - b	-2.4
	+12.1		-17.6		+4.9		-2.3
	+12.15		-27.55		+4.85		-2.35
	+12.27		-27.82		+4.90		-2.37
	÷ .3005		÷ .3005		+2.45		-2.19
	+ 41.2		- 91.8				
	+ 40.9		- 59.4				

A. 7443 No. 64 April 24, 1908

1900 app. 19 27 15.~~8~~ 1~~2~~ −53 4.9

a = −53 9592 19 24 36.8 −53 10.1 +4~~1.8~~ 0.9 = 19 25 17.~~8~~ 1~~4~~ +2.4 = −53 7.7

b = −53 9597 19 25 21.8 −53 11.7 −5.~~4~~ 5 19 25 16.~~4~~ 3~~5~~ +3.9 = −53 7.8

c = −53 9596 19 25 11.3 −53 47.2 19 25 ~~17.1~~ ~~16.8~~ 16.7 −53 7.8

x

c − a = +34.5

Cos −53.8 / 2

.295

+10.2

+0.4 −0.4 −0.1 0.0

0.~~1~~ 2 ~~97~~ 06 03 02

	x	y	x	y
a	70.0	80.5	60.0	81.4
b	83.7	77.5	73.8	78.4
n	82.1	85.3	72.1	86.1

x		x		y		y
~~a−b~~ n−a	+12.1	n−b	−1.6	n−a	+4.8	n−b +7.8
	+12.1		−1.7		+4.7	+7.7
	+12.1		−1.65		+4.75	+7.75
	12.22		−1.67		+4.~~80~~ 80	+7.83
	÷ .~~298~~ .300 9		÷ .~~298~~ .300 9		+2.4	+3.92
	+4~~1.8~~ 0.9		−5.~~4~~ 6			

A 7443 No 65 April 24, 1908.

$\overset{8}{1900}$ pos. 19 27 $\overset{13.6}{0\cancel{4}}$ -53 3.5

a. -53 9592	19 24 36.8	-53 10.1	$+39.\overset{8}{7}$ = 19 $\overset{5}{24}$ 16.5	+3.6 = -53 6.5
b. -53 9597	19 25 21.8	-53 11.7	$-7.\overset{0}{1}$ = 19 25 $14.\overset{8}{7}$	$+5.\overset{0}{1}$ = -53 $6.\overset{7}{6}$
c. -53 9596	19 25 11.3	-53 47.2	19 25 $15.\overset{4}{1}$	-53. 6.6

x

C - a = + 34.5

Cos -53.8 / 2

.295

+ 10.2

+0.6 -0.6

-0.1 +0.1

	x	y	x	y
a	60.0	81.4	55.0	80.7
b	73.7	78.3	68.7	77.7
n	$71.\overset{7}{8}$	88.4	66.8	87.8

x		x		y		y	
n-a	+11.7	n-b	-2.0	n-a	+7.0	n-b	+10.1
	+11.8		-2.1		+7.1		+10.1
	+11.75		-2.1		+7.1		+10.1
	$+11.\overset{8}{7}7$		-2.12		+7.17		+10.20
	÷ $\overset{.300\ 8}{.298}$		÷ $\overset{.300\ 8}{.298}$		+3.58		+5.1
	+ 5.9 + $39.\overset{6}{7}$.		-7.1				

A. 7443 No. 75 april 27, 1908

1900 pos. 19 31 26.0 −53 17.8

7 ~~8~~ 7 ~~8~~ 2 1

a = −53 9617 19 29 16.0 −53 30.3 +11.~~8~~ = 19 29 27.8 +9.~~3~~ = −53 21.~~3~~

7 ~~8~~ 3 ~~x~~ 2.9 0.9

b = −53 9621 19 29 41.0 −53 8.0 −12.~~8~~ = 19 29 28.~~7~~ −1~~3~~.~~6~~ = −53 2~~1~~.~~0~~

0

c = −52 11488 19 29 22.2 −52 39.8 19 29 28.0 −53. 21.~~7~~

x

c − a = +6.2 −0.3 +0.3 +0.1 −0.1

$\frac{\cos 52.7}{2}$ .303

+1.9

	x	y	x	y
a	70.0	10.0	60.0	15.0
b	77.3	54.2	67.3	59.2
n	73.5	28.5	63.5	33.5

	x		x		y		y
n − a	+3.5	n − b	−3.8	n − a	+18.5	n − b	−25.7
	+3.5		−3.8		+18.5		−25.7
	+3.5		−3.8		+18.5		−25.7
	+3.5~~3~~ 4		−3.84		+18.68		−25.96
	÷ .299		÷ .299		+9.34		−12.98
	+11.~~8~~ 9		−12.~~8~~ 9				

A 7443 No. 66 April 27, 1908

1900 pos. 19 27 11.1 −53 9.1

a = −53 9592 19 24 36.8 −53 10.1 +37.1 = 19 25 13.9 − 2.1 = −53 12.2

b = −53 9597 19 25 21.8 −53 11.7 − 9.5 = 19 25 12.3 − 0.6 = −53 12.3

c = −52 11476 19 25 5.5 −52 13.7 19 25 12.76 −53 12.25

+0.2 −0.3 0.6 +0.1

$\cos \frac{-52.2}{2}$

c − a = 28.7

.306

8.8

	x	y	x	y
a	50.0	9.7	65.0	10.0
b	63.7	6.7	78.6	7.0
n	60.8	5.4	75.8	5.8

x	x	y	y
n − a +10.8	n − b − 2.9	n − a − 4.3	n − b − 1.3
+10.8	− 2.8	− 4.2	− 1.2
+10.8	− 2.85	− 4.25	− 1.25
+10.91	− 2.88	− 4.29	− 1.26
÷ .300	÷ .300	− 2.145	− 0.63
+36.4	− 9.6		

A 7443 No. 62 April 27, 1908.

			1900 pos. 19 29 11.5	−53 7.1
a = −53 9604	19 26 15.8	−53 6.6	+57.~~7~~ = 19 27 1~~3~~.~~5~~ (0~~8~~ ; 28~~7~~)	−3.6 = −53 10.2
b = −53 9609	19 28 22.0	−53 13.8	~~+~~ 6~~9~~.~~6~~ = 19 27 1~~7~~.~~4~~ (8.~~7~~ ; 33~~8~~)	+3.7 = −53 10.1
c = −53 9606	19 26 39.8	−53 57.8	19 27 1~~7~~.~~8~~ (3.0)	−53 10.2
	✗ c − a = 24.0		−0.2 +0.3	0.0 −0.1

cos −53.9 / 2

.295

7.1

	x	y	x	y
a	60.0	100.0	40.0	98.3
b	97.7	85.6	77.7	83.8
n	77.1	93.~~1~~0	57.1	91.1

	x		x		y		y
n − a	+17.1	n − b	−20.6	n − a	−~~6.9~~ 7.0	n − b	+7.~~5~~ 46
	+17.1		−20.6		−7.2		+7.~~2~~3
	+17.1		−20.6		−7.1		+7.35
	+17.27		−20.81		−7.17		+7.42
	÷ .~~299~~ 3.00		÷ .~~299~~ .300		−3.5~~9~~8		+3.71
	+57.~~7~~6		−69.~~6~~4				

A 7443 No. 40 April 28, 1908

1900 pos. 19 22 48.4 -52 29.7

a = -52 11458	19 20 30.5	-52 30.3	+20.~~7~~3 = 19 20 50.~~7~~6	-2.3 = -52 32.6
b = -52 11462	19 21 40.0	-52 36.9	-49.~~8~~4 = 19 20 50.~~8~~6	+4.3 -52 32.6
C = -52 11459	19 20 59.7	-52 59.0	19 20 50.~~4~~6	-52 32.6

α
C - a = +29.2

0.0 0.0 0.0 0.0

Cos -53.0 / 2

.301

+ 8.8

	x	y	x	y
a	50.0	88.4	70.0	90.0
b	71.1	73.2	91.1	76.8
n	56.1	81.9	76.1	85.3

	x		x		y		y
n - a	+6.1	n - b	-15.0	n - a	-4.5	n - b	+8.7
	+6.1		-15.0		-4.7		+8.5
	+6.1		-15.0		-4.6		+8.6
	+6.16		-15.15		-4.65		+8.69
	÷ .304		÷ .304		-2.32		+4.34
	+20.~~7~~3		-49.9				

Note In checking over the work below I found error was due to adding instead of subtracting in matter of Dif. in Dec.
~~see pg 3x for better results.~~
" The result on page 30 has been recorded in card catalogue. Both meas. are practically same; however.

" ~~[illegible]~~ "
~~[illegible]~~ ".

A 7443 No. 42 April 29, 1908.

a -52 11451	19 18 30.0	-52 33.8	+53.$\overset{3}{8}$ = 19 19 23.$\overset{3}{8}$	+1.2 = -52 3$\overset{2.6}{5.0}$
b -52 11456	19 19 53.0	-52 34.9	-31.$\overset{1}{4}$ = 19 19 21.$\overset{9}{6}$	+2.3 = -52 3$\overset{2.6}{6.2}$
c -53 9567	19 19 15.3	-53 2.0	19 19 22.$\overset{6}{7}$	-52 3$\overset{2}{5}$.6

x

c - a = +45.3 +0.7 -0.7 0.0 0.0

cos - 53.0 / 2 .301

+13.6

	x	y	x	y
a	50.0	94.9	60.0	95.0
b	75.6	92.$\overset{8}{9}$	85.7	92.7
n	66.2	97.2	76.2	97.3

	x		x		y		y
n-a	+16.2	n-b	-9.4	n-a	+2.3	n-b	+4.4
	+16.2		-9.5		+2.3		+4.6
	+16.2		-9.45		+2.3		+4.5
	+16.36		-9.54		+2.32		+4.54
	÷.304		÷.304		+1.16		+2.27
	+53.8		-31.4				

✓

A 7443 No. 42 April 29, 1908

0 1900 pos. 19 21 20.7 −52 29.7

a = −52 11451 19 18 30.0 −52 33.8 + 5~~4~~3.~~0~~5 = 19 19 2~~4~~3.~~0~~5 + 1.1 = −52 32.7

b = −52 11458 19 20 30.5 −52 30.3 − 68.~~9~~2 = 19 19 2~~1~~2.~~6~~3 ~~+~~ 2.~~8~~ = −52 32.~~8~~5

c = −53 9567 19 19 15.3 −53 2.0 19 19 22.~~8~~9 −52 32.~~6~~ 6

x

c − a = + 45.3 +0.6 −0.6 +0.1 −0.1

Cos − 53.0 / 2 .301

+ 13.6

	x	y	x	y
a	60.0	80.1	55.0	85.0
b	97.0	86.8	92.0	91.7
n	76.3	82.3	71.2	87.2

	x		x		y		y
n − a	+ 16.3	n − b	− 20.7	n − a	+ 2.2	n − b	− 4.5
	+ 16.2		− 20.8		+ 2.2		− 4.5
	+ 16.25		− 20.75		+ 2.2		− 4.5
					+ 2.22		− 4.547
	+ 16.41		− 20.96		+ 1.1		− 2.25
	÷ .304		÷ .304				
	+ 54.0		− 68.9				

A 7443 No. 51 april 28, 1908

1900 pos. 19 22 46.6 -52 33.5

a = -52 11456 19 19 53.0 -52 34.9 $+55.\overset{2}{8}$ = 19 20 $48.\overset{2}{8}$ -1.6 = -52 36.5

b = -52 11462 19 21 40.0 $-5\overset{2}{3}$ 36.9 $-51.\overset{0}{5}$ = 19 20 $48.\overset{9.0}{5}$ +0.5 = -52 36.4

c = -52 11459 19 20 59.7 -52 59.0 19 20 $48.\overset{6}{7}$ -52 $36.\overset{4}{5}$

x

c - a = +66.7 -0.4 +0.4 +0.1 0.0

$\frac{\cos -5\overset{3}{2}.0}{2}$ .301

+20.1

	x	y	x	y
a	60.0	94.9	40.0	84.8
b	92.3	90.8	72.3	80.7
n	76.8	91.8	56.8	81.7

	x		x		y		y
n-a	+16.8	n-b	-15.5	n-a	-3.1	n-b	+1.0
	+16.8		-15.5		-3.1		+1.0
	+16.8		-15.5		-3.1		+1.0
	+16.97		$-15\,6\overset{6}{5}$		-3.13		+1.01
	÷ .304		÷ .304		-1.57		+0.5
	+55.8		-51.5				

A 7443 No. 48 April 30th, 1908.

1900 pro. 19 23 53.2 -52 36.1

a = -52 11462 19 21 40.0 -52 36.9 + 15.3 = 19 21 55.8 - 2.1 = -52 39.0

b = -52 11465 19 22 35.5 -52 43.5 - $\overset{39.9}{40.3}$ = 19 21 $\overset{6}{55.2}$ + 4.5 = -52 39.0

c = -53 9580 19 22 5.3 -53 8.7 19 21 55.8 -52 39.0

x

c - a = + 25.3

-0.3 +0.2 0.0 0.0

Cos -53.1 / 2

.300

7.6

	x	y	x	y
a	70.0	89.8	80.0	90.0
b	86.7	76.8	96.7	$\overset{7}{72.2}$
n	74.6	85.8	84.6	85.9

x	x	y	y
n-a + 4.6	n-b - 12.1	n-a - 4.0	n-b + 9.0
+ 4.6	- 12.1	- 4.1	+ 8.7
+ 4.6	- 12.1	- 4.1	+ $\overset{8}{8.75}$
+ 4.64	- 12.22	- 4.14	+ 8.93
÷ .303	÷ .303	- 2.07	+ $\overset{6}{4.47}$
+ 15.3	- 40.3		

A 7443 No. 49 April 30th 1908

1900 pos. 19 23 43.9 -52 36.2

5.9 5.9

a = -52 11462 19 21 40.0 -52 36.9 +6.0 = 19 21 46.0 - 2.2 = -52 39.1

2 6.3

b = -52 11465 19 22 35.5 -52 43.5 -49.7 = 19 21 45.8 +4.4 = -52 39.1

6.1

c = -53 9580 19 22 5.3 -53 8.7 19 21 45.9 -52 39.1

x

c-a = + 25.3

-0.2 +0.2 0.0 0.0

Cos $\frac{-53.1}{2}$

.300

7.6

	x	y	x	y
a	70.0	89.8	65.0	90.1
b	86.7	76.8	81.7	77.1
n	71.8	85.5	66.8	85.8

	x		x		y		y
n-a	+ 1.8	n-b	-14.9	n-a	-4.3	n-b	+ 8.7
	+ 1.8		-14.9		-4.3		+ 8.7
	+ 1.8		-14.9		-4.3		+ 8.7
	+ 1.82		-15.05		-4.34		+ 8.79
	÷ .303		÷ .303		-2.17		+ 4.39
	+ 6.0		-49.7				

A 7443 No. 52 April 30th 1908

1900 pos. 19 21 18.9 −52 38.1

a = −52 11449 19 17 46.0 −52 50.6 +9$\overset{5}{\cancel{6}}$.5 = 19 19 2$\overset{1}{\cancel{2}}$.5 + 9.$\overset{4}{\cancel{5}}$ = −52 41.$\overset{2}{\cancel{1}}$

b = −52 11458 19 20 30.5 −52 30.3 −7$\overset{0}{\cancel{1}}$.$\overset{6}{\cancel{3}}$ = 19 19 19.$\overset{9}{\cancel{2}}$ − 10.$\overset{5}{\cancel{6}}$ = −52 40.$\overset{8}{\cancel{9}}$

c = −53 9568 19 19 18.3 −53 20.6 19 19 20.$\overset{7}{\cancel{8}}$ −52 41.0

x

c − a = +92.0

+0.8 −0.8 +0.2 −0.2

cos −53.3 / 2

.299

+27.5

	x	y	x	y
a	40.0	70.0	50.0	85.0
b	90.3	109.8	100.4	124.9
n	68.9	88.9	79.0	103.9

x		x		y		y	
n − a	+28.9	n − b	−21.4	n − a	+18.9	n − b	−20.9
	+29.0		−21.4		+18.9		−21.0
	+28.95		−21.4		+18.9		−20.95
	+2$\overset{9}{\cancel{8}}$.24		−21.61		+19.09		−21.16
	÷.303		÷.303		+9.54		−10.58
	+96.5		−71.3				

A 7443 No 53 May 1, 1908.

Obj.

1900 pos. 19 21 14.2 − 52 44.0

a. −52 11451 19 18 30.0 − 52 33.8 $+\overset{5.5}{46.0}$ = 19 19 $\overset{55}{16.0}$ $-\overset{1}{13.2}$ = −52 $\overset{6.9}{47.0}$

b. −52 11455 19 19 50.0 − 52 52.5 $-\overset{4}{33.7}$ = 19 19 $\overset{6}{16.3}$ $+\overset{6}{5.7}$ = −52 $\overset{9}{46.8}$

c. −53 9565 19 18 47.3 − 53 32.1 19 19 $\overset{0}{16.2}$ −52 46.9

x

c − a = + 17.3 −0.5 +0.6 0.0 0.0

Cos $\frac{53.5}{2}$ .297

5.1

	x	y	x	y
a	60.0	119.1	55.0	120.0
b	$\overset{9}{83.8}$	81.7	78.9	$\overset{2}{83.7}$
n	73.8	92.9	68.8	93.9

x		x		y		y	
n − a	+ 13.8	n − b	− 10.1	n − a	− 26.2	n − b	+ $\overset{1}{14.2}$
	+ 13.8		− 10.1		− 26.1		+ 11.2
	+ 13.8		− 10.1		− 26.1		+ 11.2
	+ 13.94		− 10.20		− 26.36		+ 11.31
	÷ .303		÷ .303		− 13.18		+ 5.66
	+ 46.0		− 33.7				

A 7443 No. 50 May 1, 1908

1900 pos. 19 23 $\overset{3\cancel{7}}{22.8}$ −52 40.4

a = −52 11457	19 20 19.5	−52 35.1	$+6\overset{4.8}{\cancel{5}.\cancel{8}}$ = $\cancel{2}$19 21 $\cancel{24.8}$ −8.$\overset{3}{\cancel{4}}$ = −52 43.$\overset{4}{\cancel{5}}$
b = −52 11466	19 22 37.5	−52 47.3	$-72.\overset{.29}{\cancel{8}}$ = 19 21 $\overset{53\cancel{8}}{\cancel{24}.\cancel{7}}$ +4.$\overset{1}{\cancel{4}}$ = −52 $\overset{3.2}{4\cancel{7}.\cancel{9}}$
c = −53 9577	19 21 42.8	−53 30.7	19 21 24.8 −52 43.$\overset{3\cancel{4}}{\cancel{7}}$

x

c − a = + 83.3 −0.5 +0.5 +0.1 −0.1

$\frac{\cos -53.5}{2}$ .297

+ 24.7

	x	y	x	y
a	50.0	115.0	65.0	118.7
b	91.4	90.2	106.5	93.8
n	69.6	98.4	84.6	102.0

x	x	y	y
n − a +19.6	n − b −21.8	n − a +16.6	n − b +8.2
+19.6	−21.9	−16.7	+8.2
+19.6	−21.85	−16.65	+8.2
+19.80	−22.07	−16.82	+8.28
÷ .303	÷ .303	−8.41	+4.14
+65.$\overset{4}{\cancel{8}}$	−72.$\overset{9}{\cancel{8}}$		

A 7443 No. 47 May 4, 1908

1900 $\overset{4.6}{\text{pos.}}$ 19 28 21.7 − 52 39.0

a = −52 11479 19 25 40.0 −52 39.2 +$\overset{4.6}{45.0}$ = 19 26 $\overset{4.6}{25.0}$ −2.8 = −52 42.0

b = −52 11481 19 26 41.7 −52 42.6 −$\overset{5}{18.7}$ = 19 26 $\overset{2}{23.0}$ +0.4 = −52 42.2

c = −53 9602 19 26 8.3 −53 16.6

19 26 $\overset{3.9}{24.0}$ −52 42.1

½

c − a = +28.3 +0.7 −0.7 −0.1 +0.1

Cos $\frac{-53.3}{2}$ .299

8.5

	x	y	x	y
a	70.0	100.0	65.0	$\overset{10}{94.0}$
b	89.1	93.7	84.1	97.7
n	83.5	94.4	78.5	98.4

x	x	y	y
n − a + 13.5	n − b − 5.6	n − a − 5.6	n − b + 0.7
+ 13.5	− 5.6	− 5.6	+ 0.7
+ 13.5	− 5.6	− 5.6	+ 0.7
+ 13.64	− 5.66	− 5.66	+ 0.71
÷ .303	÷ .303	− 2.83	+ 0.$\overset{3}{4}$6
+ 45.0	− 18.7		

√

A 7443 No. 57 May $\overset{5}{\cancel{4}}$th 1908

			1900 pos.	19 31 55.4	− 53 2.4
a = − 53 9621	19 29 41.0	− 53 8.0	+ 16.$\overset{5}{\underset{2}{\cancel{7}}}$ =	19 29 57.$\overset{5}{\cancel{7}}$	+ 2.4 = − 53 5.6
b = − 53 9629	19 30 39.0	− 53 1.1	− 41.$\cancel{8}$ =	19 29 57.$\overset{8}{\cancel{4}}$	− 4.$\overset{\cancel{8}}{6}$ = − 53 5.7
C = − 53 9625	19 30 2.0	− 53 35.4		19 29 57.6	− 53 5.$\overset{6}{\cancel{7}}$
	x				
	C − a = + 21.0			− 0.1 + 0.2	0.0 + 0.1
Cos − 53.6 / 2	.297				
	+ 6.2				

	x	y	x	y
a	80.0	85.0	75.0	75.0
b	97.3	98.9	92.3	88.9
n	84.9	89.8	80.0	79.8

x	x	y	y
n − a + 4.9	n − b − 12.4	n − a + 4.8	n − b − 9.1
+ 5.0	− 12.3	+ 4.8	− 9.1
+ 4.95	− 12.35	+ 4.8	− 9.1
+ $\overset{5.00}{\cancel{4.99}}$	− 12.47	+ 4.85	− 9.19
÷ .300	÷ .300	+ 2.42	− 4.595
+ 16.7	− 41.6		

A 7443   No. 58   May 5, 1908

1900 pos. 19 31 21.4 − 53 11.6

a = −53 9615   19 28 54.0   −53 17.0 $+29.\overset{3}{\cancel{6}}$ = 19 29 $23.\overset{3}{\cancel{6}}$ +2.2 = −53 14.8

b = −53 $96\,1\overset{9}{\cancel{8}}$ 19 29 $32.\overset{6}{\cancel{1}}$ −53 $10.\overset{8}{\cancel{1}}$ $-9.\overset{3}{\cancel{1}}$ = 19 29 $2\overset{3}{\cancel{2}}.\overset{\overset{3}{\cancel{2}}}{\cancel{7}}$ −4.0 = −53 14.8

c = −52 11485   19 28 54.7   −52 39.8   19 29 $23.\overset{3\,\cancel{4}}{\cancel{2}}$ −53 14.8

x

c − a = + 0.7   0.0 0.0   0.0 0.0

cos −52.7 / 2   .303

+ .2

	x	y	x	y
a	70.0	45.0	65.0	45.0
b	81.6	57.3	76.6	57.3
n	78.8	49.4	$\overset{3}{7}8.8$	49.4

	x		x		y		y
n − a	+ 8.8	n − b	− 2.8	n − a	+ 4.4	n − b	− 7.9
	+ 8.8		− 2.8		+ 4.4		− 7.9
	+ 8.8		− 2.8		+ 4.4		− 7.9
	$+\,8.\overset{8}{\cancel{9}}9$		− 2.83		+ 4.44		− 7.98
	÷ .300		÷ .300		+ 2.2		− 3.99
	$+\,29.\overset{4}{\cancel{6}}$		− 9.4				

H.a. 7443 No. 59 May 7, 1908

1900 pos. 19 30 25.6 − 53 2.6

a = −53 9604 19 26 15.8 − 53 6.6 + 137.2 = 19 28 27.3 +0.6 = −53 6.0

b = −53 9629 19 30 39.0 − 53 1.1 − 137.2 = 19 28 27.8 −4.5 = −53 5.6

c = −52 11482 19 27 24.7 − 52 24.6 19 28 27.6 −53 5.9

x

c − a = +68.9 −0.5 +0.5 +0.2 −0.2

$\frac{\text{Cos} -52.4}{2}$ .305

+ 21.0

	x	y	x	y
a	50.0	26.0	55.0	25.4
b	128.9	35.0	133.9	35.5
n	89.5	26.1	94.5	26.6

x	x	y	y
n − a = +39.5	n − b − 39.4	n − a +1.1	n − b − 8.9
+39.5	− 39.4	+1.2	− 8.9
+39.5	−39.4	+1.75	− 8.9
+39.90	−39.79	+1.16	− 8.99
÷ .301	÷ .301	+ 0.58	− 4.49
+ 132.2	− 132.2		

A 7443   No. ~~60~~ 74   May 7, 1908 8.

1900 pos. 19 31 52.8 − 53 25.6

a. −53 9622   19 29 42.5   −53 24.9   +12.~~7~~ 3 = 19 29 54.~~7~~ 8   − 3.9 = −53 28.8

b. −53 9625   19 30 2.0   −53 35.4   − 8.~~1~~ 2 = 19 29 53.8   + 6.~~6~~ 5 = −53 28.~~8~~ 9

c. −53 96~~30~~ 24   19 30 15   −53 59.~~4~~ 8

19 29 54.3   −53 28.8

c − ~~b~~ a = + ~~40.0~~ = ~~+59.5~~   c − a = + 19.0   +0.4 − 0.4   0.0 + 0.1

Cos − 5~~3~~ 4.0 / 2

.299   .299   .29~~9~~ 4

+ ~~xx.x~~   ~~x x.x~~   ~~xx.8~~   + 5.~~7~~ 6

	x	y	x	y
a	70.0	95.0	75.0	90.0
b	76.0	74.1	81.0	69.1
n	73.6	87.~~1~~ 2	78.6	82.2

x	x	y	y
n − a + 3.6	n − b − 2.4	n − a − 7.8	n − b + 13.1
+ 3.6	− 2.4	− 7.8	+ 13.1
+ 3.6	− 2.4	− 7.8	+ 13.1
+ 3.64	− 2.42	− 7.88	+ 13.~~4~~ 23
÷ .297	÷ .297	− 3.94	+ 6.62
+ 12.~~7~~ 3	− 8.~~1~~ 2		

✓

A 7443 No. 76 May 8, 1908.

			1900 pos.	19 31 8.4	−53 21.4
A = −53 9612	19 28 32.5	−53 22.5	+37.~~6~~2 =	19 29 ~~10.1~~ 9.7	−2.5 = −53 25.0
B = −53 9622	19 29 42.5	−53 24.9	−3~~7.7~~1.9 =	19 29 10.~~8~~6	+0.8 = −53 24.1
C = −52 11485	19 28 54.7	−52 39.8		19 29 10.2	−53 24.6

x

C − a = +22.2 — −0.5 +0.4 — +0.4 −0.5

Cos −52.7 / 2

.30~~5~~4

+6.7

	x	y	x	y
A	60.0	25.0	5~~5~~0.0	30.0
B	8~~1~~0.6	20.~~1~~0	70.6	24.9
n. C	71.8	2~~1.2~~0.1	6~~8~~1.1	25.1

x		x		y		y
n − a	+11.1	n − b	−9.5	n − a	−4.9	n − b +0.1
	+11.1		−9.5		−4.9	+0.2
	+11.1		−9.5		−4.9	+0.~~2~~15
	+11.21		−9.~~59~~60		−4.95	+0.15
	÷ .298		÷ .298		−2.48	+0.8
	+37.6		−32.2			

A 7443 No. 77 May 8, 1908.

1900 fr. 19 30 56.0 -53 23.5

A = -53 9612 19 28 32.5 -53 22.5 + 25.$\overset{3}{\cancel{1}}$ = 19 28 5$\overset{6}{\cancel{7}}$.$\overset{8}{\cancel{7}}$ -4.3 = -53 26.8

B = -53 9617 19 29 16.0 -53 30.3 $\cancel{+}$ -$\overset{7.9}{\cancel{18.1}}$ = 19 28 5$\overset{8}{\cancel{7}}$.$\overset{1}{\cancel{9}}$ +3.7 = -53 26.6

C = -5$\overset{2}{\cancel{3}}$ 11485 19 28 54.7 -52 39.8 19 28 57.8 -53 26.7

-0.2 +0.3 +0.1 -0.1

x

C - A = + 22.2

Cos -52.7 / 2

.30$\overset{4}{\cancel{3}}$

+ 6.7

	x	y	x	y
A	55.0	35.0	60.0	35.0
B	67.8	19.3	72.8	19.3
n	62.5	26.6	67.4	26.5

	x		x		y		y
n-a	+ 7.5	n-b	$\cancel{+}$ -5.3	n-a	- 8.4	n-b	+ 7.3
	+ 7.4		- 5.4		- 8.5		+ 7.2
	+ 7.45		- 5.35		- 8.45		+ 7.25
	+ 7.52		- 5.40		- 8.53		+ 7.32
	÷ .298		÷ .298		- 4.27		+ 3.66
	+ 25.$\overset{3}{\cancel{2}}$		- 18.1				

A 7443 No. 78 May $\overset{9\ 9th}{8}$, 1908.

			1900 pos. 19 30 33.3	−53 21.6
A = −53 9609	19 28 22.0	−53 13.8	$+12.\overset{8}{\cancel{9}}$ − 19 28 $34.\overset{8}{\cancel{9}}$	$-11.\overset{0}{\cancel{1}}$ = −53 $24.\overset{8}{\cancel{9}}$
B = −53 9614	19 28 45.5	−53 38.1	$-10.\overset{1}{\cancel{7}}$ = 19 28 $35.\overset{4}{\cancel{3}}$	$+13.\overset{2}{\cancel{8}}$ = −53 $24.\overset{9}{\cancel{8}}$
C = −52 11484	19 28 19.2	−52 47.5	19 28 35.1	−53 $24.\overset{8}{\cancel{9}}$

x

C−a = −2.8

−0.3 +0.3

0.0 +0.1

Cos $\frac{-52.8}{2}$

.302

−0.8

	x	y	x	y
A	70.0	60.0	75.0	56.3
B	76.8	11.7	81.8	7.9
N.	$7\overset{3}{\cancel{4}}.8$	38.0	78.8	$\overset{3}{7}4.3$

	x		x		y		y
n−a	$+\overset{3}{\cancel{4}}.8$	n−b	−3.0	n−a	−22.0	n−b	+26.3
	+3.8		−3.0		−22.0		+26.4
	+3.8		−3.0		−22.0		+26.35
	+3.84		−3.03		−22.22		+26.61
	÷ .298		÷ .298		−11.11		+13.3
	+12.9		−10.2				

A 7443 No. $\overset{8}{80}$ May 9. 1908

1900 pos. 19 29 3.6 −53 31.2

A = −53 9600 19 25 40.8 −53 23.2 +$\overset{3.1}{84.5}$ = 19 27 $\overset{4.5}{5.3}$ − 11.$\overset{1}{7}$ = −53 34.$\overset{3}{4}$

B = −53 9614 19 28 45.5 −53 38.1 −10$\overset{1}{7}$.2 = 19 27 $\overset{4}{3}$.3 + 3.8 = −53 34.3

C = −52 11481 19 26 41.7 −52 42.6 19 27 4.$\overset{4}{8}$ −53 34.$\overset{3}{4}$

x

C − a = +60.9 +0.1 −0.1 0.0. 0.0

Cos − 52.7 .303

+18.4

	x	y	x	y
A	30.0	37.0	40.0	35.0
B	84.9	7.4	94.9	5.4
n	54.9	14.9	64.8	12.8

	x		x		y		y
n − a	+24.9	n − b	−30.0	n − a	−22.1	n − b	+7.5
	+24.8		−30.1		−22.2		+7.4
	+24.85		−30.05		−22.15		+7.45
	+25.10		−30.35		−22.37		+7.52
	÷ .297		÷ .297		−11.18		+3.76
	+84.5		−102.2				

A 7443 No. 81 May 9, 1908.

				1900 pr.	19 27 19.8	−53 16.1
A = −$\overset{53}{x}$	9591	19 24 24.8	−53 20.3	+$\overset{5.8}{56.4}$ =	19 $\overset{5}{26}$ $\overset{6.6}{21.7}$	+1.1 = −53 19.2
B = −53	9602	19 26 8.3	−53 16.6	−$\overset{6.8}{47.8}$ =	19 $\overset{5}{26}$ $\overset{5}{21.0}$	−2.7 = −53 19.3
C = −53	9596	19 25 11.3	−53 47.2		19 25 $\overset{0}{21.1}$	−53 $\overset{2}{19.3}$

$\cancel{r}$

C − a = +46.5 −0.4 +0.5 0.0 +0.1

$\frac{\cos -53.8}{2}$

.295

+13.7

	x	y	x	y
A	30.0	89.5	35.0	90.0
B	60.7	97.0	$\overset{5}{66.7}$	97.5
n	46.7	91.7	51.7	92.2

	x		x		y		y
n − a	+16.7	n − b	−14.0	n − a	+2.2	n − b	−5.3
	+16.7		−14.0		+2.2		−5.3
	+16.7		−14.0		+2.2		−5.3
	+16.87		−14.14		+2.22		−5.35
	÷ .299		÷ .299		+1.1		−2.$\overset{6}{7}$8
	+56.4		−47.3				

A.7443 No. 82 May 9. 1908

1900 pos. 19 26 39.5 −53 13.8

A = −53 9591	19 24 24.8	−53 20.3	+16.$\overset{0}{\cancel{2}}$ = 19 24 4$\overset{0.8}{\cancel{1.0}}$	+3.5 = −53 16.8
B = −53 9597	19 25 21.8	−53 11.7	−41.$\overset{.26}{\cancel{5}}$ = 19 24 40.$\overset{6\cancel{2}}{\cancel{3}}$	−5.$\overset{2}{\cancel{3}}$ = −53 1$\overset{69}{\cancel{7.0}}$
C = −52 11473	19 24 32.5	−52 51.1	19 24 40.$\overset{\cancel{8}}{7}$	−53 16.$\overset{8}{\cancel{9}}$

x

Cos −52.$\overset{8}{\cancel{9}}$ / 2

c − a = + 7.7
.302
2.$\overset{3}{\cancel{2}}$

+0.1 −0.1 0.0 +0.1

	x	y	x	y
A	70.0	35.0	65.0	37.1
B	87.1	52.4	82.1	54.6
n	7$\overset{4.}{\cancel{9}}$.8	41.9	69.8	44.1

	x		x		y		y
n−a	+ 4.8	n−b	− 12.3	n−a	+ 6.9	n−b	− 10.5
	+ 4.8		− 12.3		+ 7.0		− 10.5
	+ 4.8		− 12.3		+ 6.95		− 10.5
	+ 4.85		− 12.42		+ $\overset{7}{\cancel{6}}$.02		− 10.60
	÷ .299		÷ .299		+ 3.51		− 5.30
	+ 16.2		− 41.$\overset{6}{\cancel{5}}$				

A 7443 No. 83 May 11, 1908.

1900 pos. 19 26 0.1 −53 26.3

A = −53 9582 19 22 20.3 −53 18.0 $+\overset{99.8}{100.1}$ = 19 24 $\overset{0.1}{0.8}$ $-11.\overset{4}{5}$ = −53 $29.\overset{4}{5}$

B = −53 9598 19 25 28.3 −53 39.0 $-8\overset{6.2}{1.1}$ = 19 24 $\overset{2.18}{1.8}$ $+9.\overset{8}{1}$ = −53 $29.\overset{2}{1}$

C = −52 11468 19 23 18.0 −52 48.6 19 24 $\overset{1.81}{0.8}$ −53 29.3

x

C − a = +57.7 −1.0 +1.0 +0.1 −0.1

$\frac{\cos -52.8}{2}$,302

+17.4

	x	y	x	y
A	40.0	50.0	35.0	52.9
B	95.2	7.7	90.3	11.7
N.	69.6	27.3	64.7	30.2

	x		x		y		y
n−a	+29.6	n−b	−25.6	n−a	−22.7	n−b	+19.6
	+29.7		−25.6		−22.7		+19.5
	+29.65		−25.6		−22.7		+19.55
	+29.95		−25.86		−22.93		+19.75
	÷ .297		÷ .297		−11.47		+9.88
	$+100.\overset{8}{1}$		−87.1				

√

A 7443 No. 88 May 11, 1908

			1900 pro. 19 26 27.2	−53 51.4
A = −53 9586	19 23 1.8	−53 57.6	$+8\overset{5.7}{6.6}$ = 19 24 $2\overset{7.5}{8.4}$	+3.0 = −53 54.6
B = −53 9596	19 25 11.3	−53 47.2	$-43.\overset{4}{8}$ = 19 24 $27.\overset{9}{5}$	$-7.\overset{0}{1}$ = −53 $54.\overset{2}{8}$
C = −53 9591	19 24 24.8	−53 20.3	19 24 $2\overset{8.7/9}{7.9}$	−53 $54.\overset{4}{5}$
	x			
	c − a = +83.0		−0.2 +0.2	+0.2 −0.2
Cos $\frac{-53.3}{2}$	.299			
	+24.8			

	x	y	x	y
A	30.0	20.0	40.0	23.0
B.	68.1	39.9	78.1	43.0
n	55.3	$25.\overset{8}{9}$	65.3	28.9

	x		x		y		y
n − a	+25.3	n − b	−12.8	n − a	+5.8	n − b	−14.1
	+25.3		−12.8		+5.9		−14.1
	+25.3		−12.8		+5.85		−14.1
	+25.55		−12.93		+5.91		−14.24
	÷ .295		÷ .295		+2.96		−7.12
	+86.6		−43.8				

A 7443 — No. 86$^{A.}$ May 12, 1908

This object also looks nebulous.

			1900 pos.	19 31 39.6	–53	40.2
$\overset{a}{\cancel{A}}$ – 53 9617	19 29 16.0	–53 30.3	+24.$\overset{2}{\cancel{4}}$ =	19 29 40.$\overset{2}{\cancel{4}}$	–13.$\overset{0}{\cancel{1}}$ =	–53 43.$\overset{3}{\cancel{4}}$
$\overset{b}{\cancel{B}}$ – 53 9627	19 30 23.5	–53 56.3	–42.$\overset{2}{\cancel{8}}$ =	19 29 4$\overset{1.38}{\cancel{0.9}}$	+1$\overset{2.9}{\cancel{3.0}}$ =	–53 43.$\overset{4}{\cancel{3}}$
C – 53 9621	19 29 41.0	–53 8.0		19 29 40.$\overset{8}{\cancel{7}}$		–53 43.4

x

C – a = +25.0   –0.6 +0.5   –0.1 0.0

$\frac{\text{Cos} - 53.1}{2}$

.300

7.5

	x	y	x	y
$\overset{a}{\cancel{A}}$	80.0	65.0	75.0	6$\overset{8}{\cancel{3}}$.3
$\cancel{B}$ b	99.6	13.4	94.7	16.7
$\overset{c}{\cancel{A}}$	8$\overset{7.1}{\cancel{5.3}}$	39.$\overset{1}{\cancel{4}}$	82.2	42.3

	x		x		y		y
n – a	+ 7.1	n – b	– 12.5	n – a	– 25.9	n – b	+ 25.7
	+ 7.2		– 12.5		– 26.0		+ 25.6
	+ 7.15		– 12.5		– 25.95		+ 25.65
	+ 7.22		– 12.62		– 26.21		+ 25.91
	÷ .296		÷ .296		– 13.1		+ 12.96
	+ 24.4		– 42.$\overset{7}{\cancel{6}}$				

A7443 No. 86 May 12, 1908

Object elongated

1900 pos. 19 31 33.4 −53 39.8

a = −53 9617	19 29 16.0	−53 30.3	$+17.\overset{4}{\cancel{9}}$ = 19 29 $33.\overset{4}{\cancel{9}}$	$-12.\overset{6}{\cancel{7}}$ = −53 $4\overset{2.9}{\cancel{5}}.\cancel{0}$
b = −53 9627	19 30 23.5	−53 56.3	$-48.\overset{1}{\cancel{6}}$ = 19 29 $3\overset{5}{\cancel{4}}.\overset{4}{\cancel{9}}$	$+13.\overset{3}{\cancel{4}}$ = −53 $4\overset{3.0}{\cancel{2}}.\cancel{9}$
c = −53 9621	19 29 41.0	−53 8.0	19 29 $34.\underset{6}{\cancel{4}}$	−53 $4\overset{3.0}{\cancel{2}}.\cancel{9}$

x

c − a = + 25.0

−0.9 +0.8 −0.1 0.0

$\frac{\cos -53.1}{2}$ .300

7.5

	x	y	x	y
a	80.0	65.0	70.0	60.0
b	99.6	13.4	89.5	8.4
n	85.3	39.9	75.2	34.9

x	x	y	y
n − a + 5.3	n − b − 14.3	n − a − 25.1	n − b + 26.5
+ 5.2	− 14.2	− 25.1	+ 26.5
+ 5.25	− 14.25	− 25.1	+ 26.5
+ 5.30	− 14.39	− 25.35	+ 26.76
÷ 296	÷ .296	$-12.\overset{6}{\cancel{7}}8$	+ 13.38
+ 17.9	− 48.6		

A 7443 No. 87 May 12, 1908

1900 pos. 19 28 59.4 −53 43.9

a = −53 9606	19 26 39.8	−53 51.8	+20.8 = 19 27 60.6	+4.8 = −53 47.0
b = −53 9607	19 27 42.0	−53 36.7	−43.0 = 19 26 59.0	−10.7 = −53 46.9
c = −54 9418	19 27 12.7	−54 25.6	19 26 59.8	−53 47.0

x

c − a = +329

+0.5 −0.5 +0.1 −0.2

Cos − 54.4 / 2

·291

9.6

	x	y	x	y
a	40.0	85.0	45.0	83.9
b	58.7	114.8	63.7	113.7
n	46.1	94.6	51.1	93.4

x	x	y	y
n−a +6.1	n−b −12.6	n−a +9.4	n−b −20.2
+6.1	−12.6	+9.5	−20.3
+6.1	−12.6	+9.45	−20.25
+6.16	−12.73	+9.54	−20.45
÷ .296	÷ .296	+4.77	−10.23
+20.8	−43.0		

A 7443 No. 106 May 13, 1908.

1900 pos. 19 32 20.8 −54 18.8

a = −54 943~~7~~0 19 29 ~~11.5~~ 6.3 −54 ~~24.3~~ 3.7 +~~74.6~~ = 19 30 ~~26.1~~ 20.3 + ~~2.0~~ 1.6 = −54 22.~~8~~ 1

b = −54 9445 19 31 28.7 −54 21.8 −~~68.4~~ = 19 30 ~~20.3~~ −0.~~4~~ 1 = −54 2~~2.2~~ 1.9

c = −53 9624 19 30 1.5 −53 59.8

19 30 2~~8.2~~ 0.84 (20.81)

−54 22.~~8~~ 0

−0.3 +0.4 +0.1 −0.1

x

c − a = + ~~50.0~~ 55.2

cos − 5~~3~~4.0 / 2

.294

16.2

+ ~~44.7~~

error in identifying of a

	x	y	x	y
a	~~50.0~~	~~30.0~~	~~55.0~~	~~32.0~~
b	~~91.2~~	~~34.8~~	~~96.2~~	~~36.8~~
n	~~71.5~~	~~33.9~~	~~76.5~~	~~36.0~~

x	x	y	y
~~n − a + 21.5~~	~~n − b − 19.7~~	~~n − a + 3.9~~	~~n − b − 0.9~~
~~+ 21.5~~	~~− 19.7~~	~~+ 4.0~~	~~− 0.8~~
~~+ 21.5~~	~~− 19.7~~	~~+ 3.95~~	~~− 0.85~~
~~+ 21.71~~	~~− 19.90~~	~~+ 3.99~~	~~− 0.86~~
~~÷ .291~~	~~÷ .291~~	~~+ 1.99~~	~~− 0.43~~
~~+ 74.6~~	~~− 68.4~~		

	x	y	x	y
a	70.0	20.0	75.0	25.0
b	111.2	23.4	116.3	28.5
n	91.6	23.2	96.6	38.3

x	x	y	y
n − a + 21.6	n − b − 19.6	n − a + 3.2	n − b − 0.2
+ 21.6	− 19.7	+ 3.3	− 0.2
+ 21.6	− 19.65	+ 3.25	− 0.2
+ 21.82	− 19.85	+ 3.28	− 0.2
÷ .29~~2~~1	÷ .29~~2~~1	+ 1.64	− 0.1
+ 7~~4.7~~5.0	− 6~~7.7~~8.2	✓	

ch'k'd by S. I. B.

A 7443 No. 105 May 13, 1908.

1900 4 fm. 19 38 30.96 −54 3 21.0

a = −54 9467 19 36 2.2 −54 17.0 +3X.X = 19 36 3X.X − X.X = −54 XX.3

b = −54 9472 19 36 49.7 −54 58.2 −5X.0 = 19 36 30.2 +10.X = −54 24.5

c = −54 9472 19 36 49.7 −54 53.2 19 36 31.8 −54 2X.X

x

c − a = + 47.5

+0.2 −0.2 −0.1 0.0

Cos −54.9 / 2 .288

+ 1~~5~~3.~~4~~7

	x	y	x	y
a	80.0	85.5	75.0	85.9
b	103.8	50.9	98.8	51.3
n	89.1	71.0	84.1	71.3

error

x		x		y		y	
n−a	+9.1	n−b	−14.7	n−a	−4.5	n−b	+20.1
	+9.1		−14.7		−4.6		+20.0
	+9.1		−14.7		−4.55		+20.05
	+9.19		−14.85		−4.59		+20.25
	÷ .291		÷ .291		−2.29		+10.13
	+31.6		−51.0				

	x	y	x	y
a	80.0	90.0	85.0	95.0
b	103.0	54.9	108.0	59.9
n	88.6	75.3	93.5	80.4

x		x		y		y	
n−a	+8.6	n−b	−14.4	n−a	−14.7	n−b	+20.4
	+8.5		−14.5		−14.6		+20.5
	+8.55		−14.45		−14.65		+20.45
	+8.63		−14.59		−14.80		+20.65
	÷ .291		÷ .291		−7.40		+10.33
	+29.7		−50.5				

A 7443 No 100. May 13, 1908.

1900 pro. 19 45 41.2 −53 57.8

a = −53 9712 19 43 11.5 −53 55.5 $+31.\overset{3}{\cancel{6}}$ = 19 43 $4\overset{2.8}{\cancel{3}}.\cancel{1}$ − $6.\overset{0}{\cancel{1}}$ = −54 $1.\overset{56}{\cancel{2}}$

b = −54 9511 19 43 55.7 −54 4.1 $-12.\overset{6}{\cancel{7}}$ = 19 43 $43.\overset{1}{\cancel{0}}$ + 2.6 = −54 1.5

c = −53 9713 19 43 27.5 −53 24.3 19 43 $43.\overset{0}{\cancel{1}}$ −54 $1.\overset{56}{\cancel{4}}$

x

c − a = + 16.0 −0.2 +0.1 0.0 0.0

$\frac{\cos -53.4}{2}$ .298

+ 4.8

	x	y	x	y
a	70.0	45.0	65.0	47.6
b	82.9	27.8	77.9	30.4
n	79.2	33.0	74.2	35.6

x	x	y	y
n − a $+\cancel{2}9.2$	n − b − 3.7	n − a − 12.0	n − b + 5.2
+ 9.2	− 3.7	− 12.0	+ 5.2
+ 9.2	− 3.7	− 12.0	+ 5.2
+ 9.29	− 3.74	− 12.12	+ 5.25
÷ .294	÷ .294	− 6.06	+ 2.63
+ 31.6	− 12.7		

√

" Duplicated" ~~for correct computation~~
on pg-53

A 7443 No 106 May 14, 1908

a = -54 9437^{0} 19 29 ~~11.5~~ 6.3 -54 21.3 +74.8 = 19 30 26.3 +1.9 = -54 22.4
b = -54 9445 19 31 28.7 -54 21.8 -68.2 = 19 30 20.5 -03 = -54 22.1
c = -53 9625 19 30 2.0 -53 35.4 19 30 23.4 -54 22.3

x
c - a = +50.5
Cos -53.6 / 2 .297
+15.0

	x	y	x	y
a	50.0	25.0	45.0	27.0
b	91.2	29.3	86.2	31.3
n	71.6	28.8	66.5	30.7

x		x		y		y
n-a	+21.6	n-b	-19.6	n-a	+3.8	n-b -0.5
	+21.5		-19.7		+3.7	-0.6
	+21.55		-19.65		+3.75	-0.55
	+21.76		-19.85		+3.79	-0.55
	÷ .291		÷ .291		+1.89	-0.28
	+74.8		-68.2			

A 7443 No. 109 May 14, 1908

1900 pm. 19 37 48.7 −54 43.6

a = −54 9464 19 34 45.2 −54 42.8 +6$\overset{2.9}{\cancel{8.5}}$ = 19 35 48.$\overset{1}{\cancel{7}}$ −4.3 = −54 47.$\overset{1}{\cancel{7}}$

b = −54 9472 19 36 49.7 −54 53.2 −6$\overset{0.8}{\cancel{x.4}}$ = 19 35 48.$\overset{9}{\cancel{8}}$ +6.$\overset{3}{\cancel{4}}$ = −54 46.$\overset{9}{\cancel{8}}$

c = −54 9467 19 36 2.2 −54 17.0

19 35 48.5 −54 47.0

x

c − a = + 77.0

−0.4 +0.4 +0.1 −0.1

Cos = −54.3 / 2

.292

+ 22.5

+ 18.7

	x	y	x	y
a	50.0	35.0	45.0	36.9
b	85.6	13.8	80.6	15.7
n	68.1	26.4	63.1	28.4

x	x	y	y
n − a + 18.1	n − b − 17.5	n − a − 8.4	n − b + 12.6
+ 18.1	− 17.5	− 8.5	+ 12.7
+ 18.1	− 17.5	− 8.45	+ 12.65
+ 18.28	− 17.6$\overset{8}{\cancel{7}}$	− 8.53	+ 12.78
÷ .288	÷ .288	− 4.27	+ 6.39
+ 63.5	− 61.4		

A 7443 No. 14 May 14, 1908

1900 pos. 19 30 29.4 -54 22.5

a = -51 11293 19 27 59.9 -51 30.8 + 29.$\overset{6}{9}$ = $\overset{1}{2}$9 28 29.$\overset{5}{8}$ + 5.$\overset{1}{2}$ = -54 25.$\overset{7}{6}$

b = -51 11298 19 29 0.4 -51 24.4 - 31.$\overset{2}{5}$ = 19 28 28.$\overset{9.2}{9}$ - 1.3 = -54 25.7

c = -50 11137 19 28 31.3 -50 53.7 19 28 2$\overset{9}{4}$.4 -54 25.$\overset{6}{7}$

x

c - a = + 31.4 +0.1 -0.2 0.0 0.0

Cos - 50.9 .315

42

+9.9

	x	y	x	y
a	60.0	40.0	65.0	41.3
b	78.$\overset{9}{8}$	52.8	83.$\overset{8}{9}$	54.3
n	69.2	50.2	74.2	51.7

	x		x		y		y
n - a	+ 9.2	n - b	- 9.7	n - a	+ 10.2	n - b	- 2.6
	+ 9.2		- 9.7		+ 10.4		- 2.6
	+ 9.2		- 9.7		+ 10.3		- 2.6
	+ 9.29		- 9.$\overset{80}{79}$		+ 10.40		- 2.63
	÷ .311		÷ .311		+ 5.2		- 1.3
	+ 29.9		- 31.5				

A 7443 No. 15 . May 15, 1908.

1900 pos. 19 29 58.3 −51 22.8

27 12.4 21.1 49.8 2 4.9 0
a = −51 11287 * 19 ~~45~~ ~~x2.8~~ −51 ~~x6.8~~ + ~~50.3~~ = 19 28 2.~~7~~ − ~~5.0~~ = −51 26.~~x~~

28 58.4 28.8 4.9 3 5
b = −51 11297 19 ~~46~~ ~~34.4~~ −51 ~~25.8~~ − ~~53.5~~ = 19 28 2.9 + 2.8 = + 51 26.0

.8~~6~~ 0
c = −50 11134 19 28 23.3 −50 37.9 19 28 2.~~8~~ −51. 26.~~x~~

x

c − a = + 70.9 − 0.6 + 0.7 0.0 0.0

Cos − 50.6 / 2 .317

+ 22.5

	x	y	x	y
a	50.0	25.0	40.0	27.0
b	82.7	9.6	72.7	11.6
n	65.5	15.2	55.6	17.2

x		x		y		y
n − a	+ 15.5	n − b	− 17.2	n − a	− 9.8	n − b + 5.6
	+ 15.6		− 17.1		− 9.8	+ 5.6
	+ 15.55		− 17.15		− 9.8	+ 5.6
	+ 15.70		− 17.32		− 9.~~8~~0 9	+ 5.6.6
	÷ .312		÷ .312		− 495	+ 2.83
	+ 50.3		− 5.5.5			

A 7443 No. 12 May 15, 1908

1900 pos. 19 32 48.3 -51 14.2

a = -51 11301 19 29 48.2 -51 10.6 $+65.\overset{4.84}{\cancel{3}}$ = 19 30 $53.\overset{06}{\cancel{5}}$ $-6.\overset{8}{\cancel{9}}$ = -51 $17.\overset{4}{\cancel{5}}$

b = -51 11310 19 32 10.2 -51 23.4 $-78.\overset{7.52}{\cancel{7}}$ = 19 30 $\overset{3.78}{\cancel{52.0}}$ $+6.\underset{0}{\cancel{1}}$ = -51 $17.\overset{4}{\cancel{3}}$

c = -50 11149 19 30 45.3 -50 43.7 19 30 ~~52.8~~ 52.8 -51 17.4

x

c - a = + 57.1 +0.2 -0.1 0.0.0.0

$\frac{\text{c oo} - 50.7}{2}$ .317

+ 18.1

	x	y	x	y
a	50.0	35.0	70.0	38.3
b	94.5	9.3	114.5	12.6
n	$70.\overset{3}{\cancel{2}}$	21.2	90.2	24.7

x	x	y	y
n - a + 20.3	n - b - 24.2	n - a - 13.8	n - b + 11.9
+ 20.2	- 24.3	- 13.6	+ 12.1
+ 20.25	- 24.25	- 13.7	+ 12.0
+ 20.45	- 24.49	- 13.84	+ 12.12
÷ .313	÷ .313	- 6.92	+ 6.06
$+65.\overset{4}{\cancel{3}}$	$-78.\overset{3}{\cancel{2}}$		

A 7443   No 3   May ~~15~~ 16, 1908

1900 fr. 19 38 19.8   −50 32.1

a = −50 11180   19 ~~18 10.9~~ 35 59.4   −50 34.2   +2~~7.0~~ 69 = 19 36 26.~~4~~ 35   −1.3 = −50 3~~2.8~~ 5.5

b = −50 11186   19 36 51.9   −50 33.7   −26.~~7~~ 58 = 19 36 25.~~2~~ 41   −1.8 = −50 3~~1.9~~ 5.5

c = −5~~0~~1 11~~181~~ 335   19 36 ~~6.9~~ 48.2   −5~~0~~1   ~~17.3~~ 21.5

19 36 25.8   −50.3~~7.4~~ 5.5

x

c − a = +48.8

+0.5 −0.4   0.0.00

cos 51.~~3~~4 / 2   .312

+15.2

	x	y	x	y
a	80.0	105.1	85.0	107.3
b	96.9	106.1	101.9	108.3
n	88.5	102.5	93.5	104.~~9~~8

	x		x		y		y
n − a	+ 8.5	n − b	− 8.4	n − a	− 2.6	n − b	− 3.6
	+ 8.5		− 8.4		− 2.5		− 3.5
	+ 8.5		− 8.4		− 2.55		− 3.55
	+ 8.58		− 8.48		− 2.57		− 3.58
	÷ .31~~8~~7		÷ .31~~8~~7		− 1.2~~7~~8		− ~~2~~1.79
	+ 27.~~0~~1		− 26.~~7~~8				

A 7443 No 7 May 16, & 18th 1908

1900 pr. 19 37 56.0 −50 34.6

a = −50 11180 19 35 59.4 −50 34.2 $+2.\overset{9}{8}$ = 19 36 $2.\overset{3}{\cancel{7}}$ −3.8 = −50 38.0

b = −50 11184 19 36 29.9 −50 42.7 $-28.\overset{1.4}{\cancel{3}}$ = 19 36 $1.\overset{85}{\cancel{6}}$ +4.7 = −50 38.0

c = −51 11329 19 36 10.2 −51 6.7 19 36 $\overset{x}{\cancel{2}}.\cancel{9}$ −50 38.0

2.0

α

c − a = +10.8 +0.3 −0.2 0.0 0.0

$\text{Cos} -\frac{51.1}{2}$ $\frac{.314}{+3.4}$

	x	y	x	y
a	60.0	90.2	50.0	86.7
b	$69.\overset{8}{\cancel{9}}$	$73.\overset{48}{\cancel{4}}$	$59.\overset{8}{\cancel{9}}$	69.8 ~~71.3~~
n	60.9	82.7	50.9	79.41 ~~82.4~~

	x		x		y		y
n − a	+0.9	n − b	$-\overset{8.9}{\cancel{9.0}}$	n − a	−7.5	n − b	+9.3
	+0.9		$-\overset{8.9}{\cancel{9.0}}$		$-7.\overset{6}{\cancel{3}}$		$+9.\overset{3}{\cancel{6}}$
	+0.9		−8.9		$-7.\overset{5}{\cancel{4}}5$		$+9.\overset{3}{\cancel{4}}\cancel{5}$
	+0.91		−8.99		−7.62		+9.39
	÷ .317		÷ .317		−3.81		+~~4~~.69
	$+2.\overset{9}{\cancel{8}}$		$-28.\overset{4}{\cancel{3}}$				

A 7443 No. $\overset{29}{8}$ May 18, 1908.

1900 pos. 19 42 9.3 −52 3.9

a = −52 $1153\overset{8}{4}$ 19 38 2.9 −52 11.8 $+13\overset{0.0}{1.3}$ = 19 40 $1\overset{2.9}{4.2}$ +4.2 = −52 7.6

b = −52 11556 19 42 6.4 −52 1.6 $-11\overset{1.7}{2.8}$ = 19 40 $1\overset{4.7}{3.6}$ $-5.\overset{8}{9}$ = −52 $7.\overset{4}{5}$

c = −52 11543 19 40 30.9 −52 50.8 19 40 $\overset{8}{13.8}$ −52 $7.\overset{5}{6}$

13.8

x

c − a = + 148.0 −0.9 +0.9 +0.1 −0.1

cos −52.8 / 2 .302

+ 44.7

	x	y	x	y
a	30.0	91.0	20.0	95.0
b	104.2	111.1	94.2	115.0
n	69.9	99.3	59.9	103.3

x		x		y		y
n−a	+ 39.9	n−b	− 34.3	n−a	+ 8.3	n−b − 11.8
	+ 39.9		− 34.3		+ 8.3	− 11.7
	+ 39.9		− 34.3		+ 8.3	− 11.75
	+ 40.30		− 34.64		+ 8.38	− 11.87
	÷ .307		÷ .307		+ 4.19	− 5.9$\overset{4}{3}$
	+ 131.3		− 112.8			

A 7443 No 21 May 18, 1908

1900 pr. 19 41 8.0 −52 49 3.3

a = −52 11534	19 38 2.9	−52 11.8	+6~~9.1~~ 8.4 =	19 39 1~~2.0~~ 1.3	+ ~~4.9~~ 5.8 = −52 6.~~9~~ 9.8
b = −52 11542	19 40 28.9	−52 5.3	−7~~6.0~~ 5.2 =	19 39 1~~7.9~~ 3.7	− 1.4 = −52 6.7
c = −52 11539	19 39 36.4	−52 47.5		19 39 ~~12.8~~ 12.5	−52 6.8

x

c − a = +93.5

.302

+28.2

−1.2 +1.2

+0.1 −0.1

Cos −52.8
2

	x	y	x	y
a	30.0	90.0	25.0	92.5
b	74.1	102.6	79.1	105.2
n	51.0	99.8	56.0	102.3

x	x	y	y
n−a +21.0	n−b −23.1	n−a +9.8	n−b −2.8
+21.0	−23.1	+9.8	−2.9
+21.0	−23.1	+9.8	−2.85
+21.21	−23.33	+9.90	−2.88
÷ .307	÷ .307	+4.95	−1.44
+69.1	−76.0		

A 7443 No. 22 May 18, 1908.

1900 pa. 19 40 25.6 −51 53.9

$a = -5\overset{1}{\cancel{2}}$ 11333 19 36 27.2 −51 45.5 $+\overset{1.8}{12\cancel{3.8}} =$ 19 38 $\overset{29.0}{\cancel{29.5}}$ $-12.\overset{1}{\cancel{3}} =$ −51 $57.\overset{6}{\cancel{8}}$

$b = -5\overset{2}{\cancel{1}}$ 11542 19 40 28.9 −52 5.3 $-\overset{117.80}{\cancel{118.1}} =$ 19 38 $\overset{31.1}{\cancel{30.8}}$ $+8.\overset{0}{\cancel{1}} =$ −51 $57.\overset{3}{\cancel{2}}$

$c = -51$ 1134 19 37 $5\overset{6.4}{\cancel{0.0}}$ −51 $\overset{1}{\cancel{5}}4.\overset{6}{\cancel{4}}$

19 38 $\overset{30.0}{\cancel{29.9}}$ −51 $57.\overset{4}{\cancel{5}}$

30.4

x

c − a = + 89.2 −1.4 + 1.3 + 0.2 − 0.1

cos −51.2 / 2 .313

+ 27.9

	x	y	x	y
a	30.0	57.1	40.0	53.0
b	103.8	16.9	113.8	12.8
n	$6\overset{7}{\cancel{2}}.5$	$\overset{32}{\cancel{27}}.8$	77.5	28.8

x	x	y	y
n−a + 37.5	n−b $-\overset{3}{\cancel{4}}6.3$	n−a −24.3	n−b + 15.9
+ 37.5	− 36.3	− 24.2	+ 16.0
+ 37.5	− 36.3	− 24.25	+ 15.95
+ 37.88	− 36.66	− 24.49	+ 16.11
÷ $.30\overset{8}{\cancel{9}}$	÷ $.30\overset{8}{\cancel{9}}$	− 12.25	+ 8.06
$+ 12\overset{3.0}{\cancel{2.9}}$	$- 11\overset{9.0}{\cancel{8.6}}$		

✓

A 7443 No 23 May 18, 1908

Object - elongated.

			1900 pr.	19 37 18.4	−52 0.8
a = −52 11516	19 34 19.7	−52 6.0	$\overset{2.4}{+63.0}$ =	19 35 $22.\overset{1}{\cancel{x}}$	+1.7 = −52 4.3
b = −52 11528	19 36 17.4	−52 4.4	$\overset{4.7}{-55.3}$ =	19 35 $22.\overset{7}{\cancel{x}}$	+0.3 = −52 4.1
c = −52 11521	19 35 10.4	−52 37.6		19 35 22.4	−52 4.2

x

c − a = +50.7

Cos −52.6 / 2

.304

+15.4

−0.3 +0.3

+0.1 −0.1

	x	y	x	y
a	30.0	95.0	35.0	96.6
b	65.9	97.8	71.0	99.4
n	49.2	98.4	54.1	100.1

x		x		y		y
n − a	+19.2	n − b	−16.7	n − a	$+\overset{3}{4}.4$	n − b	+0.6
	+19.1		−16.9		+3.5		+0.7
	+19.15		−16.8		+3.45		+0.65
	+19.34		−16.97		+3.48		+0.65
	÷ .307		÷ .307		+1.74		+0.3
	+63.0		−55.3				

A 7443 No. 24 May 19, 1908.

1900 pr. 19 37 15.5 −52 1.1

a = −52 11516 19 34 19.7 −52 6.0 $+\overset{59.6}{60.2}$ = 19 35 $19.\overset{3}{9}$ +1.2 = −52 4.8

b = −52 11528 19 36 17.4 −52 4.4 $-\overset{7.73}{58.7}$ = 19 35 $19.\overset{7x}{7}$ +0.2 = −52 4.2

c = −52 11521 19 35 10.4 −52 37.6 19 35 $19.\overset{5}{6}$ −52 4.5

x

ρ − a = + 50.7 −0.2 +0.2 +0.3 −0.3

$\rho_0 - \frac{52.6}{2}$ .304

+ 15.4

	x	y	x	y
a	50.0	90.0	55.0	92.5
b	$8\overset{5}{6}.0$	92.8	91.0	95.3
n	68.3	$92.\overset{5}{6}$	73.3	94.9

x	x	y	y
n − a + 18.3	n − b − 17.7	n − a + 2.5	n − b + 0.3
+ 18.3	− 17.7	+ 2.4	+ 0.4
+ 18.3	− 17.7	+ 2.45	+ 0.35
+ 18.48	− 17.88	+ 2.47	+ 0.35
÷ .307	÷ .307	+ 1.23	+ 0.17
+ 60.2	$-\ 58.\overset{2}{8}$		

✓

A7443 No. 25 May 19, 1908

			1900 pos.	19 37 11.9	−51 59.6
a = −52 11516	19 34 19.7	−52 6.0	$+56.\overset{0}{\cancel{8}}$ =	19 35 $\overset{5.7}{\cancel{16.3}}$	+2.9 = −52 3.1
b = −52 11528	19 36 17.4	−52 4.4	$-61.\overset{3}{\cancel{9}}$ =	19 35 $\underset{6.1}{\cancel{15.5}}$	+1.4 = −52 3.0
c = −52 11521	19 35 10.4	−52 37.6		19 35 15.9	$-52.\ 3.\overset{0}{\cancel{1}}$

x

c − a = + 50.7 −0.2 +0.2 +0.1 0.0

Cos −52.6/2 .304

+ 15.4

	x	y	x	y
a	55.0	93.5	60.0	95.0
b	91.9	96.3	96.0	98.0
n	72.2	99.1	77.2	100.7

x	x	y	y
n−a + 17.2	n−b − 18.8	n−a + 5.6	n−b + 2.8
+ 17.2	− 18.8	+ 5.7	+ 2.7
+ 17.2	− 18.8	+ 5.65	+ 2.75
+ 17.37	− 18.99	+ 5.71	+ 2.77
÷ .307	÷ .307	+ 2.86	+ 1.38
+ 56.6	− 61.9		

A 7443 No. 26 May 19, 1908.

a = −52 11516	19 34 19.7	−52 6.0	$+38.\overset{0}{\cancel{4}} = 19\ 34\ 5\overset{7}{\cancel{8}}.\overset{7}{\cancel{x}}$
b = −51 11323	19 35 0.7	−51 48.1	$-1.8 = 19\ 34\ 58.9$
c = −52 11520	19 35 7.4	−52 27.6	

1900 pos. 19 36 54.1 −51 53.7

$+38.\overset{0}{\cancel{4}} = 19\ 34\ 5\overset{7}{\cancel{8}}.\overset{7}{\cancel{x}}$ $+8.\overset{8}{\cancel{9}} = -5\overset{1}{\cancel{2}}\ 57.\overset{2}{\cancel{x}}$

$-1.8 = 19\ 34\ 58.9$ $+\overset{8.9}{\cancel{9}}.0 = -5\overset{1}{\cancel{2}}\ 57.\overset{0}{\cancel{1}}$

19 34 $58.\overset{3}{\cancel{5}}$ −51 57.1

x

c − a = + 47.7 −0.6 + 0.6 +0.1 − 0.1

Cos − 52.5 / 2 .304

+ 14.5

	x	y	x	y
a	60.0	65.0	65.0	67.5
b	72.2	100.4	77.3	102.9
n	71.7	82.6	76.7	$8\overset{5}{\cancel{0}}.1$

x	x	y	y
n−a +11.7	n−b − 0.5	n−a + 17.6	n−b − 17.8
+ 11.7	− 0.6	+ 17.6	− 17.8
+ 11.7	− 0.55	+ 17.6	− 17.8
+ 11.82	− 0.55	+ 17.78	− 17.98
÷ .308	÷ .308	+ 8.89	− 8.99
+ 38.4	− 1.8		

✓

~~Stars too far away~~

A 7443 No. 17 May 19, 1908

1900 pos. 19 36 55.5 −51 50.4

a = −51 11319 19 34 30.2 −51 52.9 + ~~30.2~~ 29.9 = 19 35 0.~~2~~ 1 −0.9 = −51 53.8

b = −51 11331 19 36 12.2 −51 51.6 −7~~3.6~~ 29 = 19 34 5~~8.6~~ 9.3 −2.2 = −51 53.8

c = −52 11520 19 35 7.4 −52 27.6 19 34 59.~~5~~ 7 −51 53.8

x

c − a = +37.2 +0.4 −0.4 0.0 0.0

Cos −52.5 .304

+11.3

	x	y	x	y
a	70.0	90.0	60.0	92.0
b	101.7	92.5	91.6	94.5
n	79.2	88.2	69.2	90.2

x	x	y	y
n−a +9.2	n−b −22.5	n−a −1.8	n−b −4.3
+9.2	−22.4	−1.8	−4.3
+9.2	−22.45	−1.8	−4.3
+9.29	−22.67	−1.82	−4.34
÷ .308	÷ .308	−0.9	−2.17
+30.2,	−73.6		

A 7443 No. 33 May 19, 1908

1900 pr. 19 38 49.1 − 52 20.5

a = −52 11523 19 35 46.6 − 52 19.4 $+66.\overset{2}{\cancel{8}}9$ = 19 36 $\overset{2.8}{5\cancel{3}.5}$ − 4.5 = − 52 23.9

b = −52 11533 19 37 59.4 − 52 29.0 $-6\overset{6.9}{\cancel{7}.\cancel{6}}$ = 19 36 $\overset{7.5}{5\cancel{1}.8}$ + $5.\overset{12}{\cancel{3}}$ = − 52 $\overset{3.98}{\cancel{34}.\cancel{8}}$

c = −53 9670 19 36 57.9 − 53 6.6 19 36 $52.\overset{6}{\cancel{7}}$ − 52 $23.\overset{9}{\cancel{8}}$

x

c − a = + 71.3 +0.2 −0.1 0.0 0.0

c̶p̶ − 53.1 / 2

.300

+ 21.4

	x	y	x	y
a	60.0	110.0	70.0	105.0
b	100.6	90.7	110.6	85.7
n	80.2	101.1	90.2	96.1

x	~~y~~ x	~~x~~ y	y
n − a + 20.2	n − b − 20.4	n − a − 8.9	n − b + 10.4
+ 20.2	− 20.4	− 8.9	+ 10.4
+ 20.2	− 20.4	− 8.9	+ 10.4
+ 20.40	− 20.60	− 8.99	+ 10.50
÷ .305	÷ .305	− 4.49	+ 5.25
+ 66.9	− 67.6		

✓

A 7443 No 34 May 19, 1908

1900 fm. 19 38 39.3 − 52 22.4

a = −52 11523 19 35 46.6 −52 19.4 +5~~7.8~~ 6.4 = 19 36 43.~~6~~ 9 −6.~~5~~ 4 = −52 25.~~9~~ 8

b = −52 11533 19 37 59.4 −52 29.0 ∓7~~7.5~~ 6.87 = 19 36 4~~7.9~~ 2.7 +3.3 = −52 25.7

c = −53 9670 19 36 5~~4~~ 7.9 −53 6.6 19 36 42.8 −52 25.~~7~~ 8

α

c − a = + 71.3 +0.2 − 0.1 +0.0 − 0.1

Cos − 53.1 / 2

.300

+ 21.4

	x	y	x	y
a	70.0	105.0	50.0	105.0
b	110.~~7~~ 6	85.7	90.6	85.7
n	87.2	92.2	67.2	92.1

x	x	y	y
n−a +17.2	n−b −23.4	n−a −12.8	n−b + 6.5
+17.2	−23.4	−12.9	+ 6.4
+17.2	−23.4	−12.~~9~~ 8 5	+ 6.45
+17.37	−23.63	−12.98	+ 6.51
÷ .305	÷ .305	− 6.49	+ 3.26
+57.0	−77.5		

A 7443 No 32 May 20, 1908.

			1900 pos. 19 39 41.4	$-5\overset{2}{4}9$ 20.7
a = −52 11523	19 35 46.6	−52 19.4	$+11\overset{8.7}{9.9}$ = 19 37. $4\overset{5.3}{8.5}$	$-\overset{5.0}{4.9}$ = −52 $24.\overset{3}{8}$
b = −52 11541	19 39 54.4	−52 30.6	$-\overset{129.2}{130.6}$ = 19 37 $4\overset{52.9}{3.4}$	$+6.\overset{4}{5}$ = −52 $24.\overset{2}{1}$
c = −53 9670	19 36 57.9	−53 6.6	19 37 $\overset{45.3}{44.9}$ (45.2)	−52 24.2

x

c − a = + 71.3

Cos − 53.1 / 2

.300

21.4

+0.1 0.0 +0.1 0.0

	x	y	x	y
a	70.0	110.0	65.0	113.5
b	$145.\overset{6}{7}$	$87.\overset{3}{4}$	140.6	$90.\overset{7}{6}$
n	$106.\overset{2}{8}$	100.2	101.2	103.7

x	x	y	y
n−a $+3\overset{6.2}{5.8}$	n−b −39.4	n−a − 9.8	n−b +12.9
+36.2	−39.4	− 9.8	$+13.\overset{0}{1}$
+36.2	−39.4	− 9.8	+12.95
+36.56	−39.79	− 9.90	+13.08
÷ .305	÷ .305	− 4.95	+ 6.54
+119.9	$-130.\overset{5}{6}$		

✓

A 7443 No. 31 May 20, 1908.

			1900 fr. 19 41 24.0	-52 28.7	
a = -52 11533	19 37 59.4	-52 29.0	$+\overset{8.8}{89.7}$ = 19 39 $\overset{8.2}{29.1}$	-3.3 = -52 32.3	
b = -52 11547	19 40 51.9	-52 32.6	$-\overset{4.6}{85.4}$ = 19 39 $\overset{7.3}{26.5}$	+0.4 = -52 32.2	
C = -53 9678	19 39 11.2	-53 11.5	19 39 27.8	-52 32.3	

x

C-a = + 71.8 | +0.4 -0.5 | +0.1 0.0

$\cos\frac{-53.2}{2}$

.300

+ 21.5

	x	y	x	y
a	50.0	107.9	45.0	104.6
b	102.7	100.5	97.7	97.2
M	77.0	101.3	72.0	98.1

x	x	y	y
n-a + 27.0	n-b - 25.7	n-a - 6.6	n-b + 0.8
+ 27.0	- 25.7	- 6.5	+ 0.9
+ 27.0	- 25.7	- 6.55	+ 0.85
+ 27.27	- 25.96	- 6.61	+ 0.85
÷ .304	÷ .304	- 3.3	+ 0.4
+ 89.7	- 85.4		

✓

A 7443 No. 35 May 20, 1908

				1900 po. 19 34 28.3	−52 22.6
a = −52 11496	19 31 7.7	−52 14.8	$+8\overset{3}{5}.\cancel{1}$ =	$19\ 32\ 32.\overset{0}{\cancel{8}} - 11.\overset{2}{\cancel{3}}$ =	$-52\ 26.\overset{0}{\cancel{1}}$
b = −52 11511	19 33 54.7	−52 40.0	$-83.\overset{0}{\cancel{8}}$ =	$19\ 32\ 30.\overset{1.7}{\cancel{9}} + 14.\overset{2}{\cancel{3}}$ =	$-52\ 25.\overset{8}{\cancel{7}}$
c = −53 9636	19 32 29.5	−53 14.0		$19\ 32\ 31.\overset{8}{\cancel{9}}$	−52 25.9

x

$c - a = +81.\overset{8}{\cancel{7}}$ +0.2 −0.1 +0.1 −0.1

cos −53.2
2

.300

+24.5

	x	y	x	y
a	50.0	124.1	45.0	125.0
b	101.0	73.4	96.0	74.3
n	75.7	101.7	70.7	102.7

x	x	y	y
n−a + 25.7	n−b − 25.3	n−a − 22.4	n−b + 28.3
+ 25.7	− 25.3	− 22.3	+ 28.4
+ 25.7	− 25.3	− 22.35	+ 28.35
+ 25.96	− 25.55	− 22.57	+ 28.63
÷ .305	÷ .305	− 11.28	+ 14.31
+ 85.1	− 83.8		

A 7443 No 36. May 26, 1908.

			1900 po. 19 34 14.2 16.0	− 52 27.8
a = − 52 11488	19 29 22.2	− 52 39.8	+ 175.8 3.8 = 19 32 16.0	+ 8.7 = − 52 31.1
b = − 52 11520	19 35 7.4	− 52 27.6	− 69.1 = 19 32 18.3	− 3.5 = − 52 31.1
c = − 53 9636	19 32 29.5	− 53 14.0	19 32 17.7 17.2	− 52 31.0 31.1
	x			
	c − a = + 187.3		− 1.2 + 1.1	0.0 0.0

Cos − 53.2 / 2

.300

+ 56.2

	x	y	x	y
a	20.0	79.5	30.0	84.0
b	124.2	103.9	134.3	108.3
n	72.8	96.9	82.9.	101.3

x	x	y	y
n − a + 52.8	n − b − 51.4	n − a + 17.4	n − b − 7.0
+ 52.9	− 51.4	+ 17.3	− 7.0
+ 52.85	− 51.4	+ 17.35	− 7.0
+ 53.38	− 51.91	+ 17.52	− 7.07
÷ .304	÷ .304	+ 8.76	− 3.54
+ 175.6	− 170.8		

A 7445 No. 38. May 21, 1908.

1900 pos. 19 33 7.9 -52 14.7

a = -52 11486 19 29 8.2 -52 12.7 + ~~122.1~~ 123.3 = 19 31 ~~11.1~~ 10.3 - ~~5.6~~ 5.5 = -52 ~~18.3~~ 18.2

b = -52 11507 19 32 59.7 -52 20.2 -108.~~8~~ 7.7 = 19 31 ~~10.9~~ 12.0 + 2.3 = -52 17.9

19 31 11.~~2~~ 1 -52 18.~~2~~ 0

C = -53 96~~86~~ 29 19 3~~2~~ 0 ~~29.5~~ 39.0 -53 ~~xx.0~~ 1.1

x

C - a = + ~~xxx.8~~ 90.8 -0.9 +0.9 +0.2 -0.1

$\frac{C_0 - 53.\cancel{2}0}{2}$

.30~~6~~ 1

27.3

+ ~~xx.x~~

	x	y	x	y
a	40.0	107.9	35.0	107.5
b	110.3	92.4	105.3	9~~2~~ 1.8
n	77.3	96.9.	72.4	96.3

x	x	y	y
n-a + 37.3	n-b - 33.0	n-a - 11.0	n-b + 4.5
+ 37.4	- 32.9	- 11.2	+ 4.5
+ 37.35	- 32.95	- 11.1	+ 4.5
+ 37.72	- 33.28	- 11.21	+ 4.54
÷ .306	÷ .306	- 5.6	+ 2.27
+ 123.~~2~~ 3	- 108.8		

✓

A 7443 No. 27 May 21, 1908.

1900 pos. 19 31 43.5 −51 56.0

a = −52 11486 19 29 8.2 −52 12.7 +39.~~7~~3 = 19 29 47.~~8~~5 +13.~~5~~4 = −5~~2~~1 59.~~7~~3

b = −5~~2~~1 11306 19 31 2.7 −51 49.8 −7~~6~~.~~4~~5.6 = 19 29 4~~8~~.~~8~~7.1 −9.~~4~~3 = −51. 59.~~7~~1

c = −5~~2~~1 11302 19 30 18.2 −51 30.6

19 29 47.~~1~~3 −51 59.2

x

c − a = +70.0 +0.2 −0.2 +0.1 −0.1

Cos − 51.5 / 2 .311

+21.8

	x	y	x	y
a	50.0	17.5	45.0	21.5
b	8~~0~~5.4	62.7	80.4	66.8
n	62.1	44.2	57.1	48.2

x	x	y	y
n − a +12.1	n − b −23.3	n − a +26.7	n − b −18.5
+12.1	−23.3	+26.7	−18.6
+12.1	−23.3	+26.7	−18.55
+12.22	−23.53	+26.97	−18.73
÷ .308	÷ .308	+13.49	−9.37
+39.7	−76.4		

A 7443 No. 30 May 21, 1908

1900 pos. 19 12 11.7 −51 54.3

a = −52 11415 19 10 10.8 −52 0.6 +64.$\overset{0}{\cancel{6}}$ = 19 11 15.$\overset{4.8}{\cancel{4}}$ +3.5 = −51 57.1

b = −51 11211 19 12 40.0 −51 50.8 −8$\overset{4.5}{\cancel{5.3}}$ = 19 11 $\overset{5.5}{\cancel{14.7}}$ −5.$\overset{8}{\cancel{9}}$ = −51 56.$\overset{6}{\cancel{7}}$

c = −51 11204 19 11 15.5 −51 12.6 19 11 15.$\overset{20}{\cancel{7}}$ −51 56.$\overset{8}{\cancel{9}}$

x

c − a = +64.7 −0.4 +0.3 +0.3 −0.2

cos −51.2 / 2

.313

+20.2

	x	y	x	y
a	40.0	21.4	35.0	22.0
b	85.7	40.1	80.7	40.8
n	59.7	28.4	54.7	29.0

x	x	y	y
n − a +19.7	n − b −26.0	n − a +7.0	n − b −11.7
+19.7	−26.0	+7.0	−11.8
+19.7	−26.0	+7.0	−11.75
+19.90	−26.26	+7.07	−11.87
÷ .30$\overset{8}{\cancel{9}}$	÷ .30$\overset{8}{\cancel{9}}$	+3.5$\overset{4}{\cancel{3}}$	−5.9$\overset{4}{\cancel{3}}$
+64.6	−85.3		

✓

A 7443 No. 18 May 21, 1908.

1900 pos. 19 14 49.3 −51 42.2

a = −51 11211 19 12 40.0 −51 50.8 $+12.\overset{3}{\cancel{4}}$ = 19 12 $52.\overset{3}{\cancel{4}}$ $+6.\overset{0}{\cancel{1}}$ = −51 $44.\overset{8}{\cancel{1}}$

b = −51 11218 19 13 26.0 −51 40.7 $-\overset{3.72}{\cancel{34.1}}$ = 19 12 $5\overset{2}{\cancel{1}}.\overset{3}{\cancel{1}}$ −4.0 = −51 44.7

C = −51 11316 19 13 0.7 −51 2.2

19 12 $52.\overset{3}{\cancel{1}}$ −51 $44.\overset{8}{\cancel{1}}$

x

C−a = +20.7

0.0 0.0 0.0 −0.1

$\frac{\cos - 51.0}{2}$

.315

+6.5

	x	y	x	y
a	70.0	12.9	60.0	17.0
b	$84.\overset{2}{\cancel{1}}$	33.0	74.2	36.9
n	73.8	$\overset{5.1}{\cancel{24.9}}$	63.8	29.1

x	x	y	y
n−a + 3.8	n−b − 10.4	n−a + 12.2	n−b − 7.9
+ 3.8	− 10.4	+ 12.1	− 7.8
+ 3.8	− 10.4	+ 12.15	− 7.85
+ 3.84	− 10.50	+ 12.27	$-7.9\overset{3}{\cancel{4}}$
÷ .309	÷ .309	$+6.1\overset{4}{\cancel{3}}$	$-3.9\overset{6}{\cancel{1}}$
+ 12.4	$-34.\overset{0}{\cancel{1}}$		

A 7443 No. 19 May 22, 1908.

1900 pos. 19 11 30.4 −51 35.4

a = −51 11192 19 8 44.5 −51 35.6 +47.9 = 19 9 32.4 −2.4 = −51 38.0

b = −51 11196 19 10 0.5 −51 40.1 −25.7 = 19 9 34.85 +2.3 = −51 37.8

c = −52 11414 19 9 20.8 −52 2.5

19 9 33.6 −51 37.9

c − a = +[illegible] c − a = +36.3 −1.2 +1.2 +0.1 −0.1

Cos −52.0 / 2 .308 .308

+[illegible] +11.2

	x	y	x	y
a	20.0	93.5	30.0	93.8
b	43.4	85.4	53.4	85.9
n	35.1	89.4	45.1	89.9

x	x	y	y
n−a +15.1	n−b −8.3	n−a −4.1	n−b +4.0
+15.1	−8.3	−3.9	+4.0
+15.1	−8.3	−4.0	+4.0
+15.25	−8.38	−4.04	+4.04
		−2.0	+2.0

	x	y	x	y
a	20.0	91.5	30.0	91.5
b	42.9	82.2	52.9	82.2
n	34.9	86.7	44.9	86.8

x	x	y	y
n−a +14.9	n−b −8.0	n−a −4.8	n−b +4.5
+14.9	−8.0	−4.7	+4.6
+14.9	−8.0	−4.75	+4.55
+14.05	−8.08	−4.80	+4.59
÷ .3118	÷ .3118	−2.4	+2.29
+48.4	−26.0		

A 7443 No 13. May 22, 1908.

1900 pos. 19 15 3.4 −51 11.4

a = −51 11216 19 13 0.7 −51 2.2 + 6.~~8~~ 7 = 19 13 7.~~5~~ 4 − 1~~7~~.0 19 = −51 14.~~2~~ 1

b = −51 11215 19 12 55.5 −51 27.6 + ~~11.8~~ 12.9 = 19 13 7.~~4~~ 5 + 13.~~7~~ 6 = −51 1~~3.9~~ 4.0

c = −51 11211 19 12 40.0 −51 50.8

19 13 7.~~5~~ 4 −51 14.~~1~~ 0

α

Cos − 51.8
2

c − a = −20.7
.309
− 6.4

0.0 0.0 +0.1 0.0

	x	y	x	y
a	50.0	111.0	55.0	110.0
b	48.4	60.0	53.4	58.9
n	52.1	87.2	57.1	86.1

x	x	y	y
n − a + 2.1	n − b + 3.7	n − a − 23.8	n − b + 27.2
+ 2.1	+ 3.7	− 23.9	+ 27.2
+ 2.1	+ 3.7	− 23.85	+ 2~~7.2~~ 4
+ 2.12	+ 3.74	− 24.09	+ 27.47
÷ .313	÷ .313	− 12.0~~5~~ 45	+ 13.7~~3~~ 4
+ 6.8	+ 1~~1.8~~ 2.0		

A 7443 No. 11x May 22, 1908.

1900 pos. 19 21 11.7 −50 36.2

a = −50 11082 19 18 30.6 −50 46.1 +46.$\overset{0}{5}$ = 19 19 1$\overset{6.6}{7}$.x +$\overset{6.9}{7}$.9 = −50 39.$\overset{2}{x}$

b = −50 11099 19 20 22.6 −50 31.$\overset{3}{x}$ −66.$\overset{2}{x}$ = 19 19 15.$\overset{6.4}{x}$ −7.$\overset{7}{x}$ = −50 39.$\overset{0}{x}$

c = −50 11086 19 19 4.1 −50 8.2 19 19 16.$\overset{5}{x}$ −50 39.1

x

c − a = +3$\overset{3}{4}$.5 +0.1 −0.1 +0.1 −0.1

Coo = −50.1
2

.321
+10.$\overset{8}{x}$

	x	y	x	y
a	40.0	27.1	35.0	36.4
b	75.6	56.4	70.6	65.8
n	54.6	40.9	49.6	50.2

x	x	y	y
n − a +14.6	n − b −21.0	n − a +13.8	n − b −15.5
+14.6	−21.0	+13.8	−15.6
+14.6	−21.0	+13.8	−15.55
+14.75	−21.21	+13.94	−15.70
÷ .317	÷ .317	+6.97	−7.85
+46.5	−66.9		

A 7443 No. 10 May 23, 1908.

1900 pos. 19 29 17.4 −50 38.4

a = −50 11128 19 26 8.3 −50 52.2 + ~~14.9~~ 13.9 = 19 27 ~~23.2~~ 22.2 + 10.~~7~~6 = −50 41.~~5~~6

b = −50 11134 19 28 23.3 −50 37.9 −6 ~~1.5~~ 0.73 = 19 27 ~~21.8~~ 22.8 − 3.6 = −50 41.5

c = −51 11287 19 27 12.4 −51 21.1 19 27 22.~~5~~4 −50 41.~~5~~6

x

c − a = +~~5~~64.1 −0.2 +0.2 0.0 −0.1

cos −51.~~4~~3 / 2 .31~~7~~3

+ 20.~~8~~1

	x	y	x	y
a	40.0	75.0	30.0	77.4
b	82.7	103.2	72.7	105.6
n	63.4	96.1	53.5	98.6

x	x	y	y
n − a +23.4	n − b −19.3	n − a +21.1	n − b −7.1
+23.5	−19.2	+21.2	−7.0
+23.45	−19.25	+21.15	−7.05
+23.68	−19.44	+21.36	−7.12
÷ .31~~6~~7	÷ .31~~6~~7	+10.68	−3.56
+74.~~9~~7	−61.~~5~~3		

A7443 No. 9 May 23, 1908

1900 pos. 19 29 $\overset{20.4}{25.2}$ −50 39.2

76.9

a = −50 11128 19 26 8.3 −50 52.2 $+\overset{7.7}{\cancel{78.0}}$ = 19 27 $\overset{.0}{\cancel{26.8}}$ $+9.\overset{6}{\cancel{7}}$ = −50 42.$\overset{6}{\cancel{5}}$

57.73 5.06

b = −50 1113$\cancel{4}$ 19 28 23.3 −50 37.9 $-\cancel{58.5}$ = 19 27 $\cancel{24}$.8 − 4.4 = −50 42.3

19 27 $\overset{5}{\cancel{25.6}}$ −50 42.$\cancel{4}$

25.4

c = −51 11287 19 27 12.4 −51 21.1

α

c − a = + 64.1 −0.2 +0.2 +0.2 −0.1

$\underline{\cos\frac{51.\overset{3}{\cancel{4}}}{2}}$ $\underline{.31\overset{3}{\cancel{2}}}$

+20.$\overset{1}{\cancel{0}}$

	x	y	x	y
a	30.0	77.5	20.0	82.0
b	72.7	105.6	62.7	110.1
n	54.4	96.8	44.4	101.3

x	x	y	y
n − a + 24.4	n − b − 18.3	n − a + 1$\overset{9}{\cancel{8}}$.3	n − b − 8.8
+24.4	−18.3	+19.3	−8.8
+24.4	−18.3	+19.3	−8.8
+24.64	−18.48	+19.49	−8.88
÷ .31$\overset{7}{\cancel{6}}$	÷ .31$\overset{7}{\cancel{6}}$	+ 9.74	−4.4
+ $\overset{7.7}{\cancel{78.0}}$	− 58.$\overset{3}{\cancel{5}}$		

✓

A 7443 No. 8. May 23, 1908

1900 pos. 19 31 56.6 − 50 45.3

a = −50 11137 19 28 31.3 −50 53.7 $+9 \times \overset{0.7}{\cancel{.8}} =$ 19 30 $2.\overset{0}{\cancel{9}} + 5\overset{0}{\cancel{x}} =$ −50 $48.\overset{7}{\cancel{6}}$

b = −50 11153 19 31 52.3 −50 42.2 $-11 \times \overset{0.6}{\cancel{.7}} =$ 19 30 $0.\overset{1.7}{\cancel{6}} - 6.\overset{1}{\cancel{2}} =$ −50 $48.\overset{3}{\cancel{4}}$

c = −5$\overset{1}{\cancel{0}}$ 11302 19 30 18.2 −51 30.6 $\underbrace{\qquad}$ 19 30 1.8 = −50 48.5

x

c − a = +106.9 +0.2 −0.1 +0.2 −0.2

$\frac{c_{00} - 51.5}{2}$

.311

+33.2

	x	y	x	y
a	40.0	80.0	50.0	$8\overset{5}{\cancel{0}}.5$
b	103.6	102.3	113.6	107.8
n	68.6	90.1	78.7	95.6

x	x	y	y
n − a + 28.6	n − b − 35.0	n − a + 10.1	n − b − 12.2
+ 28.7	− 34.9	+ 10.1	− 12.2
+ 28.65	− 34.95	+ 10.1	− 12.2
+ 28.94	− 35.30	+ 10.20	− 12.32
÷ .316	÷ .316	+ 5.1	− 6.16
+ 91.6	− 111.7		

√

A 7443 No. 5 May 23, 1908

1900 pos. 19 31 34.6 −50 27.0

39.4
~~40.2~~
1~~8~~
7

a = −50 11134 19 28 23.3 −50 37.9 + 76.~~8~~ = 19 29 ~~39.9~~ + 7.~~8~~ = −50 30.~~1~~ 2

41.15
~~40.7~~
9.1

b = −50 11150 19 30 59.8 −50 29.9 − ~~78.8~~ = 19 29 41.~~8~~ − 0.4 = −50 30.3

78.3 4

c = −51 11301 19 29 48.2 −51 10.6 19 29 40.~~5~~ −50 30.2

x

c − a = + 84.9 −1.0 + 1.1 −0.0 + 0.1

cos 51.2 / 2 .313

+ 26.6

	x	y	x	y
a	60.0	75.0	50.0	82.4
b	109.1	91.2	99.1	98.7
n	84.2	90.5	74.2	9~~2~~7.9

x	x	y	y
n−a + 24.2	n−b − 24.9	n−a + 15.5	n−b − 0.7
+ 24.2	− 24.9	+ 15.5	− 0.8
+ 24.2	− 24.9	+ 15.5	− 0.75
+ 24.44	− 25.15	+ 15.65	− 0.75
÷ .31~~9~~ 8	÷ .31~~9~~ 8	+ 7.82	− 0.3~~7~~ 8
+ 76.~~8~~ 9	− 7~~8.8~~ 9.1		

A 7443 . No. 1 May 2~~8~~6, 1908

1900 pos. 19 30 19.8 −49 59.4

a = ~~−49~~ 50 11133 19 28 18.8 −50 0.7 +7.~~4~~3 = 19 28 26.~~2~~1 −1.9 = −50 2.6

b = −~~4~~9 50 11135 19 28 26.8 −50 5.8 −0.8 = 19 28 26.0 +3.3 = −50 2.5

c = −50 11134 19 28 23.3 −50 37.9 19 28 26.~~1~~0 −50 2.6

x

c − a = + 4.5 +0.1 0.0 0.0 −0.1

Cos − 50.6 / 2

.317

1.4

	x	y	x	y
a	60.0	90.1	55.~~5~~0	93.~~6~~5
b	62.6	79.8	57.6	83.4
n	62.4	86.4	57.3	89.8

x	x	y	y
n − a + 2.4	n − b − 0.2	n − a − 3.7	n − b + 6.6
+2.3	−0.3	−3.7	+6.4
+2.35	−0.25	−3.7	+6.5
+2.37	−0.25	−3.74	+6.56
÷ .321	÷ .321	−1.87	+3.28
+7.4	−0.8		

A 7443. No. 54 — May 26th, 1908.

1900 pos. 19 15 49.4 −52 46.8

a = −52 11429 19 13 20.9 −52 56.2 +29.$\overset{5}{\cancel{8}}$ = 19 13 50.$\overset{4}{\cancel{7}}$ +6.$\overset{8}{\cancel{9}}$ = −52 49.$\overset{4}{\cancel{3}}$

b = −52 11433 19 14 29.5 −52 46.0 −3$\overset{8}{\cancel{9}}$.$\overset{8}{\cancel{7}}$ = 19 13 50.$\overset{7}{\cancel{8}}$ −3.3 = −52 49.3

c = −53 9544 19 14 5.3 −53 33.4 19 13 50.$\overset{6}{\cancel{5}}$ −52 49.$\overset{4}{\cancel{3}}$

α

c − a = +44.4 −0.2 +0.1 0.0 −0.1

cos −53.5 / 2

.297

+13.2

	x	y	x	y
a	60.0	87.4	65.0	92.5
b	80.6	107.7	8$\overset{5}{\cancel{6}}$.6	112.7
n	68.9	101.1	73.9	106.2

x	x	y	y
n−a +8.9	n−b −11.7	n−a +13.7	n−b −6.6
+8.9	−11.7	+13.7	−6.5
+8.9	−11.7	+13.7	−6.5
+8.99	−11.82	+13.84	−6.56
÷ .302	÷ .302	+ $\overset{6}{\cancel{7}}$.92	−3.28
+29.8	−39.2		

✓

A 7443 No. 72 May 26th, 1908

.1900 pos. 19 13 44.8 −53 2.2

a = −52 11419	19 11 11.3	−52 57.1	+34.$\overset{0}{\cancel{8}}$ =	19 11 45.$\overset{3}{\cancel{0}}$ −7.$\overset{6}{\cancel{7}}$ =	−53 4.$\overset{7}{\cancel{8}}$
b = −53 9529	19 11 57.1	−53 14.7	−11.$\overset{0}{\cancel{1}}$ =	19 11 46.$\overset{1}{\cancel{0}}$ +$\overset{9.9}{\cancel{10.0}}$ =	−53 4.$\overset{8}{\cancel{7}}$
c = −53 952$\overset{8}{\cancel{7}}$	19 11 29.6	−53 37.9		19. 11 45.$\overset{7}{\cancel{8}}$	−53. 4.8

x

c − a = +18.3

−0.4 +0.4 −0.1 0.0

$\frac{\cos -53.6}{2}$

.297

+5.4

	x	y	x	y
a	40.0	112.5	50.0	102.5
b	53.5	77.5	63.5	67.4
n	50.2	97.3	60.2	87.3

x	x	y	y
n−a +10.2	n−b −3.3	n−a −15.2	n−b +19.8
+10.2	−3.3	−15.2	+19.9
+10.2	−3.3	−15.2	+19.85
+10.30	−3.33	−15.35	+2$\overset{0}{9}$.05
÷ .300	÷ .300	−7.68	+10.02
+34.3 ,	* −11.1		

A 7443 No. 98 May 28, 1908.

1900 pos. 19 11 10.4 −53 35.5

a = −53 9507 19 6 58.6 −53 38.9 $+13\overset{1.7}{\cancel{8.0}}$ = 19 9 $\overset{10.3}{\cancel{11.6}}$ +0.6 = −53 $3\overset{8.3}{\cancel{9.5}}$

b = −53 9527 19 11 29.6 −53 37.9 $-1\overset{38.7}{\cancel{40.1}}$ = 19 9 $\overset{10.9}{\cancel{9.5}}$ $+0.\overset{2}{\cancel{3}}$ = −53 $38.\overset{7.7}{\cancel{2}}$

c = −53 9518 19 9 29.1 −53 7.8 19 9 10.6 −53 $38.\overset{0}{\cancel{8}}$

x

c − a = + 150.5 −0.3 +0.3 +0.3 −0.3

Cos −53.1
2

.300

$45.\overset{2}{\cancel{1}}$

	x	y	x	y
a	20.0	40.4	25.0	46.5
b	100.3	41.1	105.3	47.1
n	$59.\overset{1}{\cancel{2}}$	41.5	64.1	$47.\overset{7}{\cancel{6}}$

x	x	y	y
n − a + 39.1	n − b − 41.2	n − a + 1.1	n − b + 0.4
+ 39.1	− 41.2	+ 1.2	+ 0.6
+ 39.1	− 41.2	+ 1.15	+ 0.5
+ 39.49	− 41.61	+ 1.16	+ 0.5
÷ .297	÷ .297	+ 0.58	+ 0.25
+ 133.0	− 140.1		

A 7443 No. 99 May 28, 1908

1900 pos. 19 10 21.1 −53 39.3

a = −53 95 $\overset{07}{~~x3~~}$ 19 $\overset{6}{~~8~~}$ $\overset{58.6}{~~xx.6~~}$ −53 $\overset{38.9}{~~3x.x~~}$ + 8 $\overset{1.8}{~~2.x~~}$ = 19 8 $\overset{0.4}{~~21.7~~}$ − 3.0 = −53 41.9

b = −53 95 1$\overset{7}{~~4~~}$ 19 $\overset{9}{~~8~~}$ $\overset{27.6}{~~36.x~~}$ −53 $\overset{44.1}{~~5x.x~~}$ − 6 $\overset{6.9}{~~x.x~~}$ = 19 8 20.$\overset{8}{~~x~~}$ + 2.4 = −53 41.7

c = −52 11411 19 8 38.8 −52 51.0 19 8 20.6 −53 41.8

x

c − a = +100.2 −0.2 +0.2 +0.1 −0.1

Cos −52.$\overset{8}{~~x~~}$ / 2

.302

+ 30.$\overset{3}{~~x~~}$

	x	y	x	y
a	20.0	23.5	30.0	26.$\overset{3}{~~4~~}$
b	$\overset{4.0}{~~63.9~~}$	12.$\overset{7}{~~8~~}$	74.0	15.4
n	$\overset{4.2}{~~43.9~~}$	17.5	54.2	20.3

x	x	y	y
n−a +24.2	n−b −19.8	n−a −6.0	n−b +4.8
+24.2	−19.8	−6.0	+4.9
+24.2	−19.8	−6.0	+4.85
+24.44	−20.00	−6.06	+4.$\overset{9}{~~8~~}$0
÷.296	÷.296	−3.0	+2.45
+82.6	−67.6		

A 7443 No 2 May $\overset{30}{\cancel{28}}$, 1908.

1900 pos. 19 24 12.8 −49 50.5

a = −49 10980 | 19 21 22.9 | −49 58.2 | $+5\overset{3.9}{\cancel{4.4}}$ = 19 22 $1\overset{6.8}{\cancel{7.8}}$ | +4.7 = −49 53.5
b = −49 10989 | 19 22 48.5 | −49 42.4 | $-30.\overset{2}{\cancel{5}}$ = 19 22 $18.\overset{3}{\cancel{0}}$ | $-10.\overset{8}{\cancel{9}}$ = −49 $53.\overset{2}{\cancel{3}}$
c = −50 11106 | 19 22 10.6 | −50 32.2 | 19 22 $17.\overset{6}{\cancel{7}}$ | −49 53.4

x

c − a = + 47.7 | −0.8 +0.7 | +0.1 −0.2

C00 − 50.5
2

.318

+ 15.2

	x	y	x	y
a	60.0	81.2	55.0	83.4
b	$87.\overset{6}{\cancel{0}}$	112.3	82.2	114.4
n	77.4	90.6	72.4	92.8

x	x	y	y
n−a +17.4	n−b − 9.7	n−a + 9.4	n−b − 21.7
+ 17.4	− 9.8	+ 9.4	− 21.6
+ 17.4	− 9.75	+ 9.4	− 21.65
+ 17.57	− 9.85	+ 9.49	− 21.87
÷ .323	÷ .323	+ 4.74	− 10.93
+ 54.4	− 30.5		

A 7443 No. 73. May 30, 1908.

1900 pr. 19 33 13.0 −53 24.7

1.4 13.4 4 8.0

a = −53 9625 19 30 2.0 −53 35.4 +72.0 = 19 31 14.0 + 7.5 = −53 27.9

3.86 15.7 3.9 7.9

b = −53 9636 19 32 29.5 −53 14.0 −74.5 = 19 31 15.0 −14.9 = −53 28.0

c = −54 9447 19 31 49.1 −54 2.2 19 31 14.5 −53 28.0

6

x

c − a = +107.1

.294

+31.5

−1.2 +1.1 0.0 −0.1

cos − 54.0 / 2

	x	y	x	y
a	50.0	76.4	60.0	78.0
b	93.3	118.9	103.2	112.7
n	71.3	91.1	81.2	84.9

x	x	y	y
n − a +21.3	n − b −22.0	n − a +14.7	n − b −27.8
+21.2	−22.0	+14.9	−27.8
+21.25	−22.0	+14.85	−27.8
+21.46	−22.22	+14.95	−28.08
÷ .298	÷ .298	+7.48	−14.04
+72.0	−74.6		

A 7443 No. 55 May 30, 1908.

1900 for. 19 38 5~~1~~.6 −53 11.4
45

a = −53 9665 19 36 40.4 − 53 23.6 +13.~~2~~0 = 19 36 53.~~6~~ + 8.~~7~~8 = − 53 14.~~7~~8

b = −53 9670 19 36 57.9 − 53 6.6 − 3.7 = 19 36 54.2 − 8.~~7~~1 = − 53 14.~~8~~7

c = −52 11529 19 36 41.9 − 52 33.7 19 36 53.~~9~~8 − 53 14.8

x

c − a = + 1.5 −0.4 +0.4 0.0 −0.1

cos − 52.~~6~~5 / 2

.304

+ ~~4~~0.5

	x	y	x	y
a	70.0	15.5	65.0	17.5
b	75.0	49.3	70.0	51.3
n	7~~4~~3.9	33.1	68.9	35.1

x	x	y	y
n−a +3.9	n−b −1.1	n−a +17.6	n−b ~~+~~ 16.2
+3.9	−1.1	+17.6	−16.2
+3.9	−1.1	+17.6	−16.2
+3.94	−1.11	+17.78	−16.36
÷ .~~299~~300	÷ .~~299~~300	+8.89	−8.18
+13.~~2~~1	−3.7		

✓

A 7443 No 56 May 30, 1908

1900 pos. 19 35 1.5 − 52 56.6

a = −53 9629 19 30 39.0 −53 1.1 + 145.8 = 19 33 4.8 + 0.9 = −53 0.2

b = −52 11518 19 34 55.4 −52 58.2 −111.9 = 19 33 3.5 −1.4 = −52 59.6

c = −52 11507 19 32 59.7 −52 20.2 19 33.4.0 −52 59.9

x

c − a = + 140.7 −0.7 + 0.6 +0.3 − 0.3

cos − 52.3 / 2 .306

+43.1

	x	y	x	y
a	30.0	20.0	25.0	21.5
b	106.8	24.4	101.8	25.9
n	73.4	21.7	68.5	23.2

x	x	y	y
n-a + 43.8	n-b − 33.4	n-a + 1.7	n-b − 2.7
+ 43.5	− 33.3	+ 1.7	− 2.7
+ 43.45	− 33.35	+ 1.7	− 2.7
+ 43.88	− 33.68	+ 1.71	− 2.72
÷ .301	÷ .301	+ 0.86	− 1.36
+ 145.8	− 111.9		

A 7443   No. 79   May 30, 1908

1908 pos. 19 28 12.4 −53 12.5

a = −53 9600	19 25 40.8	−53 23.2	+33.~~4~~ 5 =	19 26 14.~~7~~ 0	+7.~~1~~ 6 =	−53 15.~~5~~ 6
b = −53 9604	19 26 15.8	−53 6.6	−3.1 =	19 26 12.7	− ~~9.0~~ 8.9 =	−53 15.~~6~~ 5
c = −53 9601	19 26 0.8	−53 51.8		19 26 1~~3.5~~ 13.4		−53. 15.6

x

c − a = +20.0   +0.6 − 0.7   0.0 − 0.1

cos −53.9 / 2

.295

+5.9

	x	y	x	y
a	60.0	75.0	65.0	77.5
b	70.8	108.2	75.8	110.6
n	69.9	90.2	74.9	9~~8~~2.~~1~~8

x		x		y		y	
n − a	+9.9	n − b	−0.9	n − a	+15.2	n − b	−18.0
	+9.9		−0.9		+15.3		−17.8
	+9.9		−0.9		+15.3		−17.9
	+~~9.99~~ 10.00		−0.91		+15.45		−18.08
	÷ .299		÷ .299		+7.72		−9.04
	+33.~~4~~ 5		−03.1				

✓

A 7443 Ho. 63. June 1, 1908.

1900 pos. 19 28 $\overset{33.6}{32.1}$ −52 56.7

a = −52 11474 | 19 $\overset{24}{20}$ 40.$\overset{0}{8}$ | −52 $\overset{55.7}{48.9}$ +11$\overset{3.8}{4.4}$ = 19 26 $\overset{33.8}{34.4}$ −4.2 = −52 59.9 | a

b = −53 961$\overset{9}{6}$ | 19 2$\overset{8}{9}$ 23.0 | −53 9.1 −10$\overset{8.8}{9.5}$ = 19 26 3$\overset{4.7}{8.1}$ +9.$\overset{3}{4}$ = −52 59.$\overset{8}{8}$ | b

c = −53 9606 | 19 26 39.8 | −53 51.8 | 19 26 $\overset{34.0}{33.9}$ 33.9 | −52 59.8 | c

x

c − a = +119.8 | −0.3 +0.3 | +0.1 0.0

Coo − 53.9 / 2

.295
+ 35.3

	x	y	x	y
a	60.0	120.0	55.0	121.5
b	12$\overset{7.0}{8.9}$	93.0	121.9	94.6
n	94.2	111.7	89.2	113.2

x		x		y		y
n−a	+ 34.2	n−b	− 32.8	n−a	− 8.3	n−b + 18.7
	+ 34.2		− 32.7		− 8.3	+ 18.6
	+ 34.2		− 32.75		− 8.3	+ 18.65
	+ 34.54		− 33.08		− 8.38	+ 18.84
	÷ .30$\overset{1}{2}$		÷ .30$\overset{1}{2}$		− 4.19	+ 9.42
	+ 114.$\overset{8}{4}$		− 109.$\overset{9}{5}$			

√

A 7443 No. 60. June 1, 1908

1900 pos. 19 29 34.0 −53 8.8

9 a = −53 9604 19 26 15.8 − 53 6.6 $+7\overset{8.8}{\cancel{9.6}} = 19\ 27\ \overset{4.6}{\cancel{35.4}} - 5.\overset{5}{\cancel{6}} = -53\ 12.\overset{1}{\cancel{2}}$

~~8~~ b = −53 9615 19 28 54.0 − 53 17.0 $-77.\overset{0}{\cancel{8}} = 19\ 27\ 3\overset{7.0}{\cancel{6.1}} + 5.\overset{0}{\cancel{1}} = -53\ 1\overset{2}{\cancel{1}}.\overset{0}{\cancel{9}}$

8 c = −52 11482 19 27 24.7 − 52 24.6 19 27 35.8 $-53\ 12.\overset{0}{\cancel{1}}$

x

c − a = +68.9 −1.2 +1.2 +0.1 0.0

Cos − 52.4 / 2 .305

+21.0

	x	y	x	y
a	70.0	30.0	60.0	27.5
b	116.7	8.7	106.8	6.3
n	$9\overset{3.6}{\cancel{5.8}}$	18.8	83.7	16.4

x	x	y	y
n − a + 23.6	n − b − 23.1	n − a − 11.2	n − b + 10.1
+ 23.7	− 23.1	− 11.1	+ 10.1
+ 23.65	− 23.1	− 11.15	+ 10.1
+ 23.89	− 23.33	− 11.26	+ 10.20
÷ .300	÷ .300	− 5.63	+ 5.1
+ 79.6	− 77.8		

A 7443 No. 61 June 2, 1908

1900 pr. 19 29 15.9 −53 7.3

a = −53 9604 | 19 26 15.8 | −53 6.6 | +61.8 = 19 27 17.0 − 3.8 = −53 10.4

b = −53 9609 | 19 28 22.0 | −53 13.8 | −98.5 = 19 27 16.9 + 3.5 = −53 10.3

c = −52 11482 | 19 27 24.7 | −52 24.6 | −64.8 | 19 27 17.4 | −53 10.4

x

c−a = + 68.9

cos $\frac{-52.4}{2}$ .305

+ 21.0

−0.4 +0.4 0.0 −0.1

	x	y	x	y
a	70.0	31.0	65.0	31.8
b	107.6	16.5	102.6	17.4
n	88.3	23.4	83.4	24.3

x		x		y		y
n−a	+ 18.3	n−b	− 19.3	n−a	− 7.6	n−b + 6.9
	+ 18.4		− 19.2		− 7.5	+ 6.9
	+ 18.35		− 19.25		− 7.55	+ 6.9
	+ 18.53		− 19.44		− 7.62	+ 6.97
	÷ .300		÷ .300		− 3.81	+ 3.48
	+ 61.8		−64.8 ~~88.8~~ − 98.5 − 64.8			

✓

J2 A 7443 No. 45 June 2, 1908.

			1900 pos. $\overset{}{5.5}$	19 32 5.8	− 52 43.2
a = − 52 11488	19 29 22.2	− 52 39.8	+ $\overset{46.0}{\cancel{66.0}}$ =	19 30 $\overset{7.7}{\cancel{8.2}}$	− $\overset{5}{6}.\underset{6}{\cancel{6}}$ = − 52 46.$\overset{3}{\cancel{4}}$
b = − 53 9629	19 30 39.0	− 53 1.1	− 30.$\overset{1}{\cancel{4}}$ =	19 30 8.$\overset{9}{\cancel{6}}$	+ 14.$\cancel{8}$ = − 52 46.$\overset{5}{\cancel{3}}$
c = − 53 9622	19 29 42.5	− 53 24.9		19 30 8.$\overset{3}{\cancel{4}}$	− 52 46.4

$\cancel{x}$

c − a = + 203 − 0.6 + 0.6 − 0.1 + 0.1

$\frac{\cos - 53.4}{2}$ .298

+ 6.0

	x	y	x	y
a	60.0	110.0	55.0	113.1
b	82.8	67.6	77.8	$\overset{7}{\cancel{8}}$0.7
n	73.7	9$\overset{6}{\cancel{1}}$.9	68.8	100.0

x	x	y	y
n − a + 13.7	n − b − 9.1	n − a − 1$\overset{3}{\cancel{8}}$.1	n − b + $\overset{29}{\cancel{24}}$.3
+ 13.8	− 9.0	− 13.1	+ 29.3
+ 13.75	− 9.25	− 13.1	+ 29.3
+ 13.89	− 9.19	− 13.23	+ 29.59
÷ .302	÷ .302	− 6.62	+ 14.79
+ $\overset{4}{\cancel{6}}$6.0	− 30.4		

✓

A 7443 No. 43. June 2, 1908.

			1900 Jan. 19 19 23.7	−52 25.9
a = −52. 11446	19 16 40.0	−52 23.0	$-\overset{45.0}{\cancel{55.4}}$ = 19 17 $\overset{25.0}{\cancel{35.4}}$	$-5.\overset{6}{\cancel{7}}$ = −52 $28.\overset{6}{\cancel{7}}$
b = −52 11451	19 18 30.0	−52 33.8	$-64.\overset{3}{\cancel{9}}$ = 19 17 $\overset{25.5}{\cancel{34.9}}$	$+5.\overset{0}{\cancel{7}}$ = −52 $28.\overset{8}{\cancel{7}}$
c = −53 9562	19 17 50.3	−53 1.3	19 17 $\overset{2}{\cancel{3}}5.2$	−52 28.7
	x			
	c − a = + 70.3		−0.2 +0.3	−0.1 +0.1

Coo − 53.0 / 2

.301

+21.2

	x	y	x	y
a	60.0	98.6	55.0	108.0
b	93.2	77.2	88.2	86.7
n	73.6	87.4	68.7	96.8

x	x	y	y
n−a +13.6	n−b −19.6	n−a −11.2	n−b $+10.\overset{2}{\cancel{8}}$
+13.7	−19.5	−11.2	+10.1
+13.65	−19.55	−11.2	+10.15
+13.79	$-19.7\overset{5}{\cancel{4}}$	−11.31	+10.25
÷ .304	÷ .304	−5.66	+5.1
$+\overset{4}{\cancel{5}}5.4$	−64.9		

✓

A 7443 No. 16 June 3, 1908.

1900 frn. 19 24 43.5 -51 24.1

6 ~~7~~	a = -51 11267	19 22 56.4	-51 50.0	-8.~~8~~7 = 19 22 47.~~6~~7	+22.~~9~~7 = -51 ~~4~~2 7.~~8~~3
8 ~~8~~	b = -51 11270	19 23 18.4	-51 7.8	-31.~~4~~1 = 19 22 47.~~0~~3	-19.~~3~~1 = -51 2~~7~~6.~~8~~9
7	c = -51 11266	19 22 39.9	-51 1.2	19 22 47.~~8~~5	-51. 27.1

c - a = -16.5 (x)

Cos -51.0 / 2 .315

-5.2

+0.2 -0.2 +0.2 -0.2

	x	y	x	y
a	80.0	10.4	70.0	16.0
b	87.~~x~~0	94.2	76.9	99.6
n	77.3	55.9	67.3	61.4

x	x	y	y
n-a -2.7	n-b -~~8~~9.7	n-a +45.5	n-b -38.3
-2.7	-9.6	+45.4	-38.2
-2.7	-9.65	+45.45	-38.25
-2.73	-9.75	+45.89	-38.~~5~~63
÷ .311	÷ .311	+22.94	-19.3
-8.8	-31.4		

✓

A 7443 No. 41 June 3, 1908

1900 pos. 19 22 2.6 - 52 14.7

a = -52 11453 : 19 19 31.5 - 52 18.6 + 33.~~3~~ 14 = 19 20 4.~~8~~ 6.7 + 1.1 = - 52 17.5

b = -52 11460 19 21 7.5 - 52 13.5 - 6~~7~~.~~7~~ 1.6 = 19 20 ~~4.8~~ 6.1 - 4.1 = - 52 17.6

c = -52 11455 19 19 50.0 - 52 52.5 19 20 5.~~7~~ 5.4 - 52 17.6

√

c - a = + 18.5 -0.8 +0.7 -0.1 0.0

Coo - 52.9 / 2

.302

+ 5.6

	x	y	x	y
a	60.0	90.5	55.0	94.5
b	88.9	100.7	84.0	104.8
n	70.1	92.6	65.1	96.7

x	x	y	y
n-a + 10.1	n-b - 18.8	n-a + 2.1	n-b - 8.1
+ 10.1	- 18.9	+ 2.2	- 8.1
+ 10.1	- 18.85	+ 2.15	- 8.1
+ 10.20	- 18.~~0~~9 4	+ 2.17	- 8.18
÷ .306	÷ .306	+ 1.09	- 4.09
+ 33.~~3~~ 4	- 62.2		

√

A 7443 No. 4 June 3, 1908.

1900 pos. 19 35 42.2 − 50 20.7

a = −50 11156 19 32 39.8 − 50 23.0 + 6$\overset{8.74}{\cancel{9.6}}$ = 19 33 $\overset{48.52}{\cancel{49.4}}$ − 1.1 = − 50 24.1

b = −50 11169 19 34 37.9 − 50 28.9 − $\overset{49.72}{\cancel{50.4}}$ = 19 33 $\overset{48.29}{\cancel{47.8}}$ + 4.8 = − 50 24.1

c = −49 11038 19 33 40.1 − 49 52.4 19 33 $\overset{4}{48.7}$ − 50 24.1

x

c − a = + 60.3 +0.1 − 0.2 0.0 0.0

cos −49.9 / 2 .322

+19.4

	x	y	x	y
a	60.0	60.0	65.0	61.0
b	97.7	48.3	102.8	49.3
n	81.9	57.8	86.9	58.8

x	x	y	y
n−a + 21.9	n−b − 15.8	n−a − 2.2	n−b + 9.5
+ 21.9	− 15.9	− 2.2	+ 9.5
+ 21.9	− 15.85	− 2.2	+ 9.5
+ 22.12	− 16.01	− 2.22	+ 9.60
÷ .31$\overset{9}{\cancel{8}}$	÷ .31$\overset{9}{\cancel{8}}$	− 1.1	+ 4.8
+ 69.$\overset{4}{\cancel{6}}$	− 50.$\overset{2}{\cancel{4}}$		

✓

note – See Bk. 10. page 93 for meas. of this neb. ~~The original set of stars chosen for star comp. below was poorly placed being~~ ~~[illegible]~~
Error was made in subtracting dif. in Dec. in checking comp. below error was found. The pos. det. by meas. in Bk. 10 has been recorded.

A 7443 No. 6 June 3, 1908.

1900 pos. 19 43 14.4 − 50 43.5

7.1x 2x 6 47.2

a = − 50 11201 19 40 40.5 − 50 54.8 + 38.0 = 19 41 18.5 + 7.7 = − 50 44.x

5.8 1.8 2 10

b = − 50 11203 19 41 6.0 − 50 37.8 + 18.0 = 19 41 27.0 − 9.3 = − 50 41.x

c = − 51 11355 19 41 27.0 − 51 16.8 19 41 ~~20.3~~ − 50 45.1

20.0

x

Mean pos. 19 41 20.4 − 50 47.1

c − a = + 46.5

− 1.8 + 1.8 + 0.1 − 0.1

− 22 + 14

Cos − 51.3 / 2

.313

+ 14.6

	x	y	x	y
a	70.0	60.0	80.0	70.0
b	~~93.8~~ 76.9	93.7	86.9	103.8
n	81.9	75.2	91.9	85.3

x	x	y	y
n − a + 11.9	n − b + 5.0	n − a + 15.2	n − b − 18.5
+ 11.9	+ 5.0	+ 15.3	− 18.5
+ 11.9	+ 5.0	+ 15.35	− 18.5
+ 12.07	+ 5.05	+ 15.40	− 18.69
÷ .316	÷ .316	+ 7.7	− 9.3
+ 38.1	+ 16.0		

A 7443 No. 44 June 4th 1908.

1900 pos. 19 35 37.6 − 52 38.8

a = −52 11506 19 32 50.2 − 50 42.9 + 70.8 = 19 33 41.0 + 0.6 = − 52 43.3

b = −52 11521 19 35 10.4 − 50 37.6 − 90.3 = 19 33 40.1 − 4.5 = − 52 42.1

C = −53 9646 19 33 42.9 − 53 5.7

19 33 40.6 − 52 42.2

c − a = + 72.7

.300

+ 21.8

Co − 53.1 / 2

− 0.3 + 0.4 + 0.1 0.0

	x	y	x	y
a	60.0	70.0	65.0	76.0
b	108.3	80.4	113.4	86.3
n	81.2	71.2	86.3	77.1

x		x		y		y	
n−a	+ 21.2	n−b	− 27.1	n−a	+ 1.2	n−b	− 9.2
	+ 21.3		− 27.1		+ 1.1		− 9.2
	+ 21.25		− 27.1		+ 1.15		− 9.2
	+ 21.46		− 27.37		+ 1.16		− 9.29
	÷ .303		÷ .303		+ 0.58		− 4.64
	+ 70.8		− 90.3				

✓

A 7443 . No. 70 June 4, 1908.

1900 pos. 19 19 7.0 −53 7.3

a = −53 9559 | 19 16 58.3 | −53 22.0 | $+\overset{10.9}{11.2}5$ = 19 17 $9.\overset{1x}{3}$ | $+\overset{1.9}{12.2}$ = −53 $10.\overset{1}{2}$

b = −53 9562 | 19 17 50.3 | −53 1.3 | $-\overset{3.9}{44.1}$ = 19 17 $6.\overset{8x}{2}$ | $-8.\overset{8}{9}$ = −53 $10.\overset{1}{2}$

c = −53 9560 | 19 17 25.8 | −53 48.0 | 19 17 $\overset{8.0}{7}.8$ | −53 10.1

x

c : a = $+\overset{2}{1}7.5$ | +1.1 −1.2 | 0.0 0.0

Coo −53.8
2

.295
8.1
+5.2

	x	y	x	y
a	40.0	69.1	45.0	73.5
b	$\overset{6.2}{55.5}$	$110.\overset{5}{8}$	$\overset{62.4}{73.25}$	$1\overset{1}{0}4.9$
n	$4\overset{3.2}{2.9}$	92.9	48.3	97.2

x	x	y	y
n−a +3.2	n−b −13.0	n−a +23.8	n−b −17.6
+3.3	−13.1	+23.7	−17.7
+3.25	−13.05	+23.75	−17.65
+3.28	−13.18	+23.99	−17.83
÷ .300	÷ .300	+11.99	−8.9
$+\overset{0\ 9}{11.2}$	$-\overset{3.9}{44.0}$		

A 7443 | No. 28 | June 4, 1908.

			1900 pos. 19 16 39.6	−52 9.1
a = −52 1142$\overset{7}{5}$	19 13 11.0	−52 7.9	+9$\overset{1.4}{2.3}$ = 19 14 4$\overset{2.4}{3.3}$	−4.0 = −52 11.9
b = −52 11443	19 16 20.0	−52 12.7	−9$\overset{8}{9}$.2 = 19 14 4$\overset{1}{0}$.8	+1.0 = −52 11.7
c = −52 114$\overset{3}{2}$1	19 14 20.2	−52 48.0	19 14 ~~42.8~~ 42.1	−52 11.8
	ν			
	c − a = +69.2		+0.$\overset{3}{4}$ − 0.3	+0.1 − 0.1
Cos −52.8 / 2	.302			
	+20.9			

	x	y	x	y
a	50.0	100.0	55.0	102.5
b	1$\overset{0}{2}$8.0	90.2	113.0	92.7
n	77.9	92.1	83.0	94.6

x	x	y	y
n − a +27.9	n − b −$\overset{3}{4}$0.1	n − a −7.9	n − b +1.9
+28.0	−30.0	−7.9	+1.9
+27.95	−30.05	−7.9	+1.9
+28.23	−30.35	−7.98	+1.92
÷ .306	÷ .306	−3.99	+0.96
+92.3	−99.2		

A7443 No. 29 June 4, 1908.

meant to be 14?

41 25.4 55

1900 pos. 19 15 27.3 −51 56.4

3.3 29.3 6 2

a = −51 11207 19 11 36.0 −51 53.6 + 11~~4.4~~ = 19 13 ~~30.4~~ − 5.~~7~~ = −51 59.~~3~~

7 30.

b = −52 11435 19 15 7.4 −52 2.7 − 9~~8~~.0 = 19 13 ~~29~~.4 + 3.9 = −51 58.8

8 0

c = −51 11215 19 12 55.5 −51 27.6 19 13 29.~~9~~ −51 59.~~1~~

x

c − a = + 79.5 −0.5 +0.6 +0.2 −0.2

Cos −51.5 / 2 .311

+ 24.7

	x	y	x	y
a	40.0	47.5	45.0	52.0
b	104.~~9~~8	28.6	109.8	33.1
n	74.9	3~~5~~6.1	79.9	40.~~8~~7

x	x	y	y
n−a + 34.9	n−b − 29.9	n−a − 1~~2~~1.4	n−b + ~~8~~7.5
+ 34.9	− 29.9	− 11.3	+ 7.~~4~~6
+ 34.9	− 29.9	− 11.35	+ 7.~~6~~55
+ 35.25	− 30.20	− 11.46	+ 7.73
÷ .308	÷ .308	− 5.7	+ 3.86
+ 114.4	− 98.0		

A 7443 No. 103. June ~~4~~ 5, 1908.

1900 pos. 19 13 23.9 – 53 50.9

a. – 53 951~~7~~9 19 9 ~~27~~31.6 – 53 ~~44.4~~59.7 +11~~2.3~~1.2 = 19 11 2~~3.9~~2.8 + 6.~~2~~1 = – 53 53.~~5~~6

b. – 5~~4~~3 9~~8443~~537 19 13 ~~50.3~~5.1 – 5~~4~~3 53.3 – 10~~2~~1.0 = 19 11 2~~3~~4.1 – 0.1 = – 53 53.4

c. – 53 9525 19 11 0.6 – 53 17.9

19 11 23.~~5~~4 – 53 ~~53.5~~ 53.5

✓

c – a = + 89.0

– 0.~~5~~6 + 0.7 + 0.1 – 0.1

cos – 53.3 / 2

.299

+ 26.6

	x	y	x	y
a	30.0	29.4	40.0	3~~6~~5.4
b	92.6	41.7	102.6	47.7
n	62.8	41.5	72.8	47.6

x	x	y	y
n – a + 32.8	n – b – 29.8	n – a + 12.1	n – b – 0.2
+ 32.8	– 29.8	+ 12.2	– 0.1
+ 32.8	– 29.8	+ 12.15	– 0.15
+ 33.13	– 30.10	+ 12.37	– 0.15
÷ .295	÷ .295	+ 6.18	– 0.1
+ 112.3	– 102.0		

✓

See B.I. 10 – page 79 – Duplicate meas.
~~for means of the scale~~
Error was made in choosing red. in mean of dif. in dec – a & b –
table 54.9 instead of 53.9 –

A 7443 No. 104 June 5, 1908.

1900 pos. 19 8 56.9 – 53 52.6

a = – 53 9502 19 5 19.6 – 53 52.9 + ~~98.4~~ 96.7 = 19 6 ~~58.9~~ 56.3 55.3 – 2.2 = – 53 55.1

b = – 53 9514 19 8 36.1 – 53 59.4 – ~~102.4~~ 99. 100.6 = 19 6 ~~58.7~~ 55.5 + 4.4 = – 53 55.0

c = – 54 9301 19 6 36.3 – 54 38.6 19 6 55.~~8~~9 – 53 55.~~1~~0

x – 0.6 + 0.6 + 0.1 0.0

c – a = + 76.7
.290) + 22.2

Cos – 54.6 / 2

	x	y	x	y
a	30.0	106.4	35.0	110.0
b	87.7	93.3	92.6	96.8
n	58.3	102.0	63.2	105.6

x	x	y	y
n-a + 28.3	n-b – 29.4	n-a – 4.4	n-b + 8.7
+ 28.2	– 29.4	– 4.4	+ 8.8
+ 28.25	– 29.4	– 4.4	+ 8.75
+ 28.53	– 29.69	– 4.44	+ 8.84
÷ .29~~8~~5	÷ .29~~8~~5	– 2.2	+ 4.4
+ ~~98.4~~ 96.7	– ~~102.4~~ 100.6		

~~The set of stars used for meas. of this neb was poorly selected & especially star a used for orienting as it is very close to edge of plate — see new meas.~~

For 2nd meas. of this neb. see book 10 pg. 78.

A 744$\overset{3}{}$ No. 107 June 5, 1908.

(1900 pos. 19 7 11.6 − 54 17.7

a = − 5$\overset{4}{3}$ 9289 19 4 51.8 − 54 12.6 + 1$\overset{7\,8}{8.0}$ = 19 5 9.$\overset{6}{8}$ − 7.$\overset{6}{7}$ = − 54 20.$\overset{2}{3}$

b = − 54 9297 19 5 43.8 − 54 25.2 − $\overset{4\,6\,2}{38.0}$ = 19 5 $\overset{9\,8\,4}{5.8}$ + 5.$\overset{1}{2}$ = − 54 20.$\overset{1}{0}$

C = − 53 9502 19 5 19.6 − 53 52.9 19 5 $\overset{4.6}{7.8}$ − 54 20.2

9.5

10.1

x

C − a = + 27.8 + 0.1 − 0.1 + 0.0 − 0.1

Cos − 53.9 / 2 .295 −05 −07

+ 8.2

	x	y	x	y
a	$\overset{3}{3}$0.0	59.9	35.0	60.3
b	4$\overset{5}{0}$.2	$\overset{34.}{79.4}$	50.2	34.9
n	35.2	44.8	40.2	45.$\overset{1}{0}$

x	x	y	y
n − a + 5.2	n − b − 10.0	n − a − 15.1	n − b + 1$\overset{0}{5}$.4
+ 5.2	− 10.0	− 15.2	+ 10.2
+ 5.2	− 10.0	− 15.15	+ 10.3
+ 5.25	− 10.10	− 15.30	+ 10.40
÷ .292	÷ .292	− 7.65	+ 5.2
+ 18.0	− 3$\overset{4.6}{8.0}$		

A 7443 No. 108 June 5, 1908.

1900 pr. 19 42 9.4 −54 30.0

a = −54 9488	19 40 16.2	−54 27.2	−6.$\overset{1}{2}$ =	19 40 $\overset{9.9}{10.0}$ −6.$\overset{3}{4}$ =	−54 33.$\overset{5}{6}$
b = −54 9493	19 40 42.2	−54 42.7	−3$\overset{17.0}{2.2}$ =	19 40 10.$\overset{5}{0}$ + 9.$\overset{0}{2}$ =	−54 33.$\overset{7}{8}$
c = −53 9687	19 40 22.2	−53 47.7		19 40 10.$\overset{2}{0}$	−54 33.6

x

c − a = + 6.0

−0.3 + 0.3

−0.1 + 0.1

Cos − 53.8 / 2

.295

1.8

	x	y	x	y
a	80.0	48.0	85.0	43.0
b	87.4	9.3	92.4	12.3
n	78.2	27.3	83.2	30.2

x	x	y	y
n−a − 1.8	n−b − 9.2	n−a − 12.7	n−b + 18.0
− 1.8	− 9.2	− 12.8	+ 17.9
− 1.8	− 9.2	− 12.75	+ 17.95
− 1.82	− 9.29	− 12.88	+ 18.13
÷ .2$\overset{90}{89}$	÷ .2$\overset{90}{89}$	− 6.4	+ 9.0$\overset{6}{7}$
−6.3	− 32.$\overset{0}{2}$		

A 7443 No. 111 June 6, 1908.

1900 pos. 19 15 46.0 −54 44.8

5
8
7
8
6

a = −54 9337 19 12 40.3 −54 50.8 $+64.\overset{3}{9}$ = 19 13 $\overset{4.6}{45.2}$ +3.3 = −54 47.5

b = −54 9350 19 14 55.8 −54 44.6 $-7\overset{1.9}{2.6}$ = 19 13 $4\overset{9}{3.2}$ −2.6 = −54 47.2

c = −54 9344 19 13 35.8 −54 10.8 19 13 44.2 −54 47.4

x

c − a = + 55.5 +0.4 −0.3 +0.1 ~~+~~0.2

coo − 54.2

2

$.29\overset{4}{8}$

+16.3

	x	y	x	y
a	50.0	29.3	60.0	32.0
b	89.2	40.9	99.2	43.9
n	68.5	35.8	78.5	38.7

x	x	y	y
n−a + $\overset{1}{3}$8.5	n−b − 20.7	n−a + 6.5	n−b − 5.1
+ 18.5	− 20.7	+ 6.7	− 5.2
+ 18.5	− 20.7	+ 6.6	− 5.15
$+18.6\overset{8}{9}$	− 20.91	+ 6.67	− 5.20
÷ .288	÷ .288	+ 3.33	− 2.6
+ 64.9	− 72.6		

✓

A 6909 | No. 1 (2) | June 10, 1908.

			1900 pos. 19 43 31.8	− 50 6.2
a = −50 11202	19 40 45.0	−50 13.6	$+5\overset{3.8}{4.3}$ = 19 41 $\overset{8.8}{39.3}$	+3.7 = −50 9.9
b = −50 11205	19 42 22.5	−50 8.1	$-4\overset{3.8}{4.2}$ = 19 41 $38.\overset{7}{8}$	−1.7 = −50 9.8
c = −50 11203	19 41 6.0	−50 37.8	19 41 38.8	−50 $9.\overset{8}{9}$
	x			
	c − a = +21.0		+0.0 −0.1	+0.1 0.0
Cos −50.6 / 2	.317			
	+6.7			

	x	y	x	y
a	60.0	82.4	65.0	86.6
b	91.2	93.3	$9\overset{6}{5}.\overset{2}{6}$	$97.\overset{4}{5}$
n	77.2	89.9	82.2	93.9

x	x	y	y
n−a + 17.2	n−b − 14.0	n−a + 7.5	n−b − 3.4
+ 17.2	− 14.0	+ 7.3	− 3.5
+ 17.2	− 14.0	+ 7.4	− 3.45
+ 17.37	− 14.14	+ 7.47	− 3.48
÷ .320	÷ .320	+ 3.73	− 1.74
+ 54.3	− 44.2		

A6909 No. 2-(f) June 10, 1908.

1900 pos. 19 48 24.4 −50 18.0

a = −50 ~~11218~~ 19 45 29.2 −50 28.2 $+62.\overset{0}{6}$ = 19 46 $\overset{31.2}{\text{xx.8}}$ $+6.\overset{4}{5}$ = −50 $21.\overset{8}{7}$

b = −50 ~~11227~~ 19 47 16.8 −50 17.8 $-45.\overset{1}{6}$ = 19 46 $31.\overset{7}{2}$ −3.9 = −50 21.7

c = −49 ~~11094~~ 19 46 10.0 −49 50.7 19 46 $31.\overset{4}{5}$ −50 $21.\overset{8}{7}$

x

c − a = +40.8 −0.2 +0.3 0.0 −0.1

Cos − 49.8 / 2 .323

+13.2

	x	y	x	y
a	40.0	38.5	45.0	42.6
b	73.8	59.1	78.9	63.2
n	59.8	51.4	64.7	55.5

x	x	y	y
n − a +19.8	n − b −14.0	n − a +12.9	n − b −7.7
+19.7	−14.2	+12.9	−7.7
+19.75	−14.1	+12.9	−7.7
+19.95	−14.54	+13.03	−7.78
÷ .319	÷ .319	+6.52	−3.89
+62.6	−45.6		

A6909 No. 3 (g) June 10, 1908.

1900 pro. 19 57 10.7 −50 35.3
7.7 − 18.5 =

a = −50 11261 19 54 8.0 −50 21.0 + $\overset{69.9}{70.4}$ = 19 55 18.4 − 50 = −50 $39.\overset{3}{5}$

b = −50 $112\overset{6}{7}\overset{8}{4}$ 19 $5\overset{6}{7}$ $\overset{13.0}{36.5}$ −50 $\overset{7.8}{55.7}$ −54.8 = 19 55 18.2 $\overset{8}{}$ + $\overset{18.5}{50}$ = −50 $39.\overset{5}{3}$

c = −51 11411 19 55 5.4 −51 5.7 19 55 $18.\overset{2}{3}$ −50 39.4

x

c − a = +57.4
.314
+ 18.0

cos − 51.1
2

±0.5 +0.6 −0.1 +0.1

	x	y	x	y
a	50.0	110.0	55.0	112.5
b	89.3	36.7	$\overset{4}{99}.3$	39.2
n	72.1	73.3	77.1	75.9

x	x	y	y
n−a + 22.1	n−b − 17.2	n−a − 36.7	n−b + 36.6
+ 22.1	− 17.2	− 36.6	+ 36.7
+ 22.1	− 17.2	− 36.65	+ 36.65
+ 22.32	− 17.37	− 37.02	+ 37.02
÷ .317	÷ .317	− 18.51	+ 18.51
+ 70.4	− 54.8		

A 6909 No 4 (h) June 10, 1908.

1900 pro. 19 53 50.2 −50 48.6

a = −50 11244 19 50 47.7 −50 33.2 $+69.\overset{2}{8} =$ 19 51 $5\overset{6.9}{7.8}$ $-19.\overset{5}{7} =$ −50 $52.\overset{7}{9}$

b = −51 11408 19 53 26.4 −51 10.7 $-\overset{89.2}{98.1} =$ 19 51 $5\overset{7\ 2}{6.8}$ $+18.\overset{1}{3} =$ −50 $52.\overset{6}{4}$

C = −51 11401 19 51 27.4 −51 10.2 19 51 57.0 −50 $52.\overset{6}{7}$

x

c − a = +39.7 −0.1 +0.2 +0.1 0.0

$\frac{\cos. 51.2}{2}$ .313

+12.4

	x	y	x	y
a	50.0	95.0	45.0	97.0
b	99.9	19.9	94.9	21.7
n	71.8	56.1	66.8	58.0

x	x	y	y
n−a +21.8	n−b −28.1	n−a −38.9	n−b +36.2
+21.8	−28.1	−39.0	+36.3
+21.8	−28.1	−38.95	+36.25
+22.02	−28.38	−39.34	+36.61
÷ .315	÷ .315	−19.67	+18.3
+69.9	−90.1		

✓

A 6909 No. 5 (i) June 10, 1908.

1900 pos. 19 51 44.2 -50 44.4

a = -50 11238 19 49 16.7 -50 54.3 +34.$\overset{2}{\cancel{5}}$ = 19 49 $\overset{0.9}{\cancel{51.2}}$ +$\overset{5.9}{\cancel{6.0}}$ = -50 48.$\overset{4}{\cancel{3}}$

b = -50 11243 19 50 27.7 -50 37.7 -$\overset{6.7}{\cancel{37.2}}$ = 19 49 $\overset{10b}{\cancel{50.5}}$ -$\overset{10.5}{\cancel{15.6}}$ = -50 48.$\overset{2}{\cancel{3}}$

c = -51 11397 19 50 22.3 -51 11.4 19 49 $\overset{8}{\cancel{50.4}}$ -50 48.3

51.0

x

c - a = +65.6 -0.1 0.0 +0.1 -0.1

$\frac{\cos -51.2}{2}$ .313

+20.5

	x	y	x	y
a	60.0	70.0	70.0	80.0
b	82.4	102.9	92.4	112.9
n	70.8	81.9	80.8	91.9

x		x		y		y
n-a	+10.8	n-b	- 11.6	n-a	+ 11.9	n-b	-21.0

x	x	y	y
n-a +10.8	n-b - 11.6	n-a + 11.9	n-b -21.0
+10.8	- 11.6	+11.9	-21.0
+10.8	- 11.6	+11.9	-21.0
+10.90	- 11.72	+12.02	-21.21
÷ .316	÷ .316	+ 6.01	- 1$\overset{0}{\cancel{5}}$.60
+34.5	- 37.$\overset{1}{\cancel{2}}$		

A 6909 No. 6 (j) June 11, 1908.

1900 pos. 19 47 28.2 -50 37.9

a = -50 11216 19 44 48.5 - 50 53.0 $+4\overset{6}{\cancel{7}}.\overset{4}{\cancel{2}}$ = 19 45 $35.\overset{2}{\cancel{7}}$ $+11.\overset{2}{\cancel{3}}$ = -50 $41.\overset{8}{\cancel{7}}$

b = -50 11223 19 46 38.7 - 50 28.2 $-63.\overset{3}{\cancel{9}}$ = 19 45 $3\overset{5}{\cancel{4}}\overset{4}{.}8$ $-13.\overset{3}{\cancel{4}}$ = -50 $41.\overset{5}{\cancel{6}}$

c = -50 11220 19 45 44.2 - 50 12.4 19 45 $35.\overset{3 8}{\cancel{3}}$ -50 $41.\overset{6}{\cancel{7}}$

α

c - a = +55.7 -0.1 +0.1 +0.2 -0.1

$\frac{\cos -50.2}{2}$ .320

+17.8

	x	y	x	y
a	60.0	22.5	55.0	26.0
b	94.8	71.3	89.9	74.8
n	74.8	44.8	69.8	48.3

x	x	y	y
n - a + 14.8	n - b - 20.0	n - a + 22.3	n - b - 26.5
+ 14.8	- 20.1	+ 22.3	- 26.5
+ 14.8	- 20.05	+ 22.3	- 26.5
$+14.9\overset{5}{\cancel{7}}$	- 20.25	+ 22.52	- 26.77
÷ .317	÷ .317	+ 11.26	- 13.38
+ 47.2	- 63.9		

A 6909 No. 7 (K) June 11, 1908.

1900 pos. 112.7 19 44 53.0 -50 43.9

a = -50 11203 19 41 6.0 -50 37.8 + 113.8 = 19 43 59.8 - 9.6 = -50 47.4

b = -50 11212 19 44 26.8 -50 53.3 - 87.1 = 19 43 59.7 + 5.7 = -50 47.6

ρ = -50 11208 19 43 9.5 -50 14.7 19 42 59.3 -50 47.5

59.2

x

ρ - a = + 123.5

.320

+ 39.5

Cos - 50.2 / 2

-0.5 +0.5 -0.1 +0.1

	x	y	x	y
a	40.0	56.0	45.0	61.5
b	103.3	19.2	108.3	30.6
n	75.7	30.7	80.7	42.2

	x		x		y		y
n-a	+35.7	n-b	-27.6	n-a	-19.3	n-b	+11.5
	+35.7		-27.6		-19.3		+11.6
	+35.7		-27.6		-19.3		+11.55
	+36.06		-27.88		-19.49		+11.67
	÷ .317		÷ .317		- 9.74		+ 5.84
	+ 113.8		- 88.0				

✓

A 690$\overset{9}{6}$ No. 8 (1) June 11, 1908.

1900 pos. 19 43 56.~~2~~3 − 50 39.6

4 ~~5~~ a = − 50 11198 19 39 59.9 − 50 51.1 + 12~~3.6~~ 24 = 19 42 ~~2~~.5 3 + 7.~~8~~ 7 = − 50 43.~~3~~ 4

6 ~~5~~ b = − 50 11214 19 44 29.5 − 50 30.5 − 1~~47.7~~ 148.5 = 19 42 ~~1.1~~ 3~~1~~.0 5 − 12.~~6~~ 5 = − 50 43.~~1~~ 0

5 C = − 50 11205 19 42 22.5 − 50 8.1 19 42 ~~5.4~~ 2.0 2.6 − 50 43.2

~~x~~

c − a = + 142.6 − 0.3 + 0.4 . + 0.2 − 0.2

Cos − 50.1 .321
2 + 45.8

	x	y	x	y
a	30.0	22.5	35.0	26.0
b	115.4	62.9	120.4	66.5
n	68.8	38.0	73.8	41.5

x	x	y	y
n − a + 38.8	n − b − 46.6	n − a + 15.5	n − b − 24.9
+ 38.8	− 46.6	+ 15.5	− 25.0
+ 38.8	− 46.6	+ 15.5	− 24.95
+ 39.19	− 4~~5~~7.07	+ 15.65	− 25.20
÷ .317	÷ .317	+ 7.8	− 12.6
+ 123.6	− 14~~7.7~~ 8 5		

✓

A 6909 No. 9 (m) June 12, 1908.

1900 fr. 19 42 34.8 −50 ~~0~~ 3 43.8

a = −50 11201 19 40 40.5 −50 54.8 −0.3 = 19 40 40.2 +7.~~5~~ 4 = −50 47.~~3~~ 5

b = −50 11203 19 41 6.0 −50 37.8 −24.~~6~~ 79 = 19 40 41.~~4~~ 31 −9.~~5~~ 4 = −50 4~~7~~.~~3~~ 2

c = −50 11202 19 40 ~~43.6~~ 45.0 −50 13.6 19 40 ~~40.8~~ 6 −50 47.~~3~~ 45.

40.8

x

c − a = +4.5 −0.6 +0.5 +0.1 −0.2

$\frac{\text{Cos} - 50.2}{2}$ .320

+1.4

	x	y	x	y
a	50.0	20.0	40.0	2~~3~~.0
b	57.7	53.5	47.7	5~~3~~ 8.6
n	~~44.1~~ 9.9	~~36.2~~ 4.7	39.9	39.8

x	x	y	y
n−a = −0.1	n−b − 7.8	n−a + 14.7	n−b − 18.8
−0.1	− 7.8	+ 14.8	− 18.8
− 0.1	− 7.8	+ 14.75	− 18.8
− 0.1	− 7.87	+ 14.90	− 18.99
÷ .316	÷ .316	+ 7.45	− 9.49
− 0.3	− 24.~~8~~ 9		

✓

A6909 No. 10 (n) June 12, 1908.

1900 pos. 19 41 52.0 −50 45.2

a = −51 113412 19 38 30.0 −51 5.3 $+\overset{71}{88.0}$ = 19 39 $\overset{7.1}{58.0}$ $+16.\overset{4}{6}$ = −50 $48.\overset{9}{7}$

b = −50 11203 19 41 $\overset{6.0}{37.8}$ −50 37.8 $-\overset{7.6}{68.8}$ = 19 39 $\overset{8.4}{57.7}$ − $11.\overset{0}{1}$ = −50 $48.\overset{8}{9}$

n = −51 11349 19 40 44.5 −51 29.2 19 39 $57.\overset{8}{9}$ −50 48.8

x

c − a = +134.5 −0.7 +0.6 +0.1 0.0

$\frac{C_{00} - 51.5}{2}$

.311

+41.8

	x	y	x	y
a	40.0	56.0	45.0	61.5
b	88.7	110.7	93.8	116.3
n	67.4	88.9	$7\overset{2}{3}.5$	$94.\overset{3}{2}$

x	x	y	y
n−a +27.4	n−b −21.3	n−a +32.9	n−b −21.8
+27.5	−21.3	$+32.\overset{8}{7}$	−22.0
+27.45	−21.3	+32.85	−21.9
$+27.7\overset{2}{3}$	−21.51	+33.18	−22.12
÷ .315	÷ .315	+16.59	−11.06
+88.0	−68.3		

A 6909 No. 11 (o) June 13, 1908.

1900 pr. 19 41 35.9, −50, 44.7

a = −51 11342 19 38 30.0 −51 5.3 $+71.\overset{1}{8}$ = 19 39 $41.\overset{1}{8}$ $+17.\overset{1}{3}$ = −50 $48.\overset{2}{0}$

b = −50 11203 19 41 6.0 −50 37.8 $-8\overset{3.7}{4.5}$ = 19 39 $4\overset{2.3}{1.5}$ $-10.\overset{3}{4}$ = −50 $48.\overset{1}{1}$

ρ = −51 11349 19 40 44.5 −51 29.2 19 39 41.7 −50 $48.\overset{2}{1}$

x

ρ − a = +134.5 −0.6 +0.6 0.0 −0.1

Cos −51.5 / 2

.311

+41.8

	x	y	x	y
a	45.0	61.5	60.0	$\overset{5}{6}9.4$
b	93.8	116.3	108.7	114.3
n	67.4	95.8	82.4	93.8

x	x	y	y
n−a +22.4	n−b −26.4	n−a +34.3	n−b −20.5
+22.4	−26.3	+34.4	−20.5
+22.4	−26.35	+34.35	−20.5
+22.62	−26.61	+34.69	−20.70
÷ .315	÷ .315	+17.34	−10.35
+71.8	−84.5		

✓

A6909 No. 12 (p) June 13, 1908.

			1900 po.	19 52 1.1		−51 5.2
a = −51 11385	19 48 32.3	−51 10.8	+96.4 =	19 50 7.7	+1.7 =	−51 9.1
b = −51 11403	19 51 59.9	−51 6.9	−113.5 =	19 50 7.5	∓2.2 =	−51 9.1
c = −50 11243	19 50 27.7	−50 37.7		19 50 7.6		−51. 9.1

x

c − a = +115.4   +0.1 −0.1   0.0 0.0

cos −50.6 / 2   .317

+36.6

	x	y	x	y
a	40.0	30.0	50.0	35.0
b	105.3	37.7	115.2	42.7
n	70.0	33.4	79.9	38.3

x	x	y	y
n−a +30.0	n−b −35.3	n−a +3.4	n−b −4.3
+29.9	−35.3	+3.3	−4.4
+29.95	−35.3	+3.35	−4.35
+30.25	−35.65	+3.38	−4.39
*÷.314	÷.314	+1.69	−2.19
+96.4	−113.5		

A6909 No. 13 (q) June 13, 1908.

1900 fro. 19 58 17.6 − 51 9.5

a = −51 $1140\overset{9}{\cancel{4}}$ 19 $5\overset{4}{\cancel{7}}$ $\overset{38.}{\cancel{9}.4}$ − 51 $\overset{33.4}{\cancel{27.0}}$ + $\overset{6.56}{\cancel{107.8}}$ = 19 56 $\overset{24.9}{\cancel{25.7}}$ + $19.\overset{7}{\cancel{8}}$ = − 51 $13.\overset{7}{\cancel{5}}$

b = −50 $11\overset{2}{\cancel{4}}74$ 19 57 36.5 − 50 55.7 − $\overset{27.4}{\cancel{78.7}}$ = 19 56 $23.\overset{8}{\cancel{9}}$ − $1\overset{7.8}{\cancel{8.0}}$ = − 51 $13.\overset{5}{\cancel{1}}$

c = −50 11268 19 56 13.0 − 50 57.8 19 56 $24.\overset{46}{\cancel{5}}$ − 51 13.6

x

c − a = + 94.6 + 0.5 − 0.6 + 0.1 − 0.1

$\frac{\cos - 50'.0}{2}$ .315

+ 29.8

	x	y	x	y
a	40.0	30.0	45.0	36.5
b	96.1	105.2	101.1	111.6
n	73.4	69.5	78.3	75.9

x	x	y	y
n − a + 33.4	n − b − 22.7	n − a + 39.5	n − b − 35.7
+ 33.3	− 22.8	+ 39.4	− 35.7
+ 33.35	− 22.75	+ 39.45	− 35.7
+ 33.68	− 22.98	+ 39.84	− 36.06
÷ $.31\overset{3}{\cancel{4}}$	÷ $.31\overset{3}{\cancel{4}}$	+ 19.92	− 18.03
+ $107.\overset{6}{\cancel{5}}$	− $73.\overset{4}{\cancel{2}}$		

A 6909 No. 14 (r) June 13, 1908.

1900 pos. 19 58 17.7 −51 8.8

a = −51 11409 19 54 38.4 −51 33.4 +10$\overset{6.78}{\cancel{7.4}}$ = 19 56 $\overset{5.1}{\overset{29.4}{\cancel{25.8}}}$ +20.$\overset{4}{\cancel{6}}$ = −51 $\overset{3.0}{1\cancel{7}.\cancel{8}}$

b = −50 11274 19 57 36.5 −50 55.7 −7$\overset{2.68}{\cancel{3.0}}$ = 19 56 $\overset{9\cancel{7}}{\cancel{23.5}}$ −17.$\overset{1}{\cancel{3}}$ = −51 $\overset{2.8}{1\cancel{3}.\cancel{0}}$

c = −50 11268 19 56 13.0 −50 57.8 19 56 $\overset{\cancel{8}}{\cancel{24.7}}$ −51 12.9

24.5

x

c − a = +94.6 +0.6 −0.6 +0.1 −0.1

$\frac{\text{Cos} - 51.0}{2}$ .315

+29.8

	x	y	x	y
a	45.0	36.5	50.0	18.5
b	101.1	111.6	106.1	93.5
n	78.4	77.4	83.4	59.3

x	x	y	y
n−a +33.4	n−b −22.7	n−a +40.9	n−b −34.2
+33.4	−22.7	+40.8	−34.2
+33.4	−22.7	+40.85	−34.2
+33.73	−22.93	+41.26	−34.54
÷ .31$\overset{3}{\cancel{4}}$	÷ .31$\overset{3}{\cancel{4}}$	+20.63	−17.27
+107.$\overset{8}{\cancel{4}}$	−73.$\overset{3}{\cancel{0}}$		

✓

A 6909 No. 15 (8) June 13, 1908.

1900 pos. 19 50 46.8 −51 10.7

a = −5$\overset{1}{0}$′ 11380 19 47 59.3 −51 3.3 +5$\overset{3.1}{4.2}$ = 19 48 53.$\overset{0}{5}$ − 11.$\overset{2}{3}$ = −51 14.$\overset{5}{6}$

b = −51 11393 19 49 32.3 −51 25.6 −39.$\overset{3}{7}$ = 19 48 5$\overset{3.0}{2.6}$ + 11.$\overset{0}{7}$ = −51 14.$\overset{6}{5}$

c = −51 11381 19 48 8.3 −51 46.5

19 48 53.$\overset{0}{1}$ −51 14.6

x

c − a = +9.$\overset{0}{8}$

0.0 0.0 −0.1 0.0

$\frac{\text{Cos} - 51.8}{2}$

.309

+ 2.$\overset{8}{9}$

	x	y	x	y
a	60.0	105.0	65.0	105.1
b	89.1	60.6	94.1	60.7
n	76.8	82.6	81.8	82.6

x	x	y	y
n−a +16.8	n−b −12.3	n−a −22.4	n−b +22.0
+16.8	−12.3	−22.5	+21.9
+16.8	−12.3	−22.45	+21.95
+16.97	−12.42	−22.6$\overset{7}{9}$	+22.17
÷ .313	÷ .313	−11.3	+11.09
+54.2	−39.7		

√

A 6909 No. 16 (t) June 15, 1908.

1900 fro. 19 47 0.9 −51 9.9

a = −51 1136~~9~~7 19 4~~5~~4 ~~4~~59.7 −51 1~~5.8~~6.3 +6.~~8~~7 = 19 45 6.~~5~~4 +2.7 = −51 13.6

b = −51 113~~78~~68 19 4~~6~~5 ~~51.8~~4.5 −51 ~~6.6~~7.7 +~~9.3~~2.9 = 19 45 ~~4.8~~7.4 −6.~~1~~0 = −51 13.~~8~~7

c = −51 1136~~5~~8 19 44 45.9 −51 49.8 19 45 ~~4.7~~ ~~7.08~~ 6.9 −51 13.~~7~~6

x

c − a = −13.8 −0.5 +0.5 0.0 +0.1

Cos −51.8 / 2

.309

−4.3

	x	y	x	y
a	60.0	85.0	65.0	90.0
b	61.2	102.4	66.2	107.4
n	62.1	90.4	67.1	95.4

x	x	y	y
n−a +2.1	n−b +0.9	n−a +5.4	n−b −12.0
+2.1	+0.9	+5.4	−12.0
+2.1	+0.9	+5.4	−12.0
+2.12	+0.91	+5.45	−12.12
÷ .313	÷ .313	+2.72	−6.06
+6.8	+ ~~2.8~~ 2.9		

✓

A6909 No. 17 (w) June 15, 1908.

1900 pra. 19 39 57.3 −51 8.0

a = −51 11337 19 36 56.7 −51 25.8 +65.8 = 19 38 2.5 +14.8 = −51 11.0 (above: 1.8 · 6 · 2)

b = −50 11497 19 39 0.9 −50 52.0 −57.6 = 19 38 3.3 −20.0 = −51 12.0 (above: 0 · 9 · 19.8 · 1.8)

ρ = −50 11192 19 37 53.9 −50 40.9 19 38 2.9 (above: 8) −51 11.5

x

ρ − a = +57.2 −1.0 +1.1 −0.3 +0.3

$\frac{\cos -50.7}{2}$

.317

+18.1

	x	y	x	y
a	60.0	10.0	55.0	15.0
b	98.4	79.0	93.3	84.1
n	80.5	39.4	75.4	44.4

x	x	y	y
n−a +20.5	n−b −17.9	n−a +29.4	n−b −39.6
+20.4	−17.9	+29.4	−39.7
+20.45	−17.9	+29.4	−39.65
+20.65	−18.08	+29.69	−40.05
÷ .314	÷ .314	+14.84	−20.02
+65.8	−57.6		

√

A 6909 No. 18 (v) June 15, 1908.

1900 pos. 20 4 18.9 −51 40.9

a = −51 11433 20 1 55.0 −51 47.2 + $30.\overset{03}{\cancel{4}}$ = 20 2 $25.\overset{03}{\cancel{4}}$ + 2.1 = −51 45.1

b = −51 11435 20 2 45.0 −51 42.7 − $19.\overset{35}{\cancel{6}}$ = 20 2 $25.\overset{85}{\cancel{4}}$ − 2.6 = −51 45.3

c = −52 11634 20 2 19.8 −52 36.7 20 2 25.4 −51 45.2

x

ρ − a = +24.8 −0.4 +0.4 −0.1 +0.1

$\cos \frac{-52.\overset{7}{\cancel{6}}}{2}$ .304

+7.5

	x	y	x	y
a	70.0	105.0	65.0	108.5
b	85.3	114.2	80.3	107.7
n	79.3	109.1	74.3	112.6

x	x	y	y
n−a + 9.3	n−b − 6.0	n−a + 4.1	n−b − 5.1
+ 9.3	− 6.0	+ 4.1	− 5.1
+ 9.3	− 6.0	+ 4.1	− 5.1
+ 9.39	− 6.06	+ 4.14	− 5.15
÷ $.3\overset{10}{\cancel{09}}$	÷ $.3\overset{10}{\cancel{09}}$	+ 2.07	− 2.58
+ $30.\overset{3}{\cancel{4}}$	− $19.\overset{5}{\cancel{6}}$		

A6909 No. 19 (n) July 15, 1908.

1900 pos. 19 51 22.8 − 51 32.1

a = −51 11391 19 49 19.8 −51 46.9 +8.$\overset{7}{8}$ = 19 49 28.$\overset{5}{6}$ +10.$\overset{8}{9}$ = −51 $\overset{36\ 1}{46.0}$

b = −51 11393 19 49 32.3 −51 25.6 −3.6 = 19 49 28.7 −10.$\overset{2}{3}$ = −51 35.$\overset{8}{9}$

℘ = −50 11238 19 49 16.7 −52 54.3 19 49 28.$\overset{6}{7}$ −51 36.0

x

℘ − a = − 3.1 −0.1 +0.1 +0.1 −0.2

Cos −52.9 / 2

.302

− 0.9

	x	y	x	y
a	60.0	15.0	55.0	16.0
b	63.8	56.9	58.8	57.9
n	62.7	36.5	57.7	37.6

x	x	y	y
n−a + 2.7	n−b − 1.1	n−a + 21.5	n−b − 20.4
+ 2.7	− 1.1	+ 21.6	− 20.3
+ 2.7	− 1.11	+ 21.55	− 20.35
+ 2.73	− 1.11	+ 21.76	− 20.55
÷ .311	÷ .311	+ 10.88	− 10.28
+ 8.8	− 3.6		

A6909 No. 20 (x) June 15, 1908.

1900 pos. 19 50 18.8 −51 47.5

a = −51 11381	19 48 8.3	−51 46.5 + $\overset{5.8}{16.0}$ =	19 48 $\overset{1}{24.8}$	−4.8 = −51 51.3
b = −51 11389	19 49 2.3	−51 54.4 − $\overset{8.8}{39.7}$ =	19 48 $\overset{5}{23.1}$	+3.1 = −51 51.3
n = −52 11586	19 48 23.4	−52 18.7	19 48. 23.$\overset{8}{1}$	−51 51.3
	x			

c − a = + 15.1

+0.3 −0.3

0.0 0.0

$\frac{\cos -52.3}{2}$

.306

+ 4.6

	x	y	x	y
a	70.0	97.5	75.0	105.0
b	86.9	81.8	91.9	89.4
n	$\overset{7\;\;9}{84.8}$	88.0	79.9	95.5

x	x	y	y
n−a + 4.9	n−b − 12.0	n−a − 9.5	n−b + 6.2
+ 4.9	− 12.0	− 9.5	+ 6.1
+ 4.9	− 12.0	− 9.5	+ 6.15
+ 4.95	− 12.12	− 9.59	+ 6.21
÷ .309	÷ .309	− 4.79	+ 3.1
+ 16.0	− 39.2		

A 6909 No. 21 (y) June 16, 1908.

1900 fns. 19 47 39.2 -51 41.7

8.7 4 6

a = -51 11365 19 44 45.9 -51 49.8 + 59.9 = 19 45 45.7 + 4.3 = -51 45.5

64.82 44.15 3 3

b = -51 11376 19 46 38.0 -51 38.0 - 63.9 = 19 45 44.4 - 7.4 = -51 45.4

64.2 4 4

c = -52 11577 19 45 51.1 -52 22.2 19 45 44.8 -51 45.5

x

c - a = +65.2 +0.2 -0.3 +0.1 -0.1

cos -52.4 / 2

.305

+19.9

	x	y	x	y
a	70.0	87.5	60.0	90.0
b	108.1	110.7	98.1	113.3
n	88.2	96.1	78.2	98.6

x	x	y	y
n-a +18.2	n-b -19.9	n-a + 8.6	n-b - 14.6
+18.2	-19.9	+ 8.6	-14.7
+18.2	-19.9	+ 8.6	-14.65
+18.38	-20.10	+ 8.69	-14.80
÷ .310	÷ .310	+ 4.34	- 7.4
+ 59.3	- 64.8		

A6909 No. 22 (z) June 16, 1907.

19 43 1.0 −51 39.8

a = −52 11542 | 19 40 28.9 −52 5.3 +3~~8.0~~7.6 = 19 41 6.~~9~~5 +21.~~9~~7 = −51 43.~~4~~6

b = −51 11357 | 19 41 54.0 −51 21.5 −4~~9.3~~8.9 = 19 41 ~~4.7~~5.1 −21.~~9~~7 = −51 43.~~4~~2

C = −51 11355 | 19 41 27.0 −51 16.8 | 19 41 5.8 | −51 43.4

x

C − a = + 58.1 | +0.7 −0.7 | +0.2 −0.2

$\frac{\cos -51.3}{2}$ .313

+18.2

	x	y	x	y
a	50.0	15.0	55.0	20.0
b	76.8	101.7	81.8	106.8
n	61.6	58.4	~~5~~6 6.7	63.~~7~~5

x	x	y	y
n−a +11.6	n−b −15.2	n−a +43.4	n−b −43.3
+11.~~6~~7	−15.1	+43.5	−43.3
+11.65	−15.15	+43.45	−43.3
+11.77	−15.30	+43.88	−43.73
÷ .310	÷ .310	+2~~2~~1.94	−21.8~~7~~6
+38.0	−49.~~3~~4		

A6909 | No. 23 (a^r) June 16, 1908

1900 $\underset{4}{pp}$. 19 42 58.8 −51 39.6

a = −52 11542 19 40 28.9 −52 5.3 + 35.8 = 19 41 4.$\overset{3}{7}$ + 22.$\overset{0}{8}$ = −51 43.$\overset{3}{1}$

b = −51 11357 19 41 54.0 −51 21.5 − 51.$\overset{0}{5}$ = 19 41 $\overset{3}{\underset{6}{2}}$.$\overset{0}{5}$ − 21.$\overset{5}{7}$ = −51 43.$\overset{0}{1}$

C = −51 11355 19 41 27.0 −51 16.8 19 41 3.8 −51 43.2

x

∴ $\int^{\circ}$ − a = + 58.1 +0.7 − 0.6 +0.1 − 0.2

$\frac{\cos -51.3}{2}$ .313

+18.2

	x	y	x	y
a	55.0	20.0	60.0	21.0
b	81.8	106.9	86.8	107.9
n	6$\overset{6}{5}$.0	64.0	71.0	65.0

x	x	y	y
n−a + 11.0	n−b − 15.8	n−a + 44.0	n−b − 42.9
+ 11.0	− 15.8	+ 44.0	− 42.9
+ 11.0	− 15.8	+ 44.0	− 42.9
+ 11.11	− 15.96	+ 44.44	− 43.33
* ÷ .310	÷ .310	+ 22.2	− 21.67
+ 35.8	− 51.5		

(~~error # of star~~)

A6909 No. 24 (b") June 1$\overset{8}{\cancel{7}}$, 1908.

3 X 0 X 1/2

a = −51 1133$\overset{9}{\cancel{7}}$ 19 $\overset{37}{\cancel{36}}$ 5$\overset{9}{\cancel{6}}$ ~~56.7~~ 12.0 −51 $\overset{27.6}{\cancel{25.8}}$ +$\overset{44.9}{\cancel{45.6}}$ (1900 pro.) = 19 37 5$\overset{6.9}{\cancel{7.8}}$ −11.$\overset{6}{\cancel{7}}$ = −51 $\overset{39.2}{\cancel{79.3}}$ 19 39 52.4 −51 35.8

b = −51 11340 19 37 50.0 −51 54.4 +$\overset{6.9}{\cancel{7.6}}$ = 19 37 5$\overset{6.9}{\cancel{7.0}}$ +15.$\overset{0}{\cancel{2}}$ = −51 $\overset{39.4}{\cancel{77.7}}$

c = −51 11341 19 37 56.5 −51 14.6

19 37 5$\overset{7}{\cancel{7.4}}$ −51 $\overset{3}{\cancel{79.8}}$

56.9 39.3

x

c − b = +6.5 0.0 0.0 −0.1 +0.1

Cos −51.2 / 2

.313

+2.0

	x	y	x	y
b ~~a~~	80.0	25.0	70.0	16.0
a ~~b~~	68.2	78.2	58.3	69.1
n	82.1	55.0	72.2	46.0

x	x	y	y
n−$\overset{b}{\cancel{a}}$ +2.1	n−$\overset{a}{\cancel{b}}$ +1$\overset{3.9}{\cancel{4.1}}$	n−a −23.2	n−b +30.0
+2.2	+13.9	−23.1	+30.0
+2.15	+1$\overset{3.9}{\cancel{4.0}}$	−23.15	+30.0
+2.17	+14.$\overset{0}{\cancel{1}}$4	−23.38	+30.30.
÷.310	÷.310	−11.69	+15.15
+7.0	+45.$\overset{3}{\cancel{6}}$		

A6909 No. $\overset{5}{\cancel{4}}$ ($\overset{5^r}{b^r}$) June 18, 1908

1900 pos. 19 39 42.5 −51 35.3

a = −51 11339 19 37 12.0 −51 27.6 +$\overset{4.8}{35.\cancel{2}}$ = 19 37 $\overset{6.8}{4\cancel{7}.\cancel{2}}$ −$\overset{1}{11.\cancel{2}}$ = −51 $\overset{7}{38.\cancel{8}}$

b = −51 11340 19 37 50.0 −51 54.4 −3.3 = 19 37 46.7 +$\overset{5}{15.\cancel{7}}$ = −51 $\overset{9}{38.\cancel{7}}$

c = −51 11341 19 37 56.5 −51 14.6 19 37 $\underset{46.8}{\cancel{47}.0}$ −51 38.8

c − b = +6.5 0.0 −0.1 −0.1 +0.1

$\cos\frac{-51.2}{2}$ .313

+2.0

	x	y	x	y
a	$\overset{48.2}{\cancel{60.0}}$	$\overset{8}{\cancel{3}}8.3$	$\overset{53.2}{\cancel{65.0}}$	90.7
b	60.0	35.0	65.0	37.5
n	59.0	66.1	64.0	$\overset{7}{68.\cancel{8}}$

x	x	y	y
n−a +10.8	n−b −1.0	n−a −22.2	n−b +31.1
+10.8	−1.0	−22.0	+31.2
+10.8	−1.0	−22.1	+31.15
+10.96	−1.01	−22.32	+31.46
* ÷ .310	÷ .310	−11.16	+15.73
+35.2	−3.3		

A 6909 No. $\overset{6}{25}$ (dr) June 18, 1908.

1900 pro. 20 4 20.8 −52 2.3

$\overset{7}{8.8}$ a = −52 11629 20 $\overset{0}{\cancel{4}}$ $\overset{23.3}{33.8}$ −52 4.7 +$\overset{3\,3}{12\cancel{4}.5}$ = 20 2 $\overset{6.6}{2\cancel{7}.8}$ −2.0 = −52 6.7

$\overset{9}{8.\cancel{8}}$ b = −52 11639 20 4 33.8 −52 7.5 −$\overset{6\,5}{12\cancel{7}8}$ = 20 2 $\overset{7.3}{2\cancel{6}.0}$ +1.0 = −52 6.5

8 c = −52 11634 20 2 19.8 −52 36.7 20 2 ~~26.9~~ 27.0 −52 6.6

x

c − a = + 116.5 −0.4 + 0.3 + 0.1 − 0.1

Co − 52.6
2

.304
+35.4

	x	y	x	y
a	30.0	85.0	40.0	$\overset{7}{95.0}$
b	$\overset{6\,7}{10\cancel{7}.\cancel{6}}$	79.0	116.7	91.0
n	67.8	81.0	77.9	93.1

x		x		y		y
n−a	+37.8	n−b	−$\overset{8\,9}{3\cancel{9}.8}$	n−a	−4.0	n−b	+2.0

x	x	y	y
+37.9	−38.8	−3.9	+$\overset{1}{2.\cancel{0}}$
+37.85	−38.85	−3.95	+2.05
+$\overset{3}{38.2\cancel{4}}$	−39.24	−3.99	+2.07
÷ .307	÷ .307	−1.99	+1.03
+124.5	+127.8.		

✓

A6909 No. 26 (e^r) June 18, 1908

1900 pos. 19 59 9.2 −52 0.9

a = −52 11615 19 55 57.4 −52 11.5 + 78.7 = 19 57 16.1 + 6.4 = −52 5.1

b = −51 11422 19 58 52.9 −51 54.8 − 48.7 = 19 57 14.7 − 10.2 = −52 5.0

c = −51 11416 19 56 43.4 −51 37.1 19 57 15.0 −52 5.0

x

c − a = + 46.0 +0.3 −0.3 +0.1 0.0

Cos −51.6/2 .311

+14.3

	x	y	x	y
a	60.0	45.0	65.0	48.0
b	98.8	78.3	103.9	81.3
n	84.0	57.9	89.0	60.9

x	x	y	y
n−a + 24.0	n−b − 14.8	n−a + 12.9	n−b − 20.4
+ 24.0	− 14.9	+ 12.9	− 20.4
+ 24.0	− 14.85	+ 12.9	− 20.4
+ 24.24	− 15.00	+ 13.03	− 20.60
÷ .308	÷ .308	+ 6.5	− 10.3
+ 78.7	− 48.7		

A6909 No. 2$\overset{8}{7}$ (f^v) June 18, 1908.

1900 pos. 19 54 54.1 −52 1.5

a = −51 11402 19 51 42.9 −51 57.5 + 7$\overset{5.9}{6.7}$ = 19 52 5$\overset{8.8}{9.6}$ − 8.$\overset{1}{2}$ = −52 5.$\overset{6}{7}$

b = −52 11607 19 53 52.4 −52 8.5 − 52.$\overset{0}{5}$ = 19 5$\overset{3}{2}$ 5$\overset{0.4}{9.9}$ + 3.1 = −52 5.4

c = −51 11404 19 52 $\overset{9.4}{8.9}$ −51 27.0 19 52 59.$\overset{6}{8}$ −52 5.$\overset{6}{5}$

x

c − a = + 26.5 −0.8 +0.8 +0.1 −0.1

$\frac{\cos -51.\overset{4}{5}}{2}$ .3$\overset{2}{5}$

+ 8.$\overset{3}{2}$

	x	y	x	y
a	50.0	60.0	55.0	52.0
b	89.4	37.7	94.4	29.6
n	73.4	43.8	78.4	35.7

x	x	y	y
n−a + 23.4	n−b − 16.0	n−a − 16.2	n−b + 6.1
+ 23.4	− 16.0	− 16.3	+ 6.1
+ 23.4	− 16.0	− 16.25	+ 6.1
+ 23.63	− 16.16	− 16.41	+ 6.16
÷ .308	÷ .308	− 8.2	+ 3.08
+ 76.7	− 52.5		

✓

A 6909 No. 28^{90s} (g^{r}) June 1$\overset{9}{8}$, 1908

1900 fr. 19 50 $\overset{13.9}{49.0}$ − 51 59.1

a = −52 11589 19 48 41.4 −52 13.5 +12.$\overset{5}{\cancel{6}}$ = 19 48 5$\overset{3.9}{\cancel{4.0}}$ +10.$\overset{5}{\cancel{6}}$ = −52 $\overset{3.0}{\cancel{x.9}}$

b = −51 11389 19 49 2.3 −51 54.4 − 7.$\overset{8}{\cancel{9}}$ = 19 48 54.$\overset{5}{\cancel{x}}$ − 8.$\overset{6}{\cancel{7}}$ = −52 3.$\overset{0}{\cancel{1}}$

c = −52 11590 19 48 48.9 −52 45.2 19 48 54.2 −52 3.0

x

c − a = +7.5 −0.3 +0.3 0.0 0.0

cos −52.7

.303

+ 2.3

	x	y	x	y
a	70.0	80.0	75.0	75.0
b	76.2	118.2	81.3	113.2
n	73.8	100.9	78.9	95.9

x	x	y	y
n−a +3.8	n−b −2.4	n−a +20.9	n−b −17.3
+3.9	−2.4	+20.9	−17.3
+3.85	−2.4	+20.9	−17.3
+3.89	−2.42	+21.10	−17.47
÷ .308	÷ .308	+10.55	−8.73
+12.6	−7.9		

A 6909 No. ~~29~~ 30 (h) June 19, 1908

1900 pos. 19 55 37.3 - 52 9.0

a = -52 11601 19 51 37.9 - 52 10.5 + ~~127.7~~ 124.9 = 19 53 ~~44.8~~ 42.8 - 2.8 = -52 13.3

b = -52 11615 19 55 57.4 - 52 ~~16.9~~ 15.5 - ~~136.6~~ 134.6 = 19 53 ~~40.8~~ 42.8 - 1.1 = -52 12.6

c = -52 11606 19 53 48.5 - 52 45.7 19 53 ~~42.4~~ 42.5 -52 13.0

x

c - a = + 130.6 +0.3 - 0.3 +0.3 - 0.4

cos - 52.~~8~~ 7 / 2

.302

+ 39.~~4~~ 5

	x	y	x	y
a	40.0	95.0	50.0	100.0
b	119.6	91.6	129.6	96.~~6~~ 7
n	78.2	89.5	88.2	94.5

x	x	y	y
n-a + 38.2	n-b - 41.4	n-a - 5.5	n-b - 2.1
+ 38.2	- 41.4	- 5.5	- 2.2
+ 38.2	- 41.4	- 5.5	- 2.15
+ 38.58	- 41.81	- 5.55	- 2.17
÷ .306	÷ .306	- 2.78	- 1.09
+ 126.1	- 136.6		

✓

see B.S. 10 - page 80 for meas. of this neb. — one recorded on card.
Star C as selected for orienting is not far distant
enough away in Dec. to orient properly.
No doubt star c - on page 80 B.S. 10. 51-11406 was
the one intended in this comp.

A 6909 No. 38 (ii") June 19, 1908

a = −52 11603	19 52 37.4	−52 29.0 + ~~78.8~~ 77.5 =	19 53 ~~55.7~~ 54.9 + ~~7.8~~ 7.2 =	−52 ~~21.2~~ 21.8
b = −52 11610	19 54 39.9	−52 16.9 − ~~49.5~~ 49.0 =	19 53 ~~50.4~~ 50.9 − 4.4 =	−52 21.3
c = −52 11606	19 53 48.9	−52 45.7	19 53 52.90	−52 21.~~5~~6

~~x~~

c − a = + 71.5
.30~~7~~3
+ 21.~~4~~7

+ 2.0 − 2.0   + 0.2 − 0.3

$\underbrace{\text{Coo} - 52.\cancel{8}7}_{2}$

	x	y	x	y
a	50.0	55.0	55.0	59.0
b	~~89.7~~ 88.6	~~77.1~~ 78.3	~~98.6~~ 93.6	82.3
n	~~74.0~~ 73.6	~~68.9~~ 69.5	78.7	73.6

x	x	y	y
n-a + ~~24.0~~ 23.6	n-b − 15.~~2~~0	n-a + 14.5	n-b − 8.8
+ 23.7	− 14.9	+ 14.6	− 8.7
+ 23.65	− 14.95	+ 14.55	− 8.75
+ 23.89	− 15.10	+ 14.69	− 8.84
÷ .305	÷ .305	+ 7.3	− 4.4
+ 78.3	− 49.5		

A6909 No. $3\overset{2}{x}$ (y) June 19, 1908

1900 pos. 19 52 17.6 −52 13.8

a = −52 11593 19 49 21.9 −52 27.7 $+59.\overset{2}{8}$ = 19 50 $21.\overset{1}{7}$ + $10.\overset{0}{1}$ = −52 $17.\overset{7}{6}$

b = −52 11601 19 51 37.9 −52 10.5 $-74.\overset{1}{9}$ = 19 50 $23.\overset{8}{0}$ − $7.\overset{2}{3}$ = −52 $17.\overset{7}{8}$

c = −53 9750 19 50 12.5 −53 1.8 19 50 22.4 −52 17.7

x

c − a = + 50.6 −1.3 +1.4 0.0 0.0

Coo − 53.0 / 2 .301 / +15.2

	x	y	x	y
a	50.0	80.0	60.0	85.0
b	90.8	104.4	100.8	119.4
n	68.1	100.0	78.1	105.0

x		x		y		y
n−a	+18.1	n−b	−22.7	n−a	+ 20.0	n−b − 14.4
	+18.1		−22.7		+ 20.0	− 14.4
	+18.1		−22.7		+ 20.0	− 14.4
	+18.28		−22.93		+ 20.20	− 14.54
	÷ .306		÷ .306		+ 10.1	÷ 7.27
	+ 59.8		− 74.9			

A 6909 No. 33 (16) June 20, 1908

			1900 pro. 19 45 47.6 11624 1.68	-52 13.8
a = -52 11555	19 41 55.4	-52 19.8	+117.4 = 19 43 52.7	+2.1 = -52 17.7
b = -52 11574	19 45 26.2	-52 7.8	-95.2 = 19 43 51.0	-9.6 = -52 17.3
c = -52 11565	19 44 11.3	-52 58.7	19 43 51.8	-52 17.5
	x			
	c - a = +135.9		-0.2 + 0.2	+0.2 - 0.2

Cos - 53.0
2

.301
+40.9

	x	y	x	y
a	40.0	92.5	45.0	95.0
b	104.4	115.7	109.4	118.3
n	75.6	96.7	80.5	99.2

x	x	y	y
n-a +35.6	n-b -28.8	n-a +4.2	n-b -19.0
+35.5	-28.9	+4.2	-19.1
+35.55	-28.85	+4.2	-19.05
+35.91	-29.14	+4.24	-19.24
+17.96	-14.57	+2.12	-9.62
÷ .3064	÷ .306		
+117.4	-95.2		

A 6909 No. 3~~8~~4 (li) June 20, 1908.

1900 pr. 19 45 23.3 −52 17.5

a = −52 11555 19 41 55.4 −52 19.8 + $\overset{1.8}{9\cancel{7}}$.~~7~~ = 19 43 $\overset{7.2}{\cancel{28}}$.~~1~~ −1.6 = −52 21.4

b = −52 11569 19 45 6.7 −52 24.1 − 9~~8~~.9 = 19 43 $\overset{7}{2\cancel{6}}$.8 + 3.1 = −52 21.0

c = −52 11559 19 43 $\overset{19.9}{\cancel{41.4}}$ −52 37.$\overset{9}{6}$ 19 43 ~~27.5~~ 27.5 −52 21.2

x

−0.3 +0.3 +0.2 −0.2

c − a = +84.5

cos −52.6 / 2

.304

+25.7

x	y	x	y
40.0	95.0	50.0	100.0
98.1	85.7	108.2	90.7
68.0	91.9	78.0	96.9

x	x	y	y
n−a +28.0	n−b −30.1	n−a −3.1	n−b +6.2
+28.0	−30.2	−3.1	+6.2
+28.0	−30.15	−3.1	+6.2
+28.28	−30.45	−3.13	+6.26
÷ .305	÷ .305	−1.57	+3.13
+92.7	−99.9		

A6909 No 3$\overset{5}{4}$ (mi) June 20, 1908.

1900 pos. 19 45 $31.\overset{4}{6}$ −52 23.3

a = −52 11555 19 41 55.4 −52 19.8 + $\overset{99.3}{100.3}$ = 19 43 $\overset{4}{35}.7$ − $7.\overset{2}{3}$ = −52 $27.\overset{0}{1}$

b = −52 11566 19 44 48.0 −52 30.0 − $\overset{1.8}{72.5}$ = 19 43 $\underset{6\ 2}{35.5}$ + 3.1 = −52 26.9

c = −51 11360 19 42 43.0 −51 33.5 19 43 35.$\overset{4}{6}$ −52 27.0

x

c − a = +47.6 −0.7 +0.8 0.0 −0.1

Cos −51.6 / 2

.311

+14.8

	x	y	x	y
a	40.0	30.0	45.0	33.0
b	92.2	9.3	97.2	12.3
n	70.3	15.5	75.3	18.5

x	x	y	y
n−a +30.3	n−b −21.9	n−a −14.5	n−b +6.2
+30.3	−21.9	−14.5	+6.2
+30.3	−21.9	−14.5	+6.2
+30.60	−22.12	−14.65	+6.26
÷ .305	÷ .305	−7.3	+3.1
+100.3	−72.5		

A6909 No. $3\overset{6}{\cancel{5}}$ ($\overset{2}{n}$t) June 29, 1908.

			1900 pa. 19 44 36.4	−52 15.0
a = −52 11553	19 41 52.4	−52 5.6	+ $47.\overset{0}{\cancel{5}}$ = 19 42 $39.\overset{4}{\cancel{8}}$	− $13.\overset{1}{\cancel{2}}$ = −52 $18.\overset{7}{\cancel{8}}$
b = −52 11563	19 43 59.7	−52 29.8	− $\overset{7.8}{78.\cancel{6}}$ = 19 42 $41.\overset{9}{\cancel{1}}$	+ $11.\overset{2}{\cancel{3}}$ = −52 $18.\overset{6}{\cancel{5}}$
c = −51 11360	19 42 43.0	−51 33.5	19 42 $40.\overset{6}{\cancel{5}}$	−52 $18.\overset{6}{\cancel{7}}$
	x			
	c − a = + 50.6		−0.2 +0.3	+0.1 −0.0
cos $\frac{-51.6}{2}$	.311			
	+ 15.7			

	x	y	x	y
a	60.0	55.0	70.0	56.5
b	98.2	6.6	108.2	8.0
n	74.4	28.9	84.4	30.3

x	x	y	y
n − a + 14.4	n − b − 23.8	n − a − 26.1	n − b + 22.3
+ 14.4	− 23.8	− 26.2	+ 22.3
+ 14.4	− 23.8	− 26.15	+ 22.3
+ 14.54	− 24.04	− 26.41	+ 22.52
÷ .306	÷ .306	− 13.2	+ 11.26
+ 47.5	− 78.6		

A 6909 No. 3~~8~~7 (8^r) June 29, 1908.

1900 pos. 19 44 22.2 −52 16.9

a = −52 11548 19 41 9.4 −52 13.0 + ~~77.7~~ 76.9 = 19 42 ~~16.6~~ 25.53 − 7.~~6~~5 = −52 20.~~6~~5 a=

b = −52 11563 19 43 59.7 −52 29.8 − ~~94.0~~ 93.7 92.8 = 19 42 ~~25.7~~ 26.09 + 9.~~4~~3 = −52 20.~~4~~5 b=

c = −51 11360 19 42 43.0 −51 33.5 19 42 26.2 −52 20.5 c=

x

c − a = + 93.6 −0.7 +0.7 0.0 0.0

$\cos\frac{-51.6}{2}$ .311

+29.1

	x	y	x	y
a	50.0	39.5	55.0	41.0
b	101.7	5.9	106.7	7.3
n	73.3	34.5	78.3	26.0

x	x	y	y
n−a + 23.3	n−b − 28.4	n−a − 15.0	n−b + 18.6
+ 23.3	− 28.4	− 15.0	+ 18.7
+ 23.3	− 28.4	− 15.0	+ 18.65
+ 23.53	− 28.68	− 15.15	+ 18.84
÷ .30~~5~~6	÷ .30~~5~~6	− 7.58	+ 9.42
+ 7~~7.7~~6.9	− 9~~4.0~~3.7		

A 6909 No. $3\overset{8}{\cancel{7}}$ (Ip) June 29. 1908.

1900 pr. 19 41 59.2 −52 15.0

$\overset{5}{\cancel{6}}$ a = −52 11541 19 39 54.4 −52 30.6 +8.$\overset{3}{\cancel{2}}$ = 19 40 2.$\overset{7}{\cancel{6}}$ +12.$\overset{0}{\cancel{1}}$ = −52 18.$\overset{6}{\cancel{5}}$

$\overset{5}{\cancel{4}}$ b = −52 11542 19 40 28.9 −52 5.3 −25.$\overset{4}{\cancel{3}}$ = 19 40 3.$\overset{8}{\cancel{6}}$ −13.$\overset{2}{\cancel{3}}$ = −52 18.$\overset{5}{\cancel{6}}$

5 c = −51 11345 19 40 7.0 −51 57.0 19 40. 3.$\overset{2}{\cancel{1}}$ −52 18.6

x

c − a = +12.6 −0.6 +0.5 0.0 −0.1

Cos −51.9 / 2

.309

+3.9

	x	y	x	y
a	60.0	20.0	65.0	27.0
b	70.$\overset{2}{\cancel{3}}$	70.3	75.2	77.4
n	62.5	43.9	67.5	51.0

x	x	y	y
n−a +2.5	n−b −7.7	n−a +23.9	n.b −26.4
+2.5	−7.7	+24.0	−26.4
+2.5	−7.7	+23.95	−26.4
+2.52	−7.7$\overset{8}{\cancel{7}}$	+24.19	−26.66
÷ .306	÷ .306	+12.09	−13.3
+8.$\overset{3}{\cancel{2}}$	−25.$\overset{4}{\cancel{3}}$		

A6909 No. 39 (q^r) June 29, 1908.

1900 pos. 20 9 35.6 -52 27.8

a = -52 11650 20 7 21.7 -52 51.5 + 19.9 x = 20 7 41.6 + 19.1 = -52 32.4

b = -52 11659 20 8 20.2 -52 17.7 - 38.2 = 20 7 42.0 - 14.3 = -52 32.0

ρ = -51 11446. 20 7 33.5 -51 51.4 20 7 41.8 -52 32.2

x

c - a = + 11.8 -0.2 +0.2 +0.2 -0.2

$\frac{\cos - 51.9}{2}$

.309

+ 3.6

	x	y	x	y
a	80.0	5.0	85.0	6.0
b	97.7	71.8	102.6	72.8
n	86.1	43.2	91.0	44.3

x	x	y	y
n-a + 6.1	n-b - 11.6	n-a + 38.2	n-b - 28.6
+ 6.0	- 11.6	+ 38.3	- 28.5
+ 6.05	- 11.6	+ 38.25	- 28.55
+ 6.11	- 11.72	+ 38.63	- 28.84
÷ .304	÷ .304	+ 19.31	- 14.42
+ 20.1	- 38.6		

A6909 No. ~~39~~ 40 (w') June 30, 1908

			1900 pro. 20 7 46.6 -52 33.8
a = -52 11640	20 4 39.8	-52 24.3	+7~~4.1~~ 3.4 = 20 5 53.~~9~~ 2 -13.~~9~~ 8 = -52 38.~~2~~ 1
b = -52 11650	20 7 21.7	-52 51.5	-9~~1.0~~ 0.1 = 20 5 5~~0.7~~ 1.6 +13.~~5~~ 2 = -52 38.~~2~~ 3
c = -5~~2~~ 1 11440	20 5 18.0	-51 52.6	20 5 52.~~8~~ 4 -52 38.2

x

c - a = + 38.2 +0.8 -0.8 -0.1 +0.1

cos - 51.9 / 2

.30~~7~~ 8

+ 11.8

	x	y	x	y
a	70.0	60.0	75.0	61.0
b	119.7	6.0	124.7	7.0
n	92.3	32.4	97.3	33.4

x		x		y		y
n-a	+22.3	n-b	-27.4	n-a	-27.6	n-b	+26.4
	+22.3		-27.4		-27.6		+26.4
	+22.3		-27.4		-27.6		+26.4
	+22.52		-27.67		-27.88		+26.66
	÷ .304		÷ .304		-13.94		+13.3
	+74.1		-91.0				

√

A 6909 No. 40 ($\overset{?}{10^{s}}$) June 30. 1908.

			1900 pro.	20 3 39.9	−52 26.0
a = −52 11628	20 0 $\overset{12.8}{9.8}$	−52 33.0	$+\overset{1.8}{97.7}$ =	20 1 $\overset{4.6}{45.5}$	+2.6 = −52 30.4
b = −52 11636	20 3 17.8	−52 30.8	$-\overset{1.5}{97.4}$ =	20 1 $\overset{6.3}{45.4}$	+0.6 = −52 30.2
c = −51 11433	20 1 55.0	−51 47.2		20 1 $\overset{4}{45.5}$	−52 30.3
	x			−0.8 + 0.9	+0.1 −0.1

a

b

c

$\frac{\text{Cos} - 51.8}{2}$

c − a = +102.2
.309
+31.6

	x	y	x	y
a	70.0	25.0	60.0	26.5
b	125.7	28.9	$\overset{5}{116.7}$	30.4
n	97.9	$\overset{3}{20.1}$	87.9	$\overset{7}{31.8}$

x	x	y	y
n−a +27.9	n−b −27.8	n−a + $\overset{5.1}{4.9}$	n−b +1.2
+27.9	−27.8	+5.2	+1.3
+27.9	−27.8	+5.15	+1.25
+28.18	−28.08	+5.20	+1.26
÷ .304	÷ .304	+2.6	+0.6
+92.7	−92.4		

A6909 No. $4\overset{2}{X}$ (X′) July 1st, 1908.

1900 pos. 20 0 35.2 −52 39.2

a = −52 11617 19 56 49.9 −52 52.5 $+\overset{0.12}{11X.X}$ = 19 58 $\overset{0.01}{4X.0}$ $+\overset{8}{8.X}$ = −52 $\overset{7}{43.6}$

b = −52 11628 20 0 12.8 −52 $\overset{3}{3\cancel{8}}.\overset{0}{\cancel{8}}$ $-\overset{0}{92.X}$ = 19 58 $\overset{40.8}{3X.X}$ $-\overset{1}{10.X}$ = −52 $\overset{1}{43.X}$

c = −51 11422 19 58 2.9 −51 54.8 19 58 $40.\overset{4X}{5}$ −52 43.4

x

C − a = + 73.0 −0.4 +0.4 +0.3 −0.3

cos $\frac{-\overset{519}{5X9}}{2}$ $.30\overset{8}{X}$

$+\,22.\overset{5}{X}$

	x	y	x	y
a	40.0	10.0	45.0	11.5
b	101.2	47.7	106.2	49.2
n	73.3	27.6	78.4	29.1

x		x		y		y	
n−a	+ 33.3	n−b	− 27.9	n−a	+ 17.6	n−b	− 20.1
	+ 33.4		− 27.8		+ 17.6		− 20.1
	+ 33.35		− 27.85		+ 17.6		− 20.1
	+ 33.68		$-\,28.1\overset{3}{\cancel{4}}$		+ 17.78		− 20.30
	÷ .303		÷ .303		+ 8.89		− 10.15
	$+\overset{0.12}{11X.X}$		$-\overset{0}{92.X}$				

✓

A 6909 No. 4$\overset{3}{0}$ (u") July 1, 1908.

			1900 pos.	20 0 22.6	−52 38.8
a = −52 11619	19 56 49.9	−52 52.5	+9$\overset{7}{8}$.4 =	19 58 2$\overset{7}{8}$.3 + 9.$\overset{2}{3}$ =	−52 43.$\overset{3}{7}$
b = −52 11628	20 0 12.8	−52 33.0	−10$\overset{4.6}{5.7}$ =	19 58 2$\overset{8.2}{7.1}$ − 9.$\overset{7}{8}$ =	−52 42.$\overset{7}{8}$
c = −51 11422	19 58 2.9	−51 54.8		19 58 27.$\overset{8}{7}$	−52 43.0
	x				
	c − a = +73.0			−0.5 +0.4	+0.3 −0.3

$\frac{\cos - 51.9}{2}$ .30$\overset{8}{9}$

+22.$\overset{5}{6}$

	x	y	x	y
a	$\overset{5}{4}$0.0	10.0	45.0	11.0
b	111.2	47.7	106.2	48.7
n	79.5	28.4	74.5	29.3

x	x	y	y
n−a +29.5	n−b −31.7	n−a +18.4	n−b −19.3
+29.5	−31.7	+18.3	−19.4
+29.5	−31.7	+18.35	−19.35
+29.80	−32.07	+18.53	−19.54
÷ .303	÷ .303	+9.27	−9.77
+98.4	−105.7		

A 6909 No. $4x^{4}$ (v″) July 1, 1908.

1900 pos. 19 55 26.8 −52 29.8

a = −52 11603 19 52 37.4 −52 29.0 + $\overset{4.4}{55.0}$ = 19 53 $\overset{31.8}{33.4}$ − 4.8 = −52 33.8

b = −52 11608 19 54 14.4 −52 37.1 − $43.\overset{0}{4}$ = 19 53 $31.\overset{4}{0}$ + 3.4 = −52 33.7

c = −53 9774 19 52 57.6 −53 8.9 19 53 $31.\overset{6}{7}$ −52 33.8

x

c − a = +20.2 +0.2 −0.2 .0.0 −0.1

$\frac{\cos - 53.1}{2}$ .300 +6.1

	x	y	x	y
a	50.0	105.0	55.0	110.0
b	79.6	88.7	84.6	93.7
n	66.5	95.5	71.6	100.5

x		x		y		y	
n−a	+16.5	n−b	−13.1	n−a	−9.5	n−b	+6.8
	+16.6		−13.0		−9.5		+6.8
	+16.55		−13.05		−9.5		+6.8
	+16.71		−13.18		−9.60		+6.87
	÷ .304		÷ .304		−4.8		+3.4
	+55.0		−43.4				

A6909 No. 4$\overset{5}{\cancel{2}}$ (rw') July 7, 1908.

1900 pos. 19 51 2.5 −52 37.3

a = −52 11584 19 47 37.9 −52 38.9 + 8$\overset{8.5}{\cancel{9.4}}$ = 19 49 $\overset{6.4}{\cancel{7.3}}$ − 2.5 = −52 41.4

b = −52 11599 19 50 56.4 −52 43.3 − 1$\overset{09.2}{\cancel{10.3}}$ = 19 49 $\overset{7.2}{\cancel{6.1}}$ + 2.3 = −52 41.1

c = −51 11389 19 49 2.3 −51 54.4 19 49. 6.$\overset{8}{\cancel{7}}$ −52 41.$\overset{2}{\cancel{3}}$

x

c−a = + 84.4

−0.4 + 0.4 +0.2 −0.1

Cos −51.9 / 2

.30$\overset{8}{\cancel{7}}$

+ 26.$\overset{0}{\cancel{1}}$

	x	y	x	y
a	60.0	25.0	65.0	27.5
b	119.9	15.6	124.9	18.2
n	86.8	20.1	91.8	22.6

x	x	y	y
n−a + 26.8	n−b − 33.1	n−a − 4.9	n−b + 4.5
+ 26.8	− 33.1	− 4.9	+ 4.4
+ 26.8	− 33.1	− 4.9	+ 4.45
+ 27.07	− 33.43	− 4.95	+ 4.49
÷ .303	÷ .303	− 2.48	+ 2.25
+ 89.4	− 110.3		

A 6909 No. 4 $\overset{6}{5}$ (x^v) July 2, 1908.

1900 pos. 19 47 44.0 −52 42.3

a = −52 11566 19 44 48.0 −52 30.0 + $\overset{6}{59.6}$ = 19 45 $\overset{0}{47.6}$ − $\overset{5.9}{16.1}$ = −52 $\overset{5.9}{46.1}$

b = −5$\overset{3}{2}$ 9729 19 46 56.7 −53 2.3 − $\overset{8.7}{69.4}$ = 19 45 $\overset{8.0}{47.8}$ + $\overset{3}{16.5}$ = −52 $\overset{6.0}{45.8}$

c = −52 11580 19 46 18.4 −52 3.4 19 45 $\overset{5.4}{47.5}$ −52 46.0

x

c − a = + 90.4 −0.5 +0.5 −0.1 0.0

$\frac{\cos -52.0}{2}$

.308

+ 27.8

	x	y	x	y
a	60.0	70.0	55.0	71.5
b	98.5	5.5	93.6	7.0
n	77.7	38.1	$\overset{2.9}{73.0}$	39.7

x	x	y	y
n−a + 17.7	n−b − 20.8	n−a − 31.9	n−b + 32.6
+ 17.9	− 20.7	− 31.8	+ 32.7
+ 17.8	− 20.75	− 31.85	+ 32.65
+ 17.98	− 20.96	− 32.17	+ 32.98
÷ .302	÷ .302	− 16.09	+ 16.49
+ 59.6	− 69.4		

✓

A6909 Ho. 4$\overset{7}{\cancel{4}}$ (y^v) July 2, 1908.

			1900 po.	19 45 56.1	−52 41.8
a = −52 11563	19 43 59.7	−52 29.8	−0.3 =	19 43 59.4 − 15.$\overset{6}{\cancel{8}}$ =	−52 45.$\overset{4}{\cancel{0}}$
b = −52 11565	19 44 11.3	−52 58.7	$-1\overset{0}{\cancel{1}}.\overset{9}{\cancel{0}}$ =	19 44 0.$\overset{4}{\cancel{3}}$ + 13.$\overset{1}{\cancel{2}}$ =	−52 45.$\overset{6}{\cancel{5}}$
c = −52 1156$\overset{2}{\cancel{7}}$	19 4$\overset{3}{\cancel{5}}$ 57.4	−52 12.4		19 43 ~~59.8~~ 59.9	−52 45.$\overset{5}{\cancel{4}}$

x

$\overset{c}{b} - \overset{b}{a} = \mp 13.9$ | −0.5 +0.5 | −0.1 +0.1

cos −52.2 / 2

.306

−4.$\overset{2}{\cancel{3}}$

	x	y	x	y
a	$\overset{76.8}{\cancel{82.0}}$	$\overset{72.3}{\cancel{75.0}}$	71.8	77.3
b	80.0	15.0	75.0	20.0
n	$7\overset{6.7}{\cancel{1.6}}$	41.1	71.7	46.1

	x		x		y		y
n−a	∓ 0.1	n−b	−3.3	n−a	−31.2	n−b	+26.1
	−0.1		−3.3		−31.2		+26.1
	−0.1		−3.3		−31.2		+26.1
	−0.1		−3.33		−31.51		+26.36
	÷ .303		÷ .303		−15.76		+13.18
	−0.3		$-1\overset{0}{\cancel{1}}.\overset{9}{\cancel{0}}$				

A6909 No. 4$\overset{8}{\cancel{5}}$ (Z°) July 2, 1908.

			1900 pr.	19 42 1.5	−52 39.8
a = −52 11541	19 39 54.4	−52 30.6	$+9.\overset{3}{\cancel{4}}$ =	19 40. $3.\overset{7}{\cancel{8}}$	$-12.\overset{8}{\cancel{9}}$ = −52 $43.\overset{4}{\cancel{5}}$
b = −52 11544	19 40 36.9	−52 54.8	$-3\overset{0.7}{\cancel{1.4}}$ =	19 40 $\overset{6.2}{\cancel{5.9}}$	$+11.\overset{3}{\cancel{4}}$ = −52 $43.\overset{5}{\cancel{4}}$
				19 40 $\overset{8}{\cancel{4.9}}$ 5.0	−52 $43.\overset{4}{\cancel{5}}$
c = −52 11542	19 40 28.9	−52 5.3			
	x				
	c − a = + 34.5			−1.3 + $1.\overset{2}{\cancel{4}}$	0.0 + 0.1

$\frac{\cos -52.1}{2}$

$\frown .307$

+10.6

	x	y	x	y
a	60.0	60.0	65.0	60.0
b	72.1	11.9	$\overset{7.1}{\cancel{72.0}}$	11.9
n	62.8	34.4	67.8	34.4

x	x	y	y
n−a + 2.8	n−b − 9.3	n−a − 25.6	n−b + 22.5
+ 2.8	− 9.3	− 25.6	+ 22.5
+ 2.8	− 9.3	− 25.6	+ 22.5
+ 2.83	− 9.39	− 25.86	$+22.7\overset{2}{\cancel{3}}$
÷ .303	÷ .303	− 12.93	$+11.3\overset{6}{\cancel{7}}$
+ 9.4	− 31.0		

A 6909 No. $\overset{9}{46}$ (a") July 2, 1908

			1900 pro. 19 39 2.0	−52 43.9
a = −52 11527	19 36 11.4	−52 49.5	$+\overset{3.9}{54.4}$ = 19 37 $\overset{3}{5.8}$	+2.1 = −52 47.4
b = −52 11535	19 38 19.4	−52 45.3	$-75.\overset{1}{9}$ = 19 37 $\overset{4.3}{3.5}$	− 1.9 = −52 $47.\overset{2}{3}$
c = −53 9665	19 36 40.4	−53 23.6	19 $37.\overset{8.4}{4.7}$	−52 $47.\overset{3}{4}$
	x			
	c−a = + 29.0		+0.5 − 0.5	+0.1 − 0.1

$\frac{\cos - 53.4}{2}$

.298

+ 8.6

	x	y	x	y
a	60.0	95.0	55.0	100.0
b	98.9	103.4	$9\overset{4}{7}.0$	108.1
n	$7\overset{6}{7}.3$	$9\overset{"}{9}.3$	71.2	104.2

x	x	y	y
n−a + 16.3	n−b − 22.6	n−a + 4.3	n−b − 3.8
+ 16.2	− 22.8	+ 4.2	− 3.9
+ 16.25	− 22.7	+ 4.25	− 3.85
+ 16.41	− 22.93	+ 4.29	− 3.89
÷ .302	÷ .302	+ 2.14	− 1.94
+ 54.4	− 75.9		

A 6909 No. $\overset{50}{\cancel{47}}$ (b^{3r}) July 2, 1908.

1900 pos. 20 5 47.2 − 52 47.7

4 a = −52 11635 20 3 1.3 − 52 53.2 + 5$\overset{1.5}{\cancel{2.0}}$ = $\overset{20}{\cancel{19}}$ 3 5$\overset{2.8}{\cancel{3.8}}$ + 1.0 = −52 52.2

$\frac{2}{\cancel{8}}$ b = −52 11643 20 4 49.8 − 52 48.9 − 5$\overset{7.6}{\cancel{8.2}}$ = $\overset{20}{\cancel{19}}$ 3 5$\overset{22}{\cancel{1.6}}$ − 3.0 = −52 51.9

$\frac{3}{\cancel{4}}$ c = −52 11636 20 3 17.8 − 52 30.8 $\overset{20}{\cancel{19}}$ 3 52.$\overset{5\cancel{4}}{\cancel{5}}$ −52 52.$\overset{0}{\cancel{1}}$

x

c − a = + 16.5 +0.3 − 0.3 +0.2 − 0.1

$\frac{\cos - 52.5}{2}$ .304

+ 5.0

	x	y	x	y
a	70.0	55.0	75.0	58.5
b	102.9	62.8	108.0	66.4
n	85.5	57.0	90.6	60.5

x	x	y	y
n-a + 15.5	n-b − 17.4	n-a + 2.0	n-b ~~+~~ − $\overset{5.8}{\cancel{4.2}}$
+ 15.6	− 17.4	+ 2.0	~~+~~ 5.9
+ 15.55	− 17.4	+ 2.0	− 5.85
+ 15.71	− 17.57	+ 2.02	− 5.91
÷ .302	÷ .302	+ 1.01	− 2.96
+ 52.0	− 58.2		

√

A6909 No. $\overset{51}{\cancel{48}}$ (c") July 2, 1908.

1900 pos. 19 56 45.5 $-\overset{5\,2}{4}$ 54.1

a = −52 11606 19 53 48.9 −52 45.7 +60.$\overset{1}{\cancel{7}}$ = 19 54 49.$\overset{0}{\cancel{8}}$ − $\overset{12.5}{\cancel{14.2}}$ = −52 $\overset{58.\overset{1}{\cancel{2}}}{\cancel{47.2}}$

b = −53 9782 19 55 34.7 −5$\overset{3}{\cancel{2}}$ 2.8 −44.$\overset{3}{\cancel{7}}$ = 19 54 50.$\overset{4}{\cancel{2}}$ + 4.$\overset{7}{\cancel{8}}$ = −52 58.1

c = −52 11610 19 54 39.9 −52 16.9 19 54 49.$\overset{7}{\cancel{8}}$ −52 58.$\overset{1}{\cancel{2}}$

58.1

α

c − a = + 51.0 −0.7 +0.7 0.0 0.0

cos −52.3
2

.306

+15.6

	x	y	x	y
a	60.0	54.8	65.0	60.0
b	91.5	20.8	96.$\overset{5}{\cancel{8}}$	26.1
n	78.1	30.1	83.2	35.3

x	x	y	y
n−a +18.1	n−b −13.4	n−a −24.7	n−b +9.3
+18.2	−13.3	−24.7	+9.2
+18.15	−13.35	−24.7	+9.25
+18.33	−13.48	−2$\overset{4}{\cancel{7}}$.95	+9.34
÷ .302	÷ .302	−1$\overset{2}{\cancel{3}}$.$\overset{4}{\cancel{9}}\overset{8}{\cancel{7}}$	+4.67
+60.7	−44.7		

A 6909 No. $\overset{52}{\cancel{49}}$ (d) July 2, 1908.

1900 pos. 19 56 $\overset{1.3}{15.5}$ $-5\overset{3}{\cancel{6}}$ 1.9

a = −53.9774 19 52 57.6 −53 8.9 $+\overset{3.9}{84.5}$ = 19 54 $\overset{1.3}{22.1}$ + 2.9 = $-5\overset{3}{\cancel{7}}$ 6.0

b = −53.9782 19 55 34.7 −53 2.8 $-\overset{3\;4}{74.1}$ = 19 54 $\overset{1.3}{20.6}$ − 3.0 = $-5\overset{3}{\cancel{2}}$ 5.8

c = −52.11608 19 54 14.4 −52 37.1 19 54 $\overset{3}{21.4}$ $-5\overset{3}{\cancel{7}}$ 5.9

x

c − a = + 76.8 0.0 0.0 +0.1 −0.1

$\frac{\cos -52.6}{2}$ .304

+ 23.3

	x	y	x	y
−a	50.0	30.0	55.0	35.5
−b	97.1	41.6	102.1	47.1
−n	75.1	35.7	80.1	41.1

x	x	y	y
n−a + 25.1	n−b − 22.0	n−a + 5.7	n−b − 5.9
+ 25.1	− 22.0	+ 5.6	− 6.0
+ 25.1	− 22.0	+ 5.65	− 5.95
+ 25.35	− 22.22	+ 5.71	− 6.01
÷ .300	÷ .300	+ 2.86	− 3.0
+ 84.5	− 74.1		

✓

A 6909 No. $5\overset{3}{0}$ (e^{2r}) July 2, 1908.

1900 pro. 19 52 56.2 — 52 58.8

59.7/2

a = −53 9750 | 19 50 12.5 | −53 1.8 | $+47.\overset{2}{\cancel{7}}$ = 19 5~~0~~ ~~0.7~~ − 1.1 = −53 2.9

0.3

b = −53 9766 | 19 52 4.1 | −53 5.1 | $-6\overset{3.8}{\cancel{4.4}}$ = 19 5~~0~~ ~~59.7~~ + 2.4 = −53 2.7

~~0.0~~

c = −52 11601 | 19 51 37.9 | −52 10.5 | 19 5~~0~~. ~~59.9~~ | −53 2.8

x | 51. 0.0

c − a = + 85.4 | − 0.3 + 0.3 | + 0.1 − 0.1

$\frac{\cos - 52.2}{2}$ | .306

+ 26.1

	x	y	x	y
a	60.0	20.0	65.0	22.0
b	93.4	13.0	98.4	15.1
n	74.2	17.7	79.2	19.8

x	x	y	y
n−a + 14.2	n−b − 19.2	n−a − 2.3	n−b + 4.7
+ 14.2	− 19.2	− 2.2	+ 4.7
+ 14.2	− 19.2	− 2.25	+ 4.7
+ 14.34	− 19.39	− 2.27	+ 4.75
÷ .301	÷ .301	− 1.1	+ 2.37
+ 47.7	− 64.4		

A 6909 No. 5x⁴ (f²) July 2, 1908.

1900 pw. 19 50 54.7 −52 51.1

0.7 7.6 8.4 0

a = −52 11582 19 46 56.9 −52 46.7 +121.9 = 19 48 58.8 −5.2 = −52 55.1

99.2 99.8 4 50

b = −53 9752 19 50 39.0 −53 1.4 −100.0 = 19 48 59.0 +6.5 = −52 54.9

78

C = −52 11589 19 48 41.4 −52 13.5 19 48 58.9 −52 55.0

x

C − a = +104.5 −1.1 +1.1 0.0 0.0

Cos −52.2 / 2 .306

+32.0

	x	y	x	y
a	30.0	40.5	35.0	46.5
b	96.4	10.9	101.4	16.9
n	66.4	23.8	71.5	29.8

x	x	y	y
n−a +36.4	n−b −30.0	n−a −16.7	n−b +12.9
+36.5	−29.9	−16.7	+12.9
+36.45	−29.95	−16.7	+12.9
+36.81	−30.25	−16.87	+13.03
÷ .302	÷ .302	−8.44	+6.57
+121.9	−100.2		

√

A 6909 No. $5\frac{5}{2}$ (g^{4}) July 2, 1908.

1900 pos. 19 50 2.9 − 52 47.8

a = −52 11582 19 46 56.9 −52 46.7 +$69.\overset{2}{9}$ = 19 48 $6.\overset{1}{8}$ −4.9 = −52 51.6

b = −52 11592 19 49 2.9 −52 53.2 −$\overset{5.6}{56.2}$ = 19 48 $\overset{7.3}{6.7}$ +1.7 = −52 51.5

c = −52 11586 19 48 23.4 −52 18.7 19 48 $6.\overset{7}{8}$ −52 51.6

x

c−a = + 86.5 −0.6 + 0.6 0.0 − 0.1

$\frac{\text{Cos} - 52.3}{2}$

.306

+26.5

	x	y	x	y
a	40.0	45.5	50.0	48.5
b	77.7	32.4	87.7	35.4
n	60.9	35.8	70.9	38.9

x	x	y	y
n−a + 20.9	n−b − 16.8	n−a − 9.7	n−b + 3.4
+ 20.9	− 16.8	− 9.6	+ 3.5
+ 20.9	− 16.8	− 9.65	+ 3.45
+ 21.10	− 16.97	− 9.75	+ 3.48
÷ .302	÷ .302	− 4.88	+ 1.74
+ 69.9	− 56.2		

✓

A 6909 No. 5$\overset{6}{5}$ (h^{2v}) July 3, 1908.

1900 pos. 19 44 23.4 −52 57.6

6 a = −53 9697 19 41 35.2 −53 4.1 + 51.$\overset{0}{5}$ = 19 42 26.$\overset{2}{7}$ + 2.9 = −53 1.2

5 b = −52 11565 19 44 11.3 −52 58.7 − 10$\overset{4.6}{5.7}$ = 19 42 2$\overset{67}{5.6}$ − 2.6 = −53 1.3

6 c = −53 9$\overset{70}{698}$ 19 42 44.7 −53 24.8 19 42 26.$\overset{4}{2}$ −53.1.$\overset{2}{3}$

x

c − a = + 69.5 −0.2 + 0.3 0.0 + 0.1

$\frac{\cos - 53.4}{2}$ .298

+ 20.7

	x	y	x	y
a	50.0	80.5	55.0	90.5
b	96.8	91.3	101.9	101.3
n	65.3	86.2	70.4	96.3

x	x	y	y
n-a + 15.3	n-b − 31.5	n-a + 5.7	n-b − 5.1
+ 15.4	− 31.5	+ 5.8	− 5.0
+ 15.35	− 31.5	+ 5.75	− 5.05
+ 15.50	− 31.82	+ 5.81	− 5.10
÷ .301	÷ .301	+ 2.9	− 2.55
+ 51.5	− 105.7		

✓

A6909 No. $5\overset{7}{\cancel{4}}$ (i^2v) July 3, 1908.

1900 pos. 20 13 20.4 − 52 59.6

a = − 53 9853 20 11 26.3 − 53 10.4 +0.3 = 20 11 26.6 +6.$\overset{2}{\cancel{3}}$ = − 53 4.$\overset{2}{\cancel{1}}$

b = − 5$\overset{2}{\cancel{3}}$ 11671 20 11 42.8 − 52 58.8 −17.$\overset{0}{\cancel{2}}$ = 20 11 25.$\overset{8}{\cancel{6}}$ −5.$\overset{\overset{3}{\cancel{4}}}{\cancel{5}}$ = − 53 4.$\overset{\overset{1}{\cancel{2}}}{\cancel{3}}$

c = − 52 11669 20 10 49.4 − 52 13.6 20 11 26.$\overset{2}{\cancel{1}}$ − 53 4.2

x

c − a = − 36.9 +0.4 −0.4 0.0 −0.1

Cos − 52.2 / 2 .306

− 11.3

	x	y	x	y
a	70.0	5.0	65.0	9.0
b	75.2	28.3	70.2	32.2
n	70.1	17.5	65.1	21.4

x	x	y	y
n−a + 0.1	n−b − 5.1	n−a + 12.5	n−b − 10.8
+ 0.1	− 5.1	+ 12.4	− 10.8
+ 0.1	− 5.1	+ 12.45	− 10.8
+ 0.1	− 5.15	+ 12.57	− 10.90
÷ .300	÷ .300	+ 6.28	− 5.45
+ 0.3	− 17.2		

A 6909 No. 5$\overset{8}{5}$ (j'') July 3, 1908.

1900 pro. 20 8 45.5 −53 12.4

a = −53 9839 20 5 51.8 −53 31.0 + $\overset{8.7}{59.3}$ = 20 6 $\overset{0.5}{51.1}$ + $14.\overset{1}{2}$ = −53 $16.\overset{9}{8}$

b = −53 9843 20 8 30.3 −53 7.4 − $\overset{99}{100}.8$ = 20 6 $\overset{50.}{49}.5$ − $9.\overset{3}{4}$ = −53 $16.\overset{7}{8}$

c = −52 11649 20 7 3.2 −52 55.5 20 6 $50.\overset{5}{3}$ −53 16.8

x

c − a = + 71.4 0.0 0.0 +0.1 − 0.1

$\frac{\cos 52.9}{2}$ .302

+ 21.6

	x	y	x	y
a	60.0	32.5	65.0	35.0
b	107.4	79.2	112.4	82.0
n	77.5	60.6	82.6	63.3

x	x	y	y
n−a + 17.5	n−b − 29.9	n−a + 28.1	n−b − 18.6
+ 17.6	− 29.8	+ 28.3	− 18.7
+ 17.55	− 29.85	+ 28.2	− 18.65
+ 17.73	− 30.15	+ 28.48	− 18.84
÷ .299	÷ .299	+ 14.24	− 9.42
+ 59.3	− 100.8		

✓

A6909 No. 5$\overset{9}{6}$ (1(2")) July 3, 1908.

1900 pr. 19 59 59.0 ~~−53~~ ~~////~~

a = −53 9796 | 19 58 6.7 | −53 27.8 −3.7 = 19 58 3.0 +12.$\overset{5}{6}$ = −53 15.$\overset{3}{2}$

b = −52 11626 | 19 58 $\overset{3}{3}$8.0 | −52 56.1 −34.$\overset{0}{3}$ = 19 58 $\overset{4\,0}{3.7}$ −19.$\overset{1}{3}$ = −53 15.$\overset{3}{4}$

c = −52 11620 | 19 58. 8.5 | −52 37.5 | 19 58 3.$\overset{5}{4}$ | −53 15.3

α

c−a = +1.8 −0.5 +0.5 0.0 0.0

$\frac{\cos -52.6}{2}$

.304

+0.$\overset{6}{5}$

	x	y	x	y
a	80.0	15.0	75.0	20.0
b	89.1	7$\overset{8}{3}$.1	84.1	83.1
n	78.9	39.9	73.9	$\overset{4}{3}$4.9

x	x	y	y
n−a −1.1	n−b −10.2	n−a +24.9	n−b −3$\overset{8}{3}$.2
−1.1	−10.2	+24.9	−38.2
−1.1	−10.2	+24.9	−38.2
−1.11	−10.30	+25.15	−38.58
÷ .300	÷ .300	+12.58	−19.29
−3.7	−34.3		

✓

A 6909 No. ~~57~~ 60 (l²) July 3, 1908.

1900 pos. 19 55 36.6 −53 7.5

107 ~~8.4~~ 3 39.9 ~~41.0~~ 4 7

3 ~~2~~ a = −~~43~~ 53 9763 19 51 52.6 − 53 19.1 + ~~100.8~~ = 19 53 ~~55.4~~ + 7.~~5~~ = − 53 11.~~6~~

3.8 40.9 5 3

3 ~~4~~ b = −53 9782 19 55 34.7 − 53 2.8 − 115.~~0~~ = 19 53 ~~39.7~~ − 8.~~6~~ = − 53 ~~11.4~~

3 c = −52 11606 19 53 48.9 − 52 45.7 19 53 40.4 — 53 11.5

x

c − a = + 116.3 −0.5 + 0.5 +0.2 − 0.2

$\frac{\cos 52.\overset{7}{\cancel{8}}}{2}$ .30~~2~~ 3

+ 35.~~1~~ 2

	x	y	x	y
a	40.0	25.0	45.0	30.0
b	106.3	56.9	111.4	61.9
n	72.2	39.8	77.2	44.8

x	x	y	y
n−a + 32.~~3~~ 2	n−b − 34.1	n−a + 14.8	n−b − 17.1
+ 32.2	− 34.2	+ 14.8	− 17.1
+ 32.2	− 34.15	+ 14.8	− 17.1
+ 32.52	− 34.49	+ 14.95	− 17.27
÷ .300	÷ .300	+ 7.48	− 8.63
+ 10~~0.8~~ 8.4	− 115.0		

A6909 No. $\overset{61}{\cancel{58}}$ (m^{2}) July 3, 1908.

1900 pos. 19 55 20.4 − 53 15.8

a = − 53 9773 19 52 50.6 − 53 13.6 + $\overset{31.8}{\cancel{34.2}}$ = 19 53 $\overset{22.4}{\cancel{24.8}}$ − 6.$\overset{2}{\cancel{3}}$ = − 53 19.$\overset{8}{\cancel{9}}$

b = − 53 9776 19 53 36.1 − 53 29.9 − 12.$\overset{1}{\cancel{2}}$ = 19 53 $\overset{40}{\cancel{23.9}}$ + 10.$\overset{0}{\cancel{1}}$ = − 53 19.$\overset{9}{\cancel{8}}$

c = − 52 11604 19 53 22.4 − 52 42.7 19 53 $\cancel{24.4}$ 24.2 − 53 19.$\overset{8}{\cancel{9}}$

x

c − a = + 31.8 + 0.2 − 0.2 0.0 + 0.1

cos − 52.7 / 2

.303

+ 9.6

	x	y	x	y
a	50.0	50.0	55.0	60.0
b	63.7	17.7	68.7	27.6
n	60.1	37.6	65.1	47.6

x	x	y	y
n−a + 10.1	n−b − 3.6	n−a − 12.4	n−b + 19.9
+ 10.1	− 3.6	− 12.4	+ 20.0
+ 10.1	− 3.6	− 12.4	+ 19.95
+ 10.20	− 3.64	− 12.52	+ 20.15
÷ .29$\overset{9}{\cancel{8}}$	÷ .29$\overset{9}{\cancel{8}}$	− 6.26	+ 10.08
+ 34.$\overset{1}{\cancel{2}}$	− 12.2		

√

A 6909 No. $\overset{62}{59}$ (n^{2v}) July 3, 1908.

1900 pos. 19 54 25.5 −53 19.2

a = −53 9767 19 52 5.6 −53 37.7 $+23.\overset{2}{4}$ = 19 52 $2\overset{8.8}{9.0}$ $+14.\overset{4}{6}$ = −53 $23.\overset{3}{1}$

b = −53 9773 19 52 50.6 −53 13.6 $-21.\overset{3}{5}$ = 19 52 $29.\overset{3}{1}$ $-9.\overset{6}{7}$ = −53 $23.\overset{2}{3}$

c = −53 9766 19 52 4.1 −53 5.1 19 52 $29.\overset{0}{1}$ −53 23.2

x

c − a = −1.5 −0.2 +0.3 +0.1 0.0

cos −53.1 / 2

.300

$-0.\overset{4}{5}$

	x	y	x	y
a	40.0	20.0	45.0	25.0
b	53.3	67.9	58.2	72.9
n	46.9	48.8	51.9	$5\overset{3}{8}.8$

x	x	y	y
n−a +6.9	n−b −6.4	n−a +28.8	n−b −19.1
+6.9	−6.3	+28.8	−19.1
+6.9	−6.35	+28.8	−19.1
+6.97	−6.41	+29.09	−19.29
÷ .298	÷ .298	$+14.5\overset{5}{4}$	−9.65
+23.4	−21.5		

A 6909 No. 6$\overset{3}{2}$ (0ʳ) July 3, 1908.

1900 pos. 19 53 38.0 − 53 16.8

a = − 53 9758 19 51 31.1 − 53 24.3 + 10.$\overset{1}{2}$ = 19 51 41.$\overset{2}{3}$ + 3.5 = − 53 20.8

b = − 53 9763 19 51 52.6 − 53 19.1 − 11.$\overset{4}{5}$ = 19 51 41.$\overset{2}{1}$ − 1.7 = − 53 20.8

c = − 53 9759 19 51 41.6 − 53 57.2 19 51. 41.2 − 5$\overset{3}{4}$ 20.8

x

c − a = + $\overset{10}{9}$.5 0.0 0.0 0.0 0.0

cos − 53.9 / 2 .295

+ 3.1

	x	y	x	y
a	40.0	85.0	45.0	87.4
b	46.4	95.3	51.4	97.6
n	43.0	91.9	48.0	94.2

	x	x	y	y
	n−a + 3.0	n−b − 3.4	n−a + 6.9	n−b − 3.4
	+ 3.0	− 3.4	+ 6.8	− 3.4
	+ 3.0	− 3.4	+ 6.85	− 3.4
	+ 3.03	− 3.43	+ 6.92	− 3.43
	÷ .298	÷ .298	+ 3.46	− 1.72
	+ 10.2	− 11.5		

√

A6909 No. $6x^4 (p^{2})$ July 3, 1908.

1900 pos. 19 52 59.2 −53 12.2

a = −53 9751 19 50 14.6 −53 26.3 $+48.\overset{1}{6}$ = 19 $5\overset{1}{0}$ $\overset{2\,7}{3\,2}$ $+9.\overset{4}{5}$ = −53 $15.\overset{9}{8}$

b = −53 9764 19 52 2.6 −53 10.0 $-6\overset{0.6}{x.2}$ = 19 51 $\underset{2\,0}{x.4}$ $-6.\overset{6}{7}$ = −53 $16.\overset{6}{7}$

c = −52 11599 19 50 56.4 −52 43.3 19 51 $2.\overset{4}{3}$ −53 16.8

x

c − a = +41.8 +0.3 −0.4 −0.3 +0.4

cos −52.7 / 2 .303

+12.7

x	y	x	y
50.0	30.0	55.0	35.5
82.5	62.1	87.5	67.6
64.4	48.8	69.4	54.2

x	x	y	y
n−a +14.4	n−b −18.1	n−a +18.8	n−b −13.3
+14.4	−18.1	+18.7	−13.4
+14.4	−18.1	+18.75	−13.35
+14.54	−18.28	+18.94	−13.48
÷ .299	÷ .299	+ 9.47	− 6.74
+ 48.6	− 61.2		

A6909 No. 6$\frac{5}{2}$ (q^2) July 3, 1908.

			1900 pr.	19 52 14.3		−53 9.9
a = −53 9751	19 50 14.6	−53 26.3	+ 3.0 =	19 50 17.6	+ 12.6 =	−53 13.7
b = −53 9750	19 50 12.5	−53 1.8	+ 5.6 =	19 50 18.1	− 12.0 =	−53 13.8
c = −52 11597	19 50 21.4	−52 30.9		19 50 17.8		−53 13.8
	x					
	c − a = + 6.8			−0.2 +0.3		−0.1 0.0

$\frac{\cos - 52.5}{2}$ .304

+ 2.1

	x	y	x	y
a	80.0	10.1	70.0	10.5
b	79.2	59.1	69.2	59.5
n	80.9	35.2	70.9	35.6

x		x		y		y
n−a	+ 0.9	n−b	+ 1.7	n−a	+ 25.1	n−b − 23.9
	+ 0.9		+ 1.7		+ 25.1	− 23.9
	+ 0.9		+ 1.7		+ 25.1	− 23.9
	+ 0.91		+ 1.72		+ 25.35	− 24.14
	÷ .300		÷ .300		+ 12.68	− 12.07
	+ 3.0		+ 5.7			

A. 6909 No. 66. (r'') July 17, 1908.

0 1900 pos. 19 48 42.6 − 53 23.0

8.9 6.1 4 8

a = − 53 9732 19 47 15.0 − 53 39.2 − 29.2 = 19 46 45.8 + 12.5 = − 53 26.7

2 2 8.8 7

b = − 53 9723 19 46 22.0 − 53 7.9 + 23.4 = 19 46 45.4 − 19.9 = − 53 26.8

c = − 53 9729 19 46 56.7 − 53 2.3 19 46 45.6 − 53 26.8

x

c − a = − 18.3 + 0.5 − 0.4 0.0 − 0.1

Cos − 53.0 / 2 .301

− 5.5

	x	y	x	y
a	70.0	20.5	75.0	24.0
b.	54.5	82.9	59.5	86.4
n	61.4	45.1	66.4	48.8

x	x	y	y
n − a − 8.6	n − b + 6.9	n − a + 24.6	n − b − 37.8
− 8.6	+ 6.9	+ 24.8	− 37.6
− 8.6	+ 6.9	+ 24.7	− 37.7
− 8.69	+ 6.97	+ 24.95	− 38.08
÷ .298	÷ .298	+ 12.48	− 19.04
− 29.2	+ 23.4		

✓

A 6909 No 67 (½ hr) July 17, 1908

1900 pos. 19 45 4.4 −53 22.4

a.= −53 9708	19 42 44.7	−53 24.8	$+2\overset{1.9}{\cancel{2.1}}$ = 19 43 $6.\overset{6}{\cancel{8}}$	−1.2 =	−53 26.0
b.= −53 9713	19 43 27.5	−53 24.3	$-\overset{19.8}{\cancel{20.0}}$ = 19 43 $7.\overset{7}{\cancel{5}}$	−1.7 =	−53 26.0
c.= −52 11559	19 43 19.9	−52 37.9	19 43 7.2		−53 26.0
	x				
	c−a = +35.2		−0.6 +0.5		0.0 0.0

$$\frac{\cos -52.6}{2}$$

.304

+10.7

	x	y	x	y
a	70.0	15.5	60.0	15.0
b	82.4	16.5	72.4	16.0
n	76.5	13.1	66.5	12.5

	x		x		y		y
n−a	+6.5	n−b	−5.9	n−a	−2.4	n−b	−3.4
	+6.5		−5.9		−2.5		−3.5
	+6.5		−5.9		−2.45		−3.45
	+6.57		−5.96		−2.47		−3.48
	÷ .298		÷ .298		−1.23		−1.74
	+22.1		−20.0				

A 6909 No. 68 (u²) July 17. 1908.

1900 pra. 19 41 41.7 −53 21.0

a = −53 9673 19 37 57.7 −53 22.6 + 10~~7.5~~6.4 = 19 39 4~~5.2~~4.1 − 3.0 = −53 25.6

b = −53 9698 19 41 42.7 −53 31.5 − 11~~9.7~~8.5 = 19 39 4~~3.0~~4.2 + 6.~~2~~1 = −53 25.~~3~~4

c = −52 11539 19 39 36.4 −52 47.5 19 39 44.~~1~~2 −53 25.5

x

c − a = + 98.7 −0.1 + 0.0 +0.1 − 0.1

$\frac{\text{Coo} - 52.8}{2}$

.302

+29.8

	x	y	x	y
a	40.0	35.0	45.0	38.5
b	106.8	16.9	111.8	20.3
n	71.6	29.1	7~~5~~6.6	32.6

x		x		y		y
n−a	+31.6	n−b	−35.2	n−a	−5.9	n−b	+12.2

x	x	y	y
+31.6	−35.2	−5.9	+12.3
+31.6	−35.2	−5.9	+12.25
+31.92	−35.55	−5.96	+12.37
÷ .297	÷ .297	−2.98	+6.19
+107.5	−119.7		
√	√		

A 6909 No. 69 (v^m) July 17, 1908.

1900 pro. 20 4 20.8 −53 33.1

a = −53 9822 ~~19~~ 20 1 58.5 −53 36.9 +26.~~9~~ 6 = 20 2 25.~~4~~ 1 −0.5 = −53 37.4

b = −53 9829 ~~19~~ 20 3 3.5 −53 37.3 −39.~~8~~ 4 = 20 2 ~~23.7~~ 24.1 −0.1 = −53 37.4

C = −53 9821 20 1 57.0 −53 8.8 20 2 24.6 −53 37.4

x

C − a = −1.5 +0.5 −0.5 0.0 0.0

Cos − 53.1 / 2

.300

−0.5

	x	y	x	y
a	60.0	45.0	55.0	45.0′
b	79.6	44.3	74.6	44.3
n	67.9	44.0	62.9	44.1

x		x		y		y	
n−a	+ 7.9	n−b	− 11.7	n−a	− 1.0	n−b	− 0.3
	+ 7.9		− 11.7		− 1.0		− 0.2
	+ 7.9		− 11.7		− 1.0		− 0.25
	+ 7.98		− 11.82		− 1.01		− 0.25
	÷ .297		÷ .297		− 0.5		− 0.1
	+ 26.9 ✓		− 39.8 ✓				

A 6909 No. 70 (m^n) July 17, 1908.

1900 pos. 20 1 24.3 − 53 36.8

a = − 53 9795 19 58 1.2 − 53 38.0 + 8~~7.4~~ 6.5 = 19 59 2~~8.6~~ 7.7 − 3.2 = − 53 41.2

b = − 53 9812 20 0 51.7 − 53 43.4 − 8~~4.0~~ 3.2 = 19 59 2~~7.7~~ 8.5 + 2.5 = − 53 40.9

c = − 52 11626 ~~20~~ 19 58 ~~56.1~~ 38.0 − 5~~3~~ 2 56.1 19 59 28.~~2~~ 1 − 53 41.~~1~~ 0

x

c − a = + 36.8 − 0.4 + 0.4 + 0.2 − 0.1

cos − 52.9 / 2

.302

+ 11.1

	x	y	x	y
a	60.0	35.0	65.0	3~~4.4~~ 5.3
b	110.2	23.7	115.~~1~~ 2	23.~~8~~ 9
n	85.6	28.~~7~~ 6	90.5 6	28.8

x	x	y	y
n − a + 25.6	n − b − 24.6	n − a − 6.4	n − b + 4.9
+ 25.6	− 24.6	− 6.4	+ 4.9
+ 25.6	− 24.6	− 6.4	+ 4.9
+ 25.86	− 24.85	− 6.46	+ 4.95
÷ .296	÷ .296	− 3.23	+ 2.48
+ 8~~7.4~~ 6.5	− 84.0		

A 6909 No. 71 (x^{vv}) July 17, 1908.

1900 pos. 20 0 57.3 −53 31.8

a = −53 9796 19 58 6.7 − 53 27.8 + 53.$\overset{4}{9}$ = 19 59 0.$\overset{1}{6}$ − 8.$\overset{2}{3}$ = −53 36.$\overset{0}{1}$

b = −53 9806 19 59 24.2 − 53 46.1 − 22.$\overset{4}{6}$ = 19 59 1.$\overset{8}{6}$ + 10.$\overset{1}{4}$ = −53 3$\overset{5}{6}$.$\overset{0}{9}$

c = −5$\overset{2}{3}$ 11626 19 58 38.0 − 52 56.1 19 59. 1.$\overset{0}{1}$ − 53 36.0

x

c − a = + 31.3 −0.9 + 0.8 0.0 0.0

Cos − 52.9 / 2 .302

+ 9.5

	x	y	x	y
a	70.0	50.0	65.0	50.0
b	92.5	13.4	87.5	13.4
n	85.8	33.6	80.9	33.6

x	x	y	y
n−a + 15.8	n−b − 6.7	n−a − 16.4	n−b + 20.2
+ 15.9	− 6.6	− 16.4	+ 20.2
+ 15.85	− 6.65	− 16.4	+ 20.2
+ 16.01	− 6.72	− 16.56	+ 20.40
÷ .297	÷ .297	− 8.28	+ 10.2
+ 53.9	− 22.6		

✓ ✓

A 6909 No. 72 (y^2) July 18, 1908.

1900 po. 19 59 17.2 − 53 38.1

a = − 53 9786 19 56 19.2 − 53 43.0 + 61.8 = 19 57 20.4 + 0.8 = − 53 42.2

b = − 53 9795 19 58 1.2 − 53 38.0 − 40.9 = 19 57 20.3 − 4.1 = − 53 42.1

c = − 54 9606 19 56 57.1 − 54 5.2 19 57 20.4 − 53 42.2

x

c − a = + 37.9 0.0 − 0.1 0.0 − 0.1

.293

+ 11.1

cos − 54.1 / 2

	x	y	x	y
a	70.0	70.0	75.0	73.5
b	100.2	79.8	105.2	83.4
n	88.1	71.7	93.1	75.1

x		x		y		y	
n − a	+ 18.1	n − b	− 12.1	n − a	+ 1.7	n − b	− 8.1
	+ 18.1		− 12.1		+ 1.6		− 8.3
	+ 18.1		− 12.1		+ 1.65		− 8.2
	+ 18.28		− 12.22		+ 1.67		− 8.28
	÷ .296		÷ .296		+ 0.83		− 4.14
	+ 61.8 ✓		− 41.3 ✓				

A 6909 No. 73 (Z^4) July 18, 1908.

			1900 pos.	19 58 30.9	−53 35.4	
a = −53 9780	19 55 17.7	−53 50.2	$+76.\overset{1}{9}$ =	$19\ 56\ 3\overset{3.8}{4.4}$	$+10.\overset{7}{8}$ =	$-53\ 39.\overset{5}{4}$
b = −53 9796	19 58 6.7	−53 27.8	$-9\overset{2.3}{3.2}$ =	$19\ 56\ 3\overset{44}{3.5}$	$-11.\overset{7}{8}$ =	$-53\ 39.\overset{5}{6}$
ζ = −54 9606	19 56 57.1	−54 5.2		$19\ 56\ 34.\overset{10}{1}$		−53 39.5

x

c − a = + 99.4   −0.3 + 0.3   0.0 0.0

$\frac{\cos -54.1}{2}$

.293

29.1

+ 14.6

	x	y	x	y
a	60.0	60.0	70.0	65.5
b	110.0	104.7	120.0	$110.\overset{4}{3}$
η	82.6	81.4	92.6	87.0

x	x	y	y
n−a + 22.6	n−b − 27.4	n−a + 21.4	n−b − 23.3
+ 22.6	− 27.4	+ 21.5	− 23.4
+ 22.6	− 27.4	+ 21.45	− 23.35
+ 22.83	− 27.67	+ 21.66	− 23.58
÷ .297	÷ .297	+ 10.83	− 11.79
+ 76.9 ✓	− 93.2 ✓		

A 6909 No. 74 (a) ^{3v} July 18, 1908.

1900 pos. 20 12 54.6 −53 48.5

5
~~X~~
5
~~X~~
5

a = −54 9662 20 9 28.8 −54 3.9 + $\overset{1.6}{9\cancel{2}.5}$ = 20 11 $\overset{0.4}{\cancel{1}.\cancel{3}}$ + $\overset{7}{10.\cancel{8}}$ = −53 $\overset{2}{53.\cancel{1}}$

b = −53 9854 20 12 5.3 −53 35.9 − $\overset{6.9}{6\cancel{7}.\cancel{6}}$ = 20 10 $\overset{8.4}{5\cancel{7}.\cancel{7}}$ − $\overset{68}{1\cancel{7}.\cancel{6}}$ = −53 $\overset{3.7}{5\cancel{2}.\cancel{6}}$

c = −54 9671 20 12 10.8 −54 27.1 20 10 $\overset{4}{59.\cancel{5}}$ −53 $\overset{2}{53.\cancel{6}}$

α

c − a = +162.0 +1.0 −1.0 +0.2 −0.3

Coo − 54.4 / 2 .291 / +47.$\overset{1}{\cancel{0}}$

	x	y	x	y
a	50.0	60.0	55.0	61.5
b	96.8	114.9	101.7	116.5
n	77.0	81.2	82.0	8$\overset{2}{\cancel{3}}$.9

x	x	y	y
n−a +27.0	n−b −19.8	n−a +21.2	n−b −33.7
+27.0	−19.7	+21.4	−33.6
+27.0	−19.75	+21.3	−33.65
+27.27	−19.95	+21.51	−33.99
÷ .295	÷ .295	+10.76	−16.99
+92.5	−67.6		
✓	✓		

A 6909 No. 75 (b^3) July 18, 1908.

			1900 pos. 20 4 13.3	−53 47.2
a = −53 9812	20 0 51.7	−53 43.4	$+\overset{4.7}{85.\cancel{6}}$ = 20 2 $\overset{6.4}{1\cancel{7}.\cancel{3}}$ − $\overset{2}{8.\cancel{3}}$	= −53 $\overset{6}{51.\cancel{7}}$
b = −53 9834	20 3 52.0	−53 58.6	$-\overset{4}{9\cancel{5}.\cancel{7}}$ = 20 2 $1\cancel{6}.\cancel{5}$ + $\overset{2}{7.\cancel{3}}$	= −53 $\overset{4}{51.\cancel{3}}$
c = −53 9821	20 1 57.0	−53 8.8	20 2 16.8	−53 51.5
	x			
	c − a = +65.3		−0.4 + 0.5	+0.1 − 0.1

Cos − 53.1 / 2

.300

+19.6

	x	y	x	y
a	60.0	40.5	65.0	45.0
b	112.9	9.6	$\overset{8}{11\cancel{7}}.0$	14.1
n	85.0	24.0	90.0	28.6

x	x	y	y
n − a + 25.0	n − b − 27.9	n − a − 16.5	n − b + 14.4
+25.0	$-\overset{8}{2\cancel{7}}.0$	−16.4	+14.5
+25.0	−27.95	−16.45	+14.45
+25.25	−28.23	−16.61	+14.59
÷ .295	÷ .295	− 8.3	+ 7.29
+85.6	−95.7		

A 6909 No. 76 $(\odot^{3.5}$ July 18, 1908.

1900 pro. 20 0 0.5 − 53 50.4

a = − 54 9606 19 56 57.1 − 54 5.2 + $67.\overset{1}{\cancel{8}}$ = 19 58 $4.\overset{2}{\cancel{8}}$ + $10.\overset{5}{\cancel{6}}$ = − 53 $54.\overset{7}{\cancel{6}}$

b = − 53 9806 19 59 11.2 − 53 46.1 − $8\overset{0.4}{\cancel{7.7}}$ = 19 58 $3.\overset{8}{\cancel{2}}$ − $8.\overset{3}{\cancel{4}}$ = − 53 $54.\overset{4}{\cancel{5}}$

c = − 53 9796 19 58 6.7 − 53 27.8 19 58 $\overset{4}{\cancel{5}}$.0 − 53 54.6

x

δ − a = + 69.6 +0.2 − 0.2 +0.1 − 0.2

$\dfrac{\cos - 53.5}{2}$ .297

+ 20.7

	x	y	x	y
a	40.0	25.0	35.0	30.0
b	$8\overset{3.5}{\cancel{5.4}}$	$6\overset{2.6}{\cancel{0.5}}$	78.5	67.7
n	$\overset{59.8}{\cancel{60.9}}$	$4\overset{5}{\cancel{4}}.9$	54.8	51.0

x	x	y	y
n − a + 19.8	n − b − $23.\overset{7}{\cancel{6}}$	n − a + 20.9	n − b − 16.7
+ 19.8	− 23.7	+ 21.0	− 16.7
+ 19.8	− 23.7	+ 20.95	− 16.7
+ $2\overset{0}{\cancel{1}}$.00	− 23.94	+ 21.16	− 16.87
÷ .295	÷ .295	+ 10.58	− 8.44
+ 67.8	− 81.2		

A 6909 No 77 (d^{3}) July 18, 1908.

1900 po. 19 58 46.8 -53 49.5

a = −54 9597 19 55 52.2 − 54 0.5 + $5\overset{7.4}{8.0}$ = 19 56 $\overset{49.6}{48.x}$ + $\overset{6.9}{7.0}$ = −53 $53.\overset{6}{5}$

b = −53 9797 19 58 7.7 − 53 50.0 − $7\overset{7.8}{8.0}$ = 19 56 $49.\overset{9}{7}$ − 3.5 = −53 53.5

c = −54 9603 19 56 47.6 − 54 26.1 19 56.$49.\overset{8}{7}$ −53 $53.\overset{6}{5}$

x

c − a = + 55.4 −0.2 +0.1 .0.0 −0.1

cos −54.4 / 2 .291

+16.1

	x	y	x	y
a	40.0	75.0	45.0	80.0
b	79.9	95.6	84.9	100.6
n	56.9	88.8	62.0	93.7

	x		x		y		y
n−a	+16.9	n−b	−23.0	n−a	+13.8	n−b	−6.8
	+17.0		−22.9		+13.7		−6.9
	+16.95		−22.95		+13.75		−6.85
	+17.12		−23.18		+13.89		−6.92
	÷ .295		÷ .295		+ 6.95		−3.46
	+ 58.0		− 78.6				

A 6909. No. 78. (6$^{3'}$) July 20, 1908.

1900 pr. 19 58 4.2 −53 59.4

$\overset{6}{\cancel{5}}$ a = −54 9597 19 55 52.2 −54 0.5 +14.$\overset{0}{\cancel{1}}$ = 19 56 6.$\overset{2}{\cancel{8}}$ −3.1 = −54 3.6

5 b = −54 9600 19 56 26.6 −54 9.3 −$\overset{8.9}{\cancel{19.0}}$ = 19 56 7.$\overset{7}{\cancel{6}}$ +$\overset{5.9}{\cancel{6.0}}$ = −54 3.$\overset{4}{\cancel{3}}$

$\overset{6}{\cancel{5}}$ c = −53 9786 19 56 19.2 −53 43.0 19 56 $\overset{7}{\cancel{6}}$.0 −54 3.$\overset{4}{\cancel{5}}$

x

c − a = +27.0 −0.8 +0.7 +0.1 −0.1

$\frac{\cos -53.7}{2}$ .296

+8.0

	x	y	x	y
a	60.0	45.0	65.0	50.0
b	69.6	27.1	74.6	32.2
n	64.1	38.9	69.1	44.0

	x		x		y		y
n−a	+4.1	n−b	−5.5	n−a	−6.1	n−b	+11.8
	+4.1		−5.5		−6.0		+11.8
	+4.1		−5.5		−6.05		+11.8
	+4.14		−5.56		−6.11		+11.92
	÷ .293		÷ .293		−3.06		+5.96
	+14.1		−19.0				

A 6909 No. 79 (f^3) July 20, 1908.

1900 pro. 20 13 40.7 −54 4.6

a = −54 9669 20 10 54.5 −54 1.4 $+5.0.\overset{}{\cancel{5}}$ = 20 11 $4\overset{4.5}{\cancel{5.0}}$ $-\overset{7.9}{\cancel{8.2}}$ = −54 $9.\overset{3}{\cancel{4}}$

b = −54 9672 20 12 47.8 −54 14.5 $-6\overset{1.8}{\cancel{2.4}}$ = 20 11 $4\overset{6.0}{\cancel{5.4}}$ $+5.\overset{4}{\cancel{5}}$ = −54 $9.\overset{1}{\cancel{0}}$

γ = −53 9854 20 12 5.3 −53 35.9 20 11 45.2 −54 9.2

x

γ − a = + 70.8 −0.7 +0.8 +0.1 −0.1

cos − 53.6 / 2

.297

+ 21.0

	x	y	x	y
a	60.0	55.0	65.0	60.0
b	92.7	28.3	97.8	33.3
n	74.6	39.1	79.7	44.1

x	x	y	y
n−a +14.6	n−b −18.1	n−a −15.9	n−b +10.8
+14.7	18.1	−15.9	+10.8
+14.6.5	−18.1	−15.9	+10.8
+14.80	−18.28	−16.06	+10.91
÷ .293	÷ .293	− 8.03	+ 5.46
+ 50.5	− 62.4		

A 6909 No. 80 (9^{3}) July 20, 1908.

1900 pos. 20 3 25.3 − 54 18.3

a = − 54 9626 20 0 42.6 − 54 24.3 + 45.$\overset{0}{\cancel{5}}$ = 20 1 2$\overset{7.6}{\cancel{8}}$.$\cancel{X}$ + 1.7 = − 54 22.6

b = − 54 9634 20 2 26.8 − 54 26.9 − 58.$\overset{2}{\cancel{8}}$ = 20 1 28.$\overset{6}{\cancel{Q}}$ + 4.5 = − 54 22.4

c = − 53 9812 20 0 51.7 − 53 43.4 20 1 28.$\overset{1}{\cancel{X}}$ − 54 22.5

x

b − a = + 9.1 − 0.5 + 0.5 + 0.1 − 0.1

$\frac{\text{Cos} - 53.7}{2}$ .296

+ 2.7

	x	y	x	y
a	60.0	40.0	55.0	45.0
b	90.0	34.4	85.1	39.4
n	73.1	43.4	6$\overset{8}{\cancel{3}}$.1	48.3

x	x	y	y
n−a + 13.1	n−b ∓ 16.9	n−a + 3.4	n−b + 9.0
+ 13.1	∓ 17.0	+ 3.3	+ 8.9
+ 13.1	− 16.95	+ 3.35	+ 8.95
+ 13.23	− 17.12	+ 3.38	+ 9.04
÷ .291	÷ .291	+ 1.69	+ 4.52
+ 45.5	− 58.8		
✓	✓		

A 6909 No. 81 (h^{3m}) July 20, 1908.

1900 pos. 19 36 24.0 − 54 9.6

a = − 54 9460 19 33 54.7 − 54 11.2 + $29.\overset{5}{8}$ = 19 34 $24.\overset{2}{5}$ − 1.9 = − 54 13.1

b = − 54 9466 19 35 0.7 − 54 14.1 − $35.\overset{3}{7}$ = 19 34 $25.\overset{4}{0}$ + 1.1 = − 54 13.0

c = − 53 9653 19 34 49.9 − 53 52.6 19 34 24.8 − 54 $13.\overset{0}{1}$

x

c − a = + 55.2 −0.6 +0.6 +0.1 0.0

Cos − 53.9
2

.295

+ 16.3

	x	y	x	y
a	40.0	30.0	45.0	32.5
b	59.0	24.0	64.0	26.5
n	48.7	26.2	53.6	28.7

x	x	y	y
n−a + 8.7	n−b − 10.3	n−a − 3.8	n−b + 2.2
+ 8.6	− 10.4	− 3.8	+ 2.2
+ 8.65	− 10.35	− 3.8	+ 2.2
+ 8.74	− 10.45	− 3.84	+ 2.22
÷ .293	÷ .293	− 1.92	+ 1.1
+ 29.8	− 35.7		

A 6909 No. 82 (i^{3r}) July 20, 1908.

1900.4 pos. 19 35 6.6 − 54 8.1

a = − 54 9449 19 32 20.2 − 54 10.3 + $\overset{46.8}{\cancel{12.8}}$ = 19 33 $\overset{6.6}{\cancel{x.x}}$ − 1.1 = − 54 11.4

b = − 54 9460 19 33 54.7 − 54 11.2 − 47.$\overset{1}{\cancel{x}}$ = 19 33. 7.$\overset{6}{\cancel{x}}$ − 0.1 = − 54 11.3

c = − 53 9643 19 33 20.4 − 5$\overset{3}{4}$ 44.4   19 33 7.1   − 54 11.4

x

cos − 5$\overset{3}{4}$.7 / 2   x − a = + 60.2

.296

+ 17.8

− 0.5 + 0.5   0.0 − 0.1

	x	y	x	y
a	30.0	35.5	35.0	37.0
b	57.5	33.4	62.5	35.0
n	43.7	33.2	48.7	34.8

x	x	y	y
n−a +13.7	n−b − 13.8	n−a − 2.3	n−b ∓ 0.2
+ 3.7	− 13.8	− 2.2	− 0.2
+13.7	− 13.8	− 2.25	− 0.2
+13.74	− 13.94	− 2.27	− 0.2
÷ .293	÷ .293	− 1.13	− 0.1
+ $\overset{46.9}{\cancel{17.8}}$	− 47.6		
✓	✓		

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A 6909 Ao. 83 (j^{3}) July 20, 1908.

1900 pro. 20 5 22.4 −54 24.9

a = −54 9634 20 2 26.8 −54 26.9 + 59.6 = 20 3 $\overset{5.8}{2\cancel{8.4}}$ − 2.3 = −54 29.2

b = −54 9639 20 4 15.3 −54 38.1 − $50.\overset{2}{\cancel{7}}$ = 20 3 $\underset{4}{\overset{5.1}{2\cancel{4.4}}}$ + $\overset{8.9}{\cancel{9.0}}$ = −54 $29.\overset{2}{\cancel{x}}$

c = −53 9829 20 3 3.5 −53 37.3 20 3 25.5 −54 29.2

x

c − a = + 36.7 +0.4 − 0.3 0.0 0.0

$\frac{\cos -53.6}{2}$ .297

+10.9

	x	y	x	y
a	70.0	27.5	60.0	28.5
b	101.6	5.1	91.7	6.1
n	87.1	22.9	77.1	24.0

	x		x		y		y
n−a	+17.1	n−b	−14.5	n−a	− 4.6	n−b	+17.8
	+17.1		−14.6		− 4.5		+17.9
	+17.1		−14.55		−4.55		+17.85
	+17.27		−14.70		−4.60		$+1\overset{8}{\cancel{7}}.03$
	÷ .290		÷ .290		− 2.3		+ 9.02
	59.6		−50.7				
	✓		✓				

A6909 No. 84 (ℂ³′) July 20, 1908.

1900 pro. 20 1 19.3 − 54 40.2

a = −54 9615	19 58 42.6	−54 40.5	+ ~~39.1~~ 38.7 =	19 59 ~~21.7~~ 21.3	− ~~3.8~~ 3.9 =	−54 44.4
b = −54 9624	20 0 4.0	−54 49.9	− ~~42.6~~ 42.2 =	19 59 ~~21.4~~ 21.7	+ ~~5.6~~ 5.5 =	−54 ~~44.3~~ 44.4
c = −53 9802	19 59 3.7	− ~~54~~ 53 52.5		19 59 ~~21.6~~ 21.5		−54 44.4
	x			−0.2 +0.2		0.0 0.0

c − a = +21.1

$\frac{\cos -53.9}{2}$ .295

+6.2

	x	y	x	y
a	40.0	30.0	45.0	31.0
b	63.3	11.2	68.4	12.2
n	51.2	22.4	56.~~1~~2	23.3

x	x	y	y
n−a + 11.2	n−b − 12.1	n−a − 7.6	n−b + 11.2
+ 11.1	− 12.2	− 7.7	+ 11.1
+ 11.15	− 12.15	− 7.65	+ 11.15
+ 11.26	− 12.27	− 7.73	+ 11.26
÷ .288	÷ .288	− 3.87	+ 5.63
+ 39.1 ✓	− 42.6 ✓		

A 6909 No. 85 (l³ʹ) July 30, 1908.

1900 po. 20 1 15.7 −54 40.7

a = −54 9615 19 58 42.6 −54 40.5 + 35.~~6~~ $\overset{2}{}$ = 19 59 18 ~~7~~ $\overset{7.8}{}$ − 4.4 = −54 44.9

b = −54 9624 20 0 ~~49.9~~ $\overset{4.0}{}$ −54 49.9 − 46.~~5~~ $\overset{0}{}$ = 19 59 17.5 $\overset{8\ 0}{}$ + 5.~~x~~ $\overset{0}{}$ = −54 44.8 $\overset{9}{}$

c = −53 9802 19 59 3.7 −53 52.5 19 59 17.9 $\overset{8}{}$ −54 44.~~x~~ $\overset{9}{}$

x

c − a = + 21.1 −0.1 +0.1 0.0 0.0

Cos − 53.9 / 2

.295

+ 6.2

	x	y	x	y
a	45.0	31.0	~~5~~ 40.0	25.0
b	68.4	12.2	63.4	6.2
n	55.1	22.3	50.2	1~~5~~ 6.3

x	x	y	y
n−a + 10.1	n−b − 13.3	n−a − 8.7	n−b + 10.1
+ 10.2	− 13.2	− 8.7	+ 10.1
+ 10.15	− 13.25	− 8.7	+ 10.1
+ 10.25	− 13.38	− 8.79	+ 10.20
÷ .288	÷ .288	− 4.39	+ 5.1
+ 35.6	− 46.5		
✓	✓		

A 6909 No. 86 (m 3) July 21, 1908

1900 pos. 19 59 5.0 − 54 35.3

a = −54 9598 | 19 56 6.1 | −54 46.3 + 6~~1.8~~ 0.6 = 19 57 ~~7.4~~ 6.7 + 6.~~9~~ 8 = −54 39.~~4~~ 5 3

b = −54 9612 | 19 58 7.1 | −54 32.7 − 60.~~9~~ 3 = 19 57 6.~~2~~ 5 − 6.~~7~~ 6 = −54 39.~~4~~

c = −54 9606 | 19 56 57.1 | −54 5.2 | 19 57 6.~~6~~ 4 8 6.3 | −54 39.4

x

$\frac{\cos -54.1}{2}$

x − a = + 51.0 | −0.2 + 0.2 | +0.1 − 0.1

.293

+ 14.9

	x	y	x	y
a	50.0	20.5	55.0	27.5
b	84.9	~~31.5~~ 47.3	89.9	54.3
n	67.4	34.1	72.4	41.1

x		x		y		y
n-a	+ 17.4	n-b	− 17.5	n-a	+ 13.6	n-b − 13.2
	+ 17.4		− 17.5		+ 13.6	− 13.2
	+ 17.4		− 17.5		+ 13.6	− 13.2
	+ 17.57		− 17.68		+ 13.74	− 13.33
	÷ .290		÷ .290		+ 6.87	− 6.67
	+ 6~~1.3~~ 0.6		− 60.9			

A6909 No. 87 (n^{3r}) July 21, 1908.

1900 pos. 19 58 26.2 −54 27.7

a = −54 9590 19 55 7.8 −54 30.7 + $80.\overset{1}{\cancel{9}}$ = 19 56 $\overset{7.9}{2\cancel{8}.\cancel{8}}$ − 1.3 = −54 32.0

b = −54 9612 19 58 7.1 −54 32.7 − $\overset{98.6}{\cancel{99.5}}$ = 19 56 $\overset{8.5}{2\cancel{7}.\cancel{8}}$ + 1.1 = −54 $3\overset{1}{\cancel{2}}.6$

$\overset{c}{n}$ = −54 9600 19 56 26.6 −54 9.3 19 56 28.8 −54 31.8

28.2

x

c − a = + 78.8 $-0.\overset{3}{\cancel{5}}$ + 0.3 +0.2 − 0.2

$\frac{\cos -54.1}{2}$ .293

+ 23.1

	x	y	x	y
a	60.0	40.5	65.0	43.0
b	111.8	$35.\overset{7}{\cancel{8}}$	116.9	38.3
n	83.2	$3\overset{7.9}{\cancel{8.0}}$	88.3	40.6

x	x	y	y
n−a + 23.2	n−b − 28.6	n−a − $2.\overset{6}{\cancel{5}}$	n−b + $2.\overset{2}{\cancel{7}}$
+ 23.3	− 28.6	− 2.4	+ 2.3
+ 23.25	− 28.6	− 2.5	+ 2.25
+ 23.48	− 28.89	− 2.53	+ 2.27
÷ .290	÷ .290	− 1.27	+ 1.14
+ 80.9	− $\overset{99.6}{\cancel{98.2}}$		

A 6909 No. 88 (0³-) July 21, 1908.

1900 pos. 19 53 38.2 -54 33.8

a = -54 9562 19 50 11.8 -54 32.2 + 8~~7.8~~6.9 = 19 51 3~~9.4~~8.5 - 5.~~8~~7 = -54 3~~8.0~~7.9

b = -54 95~~1~~75 19 53 19.3 -54 37.9 - 9~~9.5~~8.4 = 19 51 ~~39.8~~40.9 + 0.2 = -54 37.7

$\overset{c}{n}$ = -53 9759 19 51 41.6 -53 57.2 19 51 39.~~8~~7 -54 37.~~9~~8

c - a = + 89.8 -1.2 +1.2 +0.1 -0.1

Cos - 53.9

.295

+ 26.5

	x	y	x	y
a	60.0	30.0	65.0	35.0
b	113.7	18.1	118.7	23.1
n	85.2	18.6	90.1	23.5

x	x	y	y
n-a + 25.2	n-b - 28.5	n-a - 11.4	n-b + 0.5
+ 25.1	- 28.6	- 11.5	+ 0.4
+ 25.15	- 28.55	- 11.45	+ 0.45
+ 25.40	- 28.8~~9~~4	- 11.56	+ 0.45
÷ .290	÷ .290	- 5.78	+ 0.22
+ 87.6 ✓	- 99.~~5~~4		

A 6909 No. 89 (ϕ^3) July 21, 1908.

1900 pr. 19 53 37.1 −54 33.1

a = −54 9562 19 50 11.8 −54 32.2 + $\overset{5.4}{86.6}$ = 19 51 $\overset{7.5}{38.4}$ − 5.$\overset{0}{4}$ = −54 37.$\overset{2}{8}$

b = −54 9575 19 53 19.3 −54 37.9 − $\overset{99}{100}$.5 = 19 51 $\overset{9}{38}$.8 + 0.9 = −54 37.0

c = −53 9759 19 51 41.6 −5$\overset{3}{4}$ 57.2 — 19 51 38.6 — −54 37.$\overset{1}{2}$

x

c − a = + 89.8 — −1.1 +1.2 — +0.$\overset{1}{2}$ −0.1

cos −53.9 / 2 — .295 — + 26.5

	x	y	x	y
a	65.0	3$\overset{6}{5}$.$\overset{5}{0}$	70.0	40.5
b	118.7	$\overset{4.6}{23.1}$	123.7	28.7
n	89.8	26.5	94.9	30.5

x	x	y	y
n−a + 24.8	n−b − 28.9	n−a − 10.0	n−b + 1.9
+ 24.9	− 28.8	− 10.0	+ 1.8
+ 24.85	− 28.85	− 10.0	+ 1.85
+ 25.10	− 29.14	− 10.10	+ 1.86
÷ .290	÷ .290	− 5.05	+ 0.93
+ 86.6	− 100.5		

A 6909 No. 90 ($9^{3.4}$) July 22, 1908

		1900 pos.		h m s		
				~~19 45. 4.2~~		−54 32.5
a = −54 9499	19 41 22.2	−54 31.6	+10$\overset{2}{3}$.1 =	19 43 $\overset{4.3}{\overset{5.4}{2.2}}$	−4.5 =	−54 36.1
b = −54 9512	19 44 0.2	−54 41.0	−$\overset{4.6}{55.2}$ =	19 43 $\overset{6}{5.0}$	+4.9 =	−54 36.1
c = −53 9712	19 43 11.5	−53 55.5		19 43 $\overset{5.2}{5.6}$ 5.0		−54 36.1

x

c − a = +109.3 | −0.7 +0.$\overset{6}{5}$ | 0.0 0.0

coo − 53.9
2

.295
+ 31.2

	x	y	x	y
a	60.0	40.0	65.0	30.0
b	105.5	21.4	110.4	16.4
n	89.6	31.1	94.6	21.1

x	x	y	y
n−a +29.6	n−b −15.9	n−a −8.9	n−b +9.7
+29.6	−15.8	−8.9	+9.7
+29.6	−15.85	−8.9	+9.7
+29.90	−16.01	−8.99	+9.80
÷ .290	÷ .290	−4.49	+4.9
+103.1	−55.2		
✓	✓		

A 6909 No. 91 (r^3) July 22, 1908

1900 pos. 19 41 31.0 −54 36.2

a = −54 94~~88~~81 −19 38 ~~36.9~~ 42.2 −54 36.9 + ~~50.1~~ 49.6 = 19 39 ~~32.5~~ 31.2 − 2.9 = −54 39.8

b = −54 9493 −19 40 42.2 −54 42.7 − 71.~~1~~0 = 19 39 ~~30.5~~ + 3.1 = −54 39.6

γ = −~~54~~53 96~~80~~84 −1~~3~~9 40 2.7 −53 56.3 19 39 ~~32.4~~ 31.5 −54 39.7

x

c − a = + 80.5 +0.3 −0.3 +0.1 −0.1

cos −53.9 .295

+23.7

	x	y	x	y
a	40.0	30.0	45.0	35.0
b	74.8	18.2	79.9	23.2
n	54.3	24.3	69.4	29.3

x	x	y	y
n − a + 14.3	n − b − 20.5	n − a − 5.7	n − b + 6.1
+ 14.4	− 20.~~7~~5	− 5.7	+ 6.1
+ 14.35	− 20.5	− 5.7	+ 6.1
+ 14.~~5~~48	− 20.71	− 5.76	+ 6.16
÷ .289	÷ .589	− 2.88	+ 3.08
+ 50.1	− 7.17		

a

b

c =

A 6909 No. 92 (5^s) July 22, 1908.

		1900 pr.	19 41 32.6	−54 25.8
a = −54 9481	19 38 42.2	−54 36.9 $+\overset{1.9}{52.4}$ =	19 39 $\overset{1}{34.6}$	$+\overset{5}{7.6}$ = −54 $\overset{4}{29.3}$
b = −54 9491	19 40 36.2	−54 24.9 $-\overset{3.5}{64.1}$ =	19 39 $\overset{7}{32.1}$	−4.3 = −54 29.2
c = −53 9680	19 39 25.7	−53 42.5	19 39 33.4	−54 29.3

x

c−a = +43.5 | +0.7 −0.7 | +0.1 −0.1

$\frac{\text{Cos} -53.7}{2}$ .296

+12.9

	x	y	x	y
a	50.0	10.0	55.0	11.5
b	83.4	33.5	88.5	35.0
n	65.0	25.0	70.1	$\overset{6}{27.5}$

	x		x		y		y
n−a	+15.0	n−b	−18.4	n−a	+15.0	n−b	−8.5
	+15.1		−18.4		+15.0		−8.5
	+15.05		−18.4		+15.0		−8.5
	+15.20		−18.58		+15.15		−8.59
	÷ .290		÷ 290		+7.58		−4.29
	+52.4		−64.1				

A 6909 No 93 (X3') July 22, 1908.

1900 pr. 19 41 22.6 −54 26.7

a = −54 9481 19 38 42.2 −54 36.9 + 41.9 = 19 39 24.1 + 6.5 = −54 30.4

b = −54 9491 19 40 36.2 −54 24.9 − 73.5 = 19 39 22.7 − 5.2 = −54 30.1

c = −53 9680 19 39 25.7 −53 42.5 19 39 23.4 −54 30.2

x

c − a = + 43.5 +0.7 −0.7 +0.2 −0.1

cos −53.7 / 2 .296

+ 12.9

	x	y	x	y
a	50.0	10.0	55.0	11.5
b	83.4	33.5	88.5	35.0
n	62.1	23.1	67.2	24.6

	x		x		y		y
n−a	+12.1	n−b	−21.3	n−a	+ 13.1	n−b	− 10.6
	+12.2		− 21.3		+ 13.1		− 10.4
	+12.15		−21.3		+13.1		−10.5
	+ 12.27		−21.51		+ 13.23		− 10.60
	÷ .290		÷ .290		+ 6.6		− 5.3
	+ 42.3		− 74.2				

1908phae.proj.229SB

A 6909 No. 94 (ωv³ʳ) July 23, 1908 = T.C. 4891

1900 for. 19 37 4.4 −54 29.2

a = −54 9461 . 19 34 2.7 −54 36.3 + $6\overset{1.6}{2.2}$ = 19 35 $4.\overset{3}{9}$ + 3.6 = −54 32.7

b = −54 9471 19 36 42.2 −54 30.1 − $9\overset{7}{8}.2$ = 19 35 $\overset{5}{4}.0$ − 2.3 = −54 32.4

c = −53 9653 19 34 49.9 −53 52.6 19 35 ~~4.5~~ 4.6 −54 32.6

x

c − a = + 47.2 −0.3 + 0.4 +0.1 − 0.2

$\frac{\cos - 53.9}{2}$ .295

+ 13.9

	x	y	x	y
a	40.0	25.0	45.0	25.5
b	86.0	36.7	91.1	37.2
n	57.8	32.2	62.9	32.7

	x		x		y		y
n−a	+ 17.8	n−b	− 28.2	n−a	+ 7.2	n−b	− 4.5
	+ 17.9		− 28.2		+ 7.2		− 4.5
	+ 17.85		− 28.2		+ 7.2		− 4.5
	+ $18.0\overset{3}{4}$		− 28.48		+ 7.27		− 4.55
	÷ .290		÷ .290		+ 3.64		− 2.27
	+ 62.2 ✓		− 98.2 ✓				

A6909 No. 95 (ν^{3u}) July 23, 1908

	3 30 29.3	59. 57.9	1900 pos. 19 55 28.4	-54 53.0
a = -54 9578	19 56 6.1	-54 46.8	-1.0 = 19 53 29.3 + 2.8	= -54 57.6
b = -54 9579	19 56 3 30.8 9.9	-54 - 52.9	-1.0 = 19 53 29 31.8 - 4.1	= -54 57.0
c = -54 9575	19 53 19.3	-54 37.9	19 53 29.6	-54 57.0
	x			
	c-a = -11.0		+0.3 -0.2	+0.1 0.0

$\frac{\cos -54.6}{2}$

.290

-3.2

	x	y	x	y
a	70.0	14.5	75.0	25.5
b	70.0	28.2	75.0	39.3
n	67.0	20.1	72.0	31.1

x	x	y	y
n-a - 3.0	n-b - 3.0	n-a + 5.6	n-b - 8.1
- 3.0	- 3.0	+ 5.6	- 8.2
- 3.0	- 3.0	+ 5.6	- 8.15
- 3.0	- 3.0	+ 5.66	- 8.23
÷ .288	÷ .288	+ 2.83	- 4.12
- 1.0	- 1.0		

A 6909 No. 96 (m³) July 23, 1908

1900 pro. 19 54 28.1 -54 4.2

a = -55 ~~9311~~ 9379 19 ~~51~~ 50 ~~16.5~~ 55.0 -55 ~~8.8~~ 9.8 + ~~94.7~~ 96.1 = 19 52 ~~51.7~~ 31.1 + 1.5 = -54 8.3

b = -55 9299 19 54 2.8 -55 3.9 - ~~89.4~~ 92.5 = 19 52 30.3 1.2 - 4.1 = -54 8.0

c = -54 9575 19 53 19.3 -54 37.9 19 52 30.~~7~~ 6 -54 8.2

x

c - a = +122.8 +144.3 -0.5 +0.6 +0.1 -0.2

cos - 54.6 / 2 ~~.290~~ .290

~~+35.6~~ +41.8

~~x y x y~~

~~a 40.0 15.5 50.0 19.5~~

~~b 92.1 31.4 102.1 35.5~~

~~n 66.8 20.9 76.8 24.9~~

~~x x y y~~

~~n-a +26.8 n-b -25.3 n-a +5.4 n-b -10.5~~

~~+26.8 -25.3 +5.4 -10.6~~

~~+26.8 -25.3 +5.4 -10.55~~

~~+27.07 -25.55 +5.45 -10.65~~

~~÷ .286 ÷ .286 +2.73 -5.33~~

~~+94.7 -89.4~~

error in selection of star a –

	x	y	x	y
a	40.0	15.5	50.0	20.5
b	93.4	26.4	103.4	31.5
n	67.2	18.4	77.2	23.4

x x y y

n-a +27.2 n-b -26.2 n-a +2.9 n-b -8.0

+27.2 -26.2 +2.9 -8.1

+27.2 -26.2 +2.9 -8.05

+27.47 -26.46 +2.93 -8.13

÷ .286 ÷ .286 +1.47 -4.07

+96.1 ✓ -92.5 ✓

A 6909 No. 97 ($\overset{3'}{\text{ij}}$) July 23, 1908.

1900 pr. 19 41 17.4 -54 46.1

a = -54 9478 19 37 48.2 -54 57.4 $+\overset{89.4}{88.8}$ = 19 39 $\overset{7.6}{18.5}$ $+\overset{6}{7.7}$ = -54 $\overset{8}{49.7}$

b = -54 9493 19 40 42.2 -54 42.7 $-\overset{4.6}{85.7}$ = 19 39 $\overset{7.6}{18.8}$ $-\overset{7}{6.8}$ = -54 $\overset{4}{49.5}$

c = -54 9483 19 38 51.7 -54 22.8 19 39 $\overset{6}{17.7}$ -54 49.6

x

c - a = + 63.5 0.0 0.0 +0.2 - 0.2

$\frac{\cos - 54.4}{2}$

.291

+18.5

	x	y	x	y
a	40.0	25.0	45.0	27.5
b	90.1	$\overset{3}{54.6}$	95.1	56.2
n	$\overset{7}{65.5}$	$\overset{2}{40.7}$	$\overset{0}{75.8}$	42.8

x	x	y	y
n-a + 25.7	n-b - 24.4	n-a + 15.2	n-b - 13.4
+ 25.8	- 24.3	+ 15.3	- 13.4
+ 25.75	- 24.35	+ 15.25	- 13.4
+ 26.01	- 24.59	+ 15.40	- 13.53
÷ .288	÷ .288	+ 7.7	- 6.77
+ 90.3	- 85.4		

A 6909 No. 98 (2)^{5m} July 23, 1908

1900 pos. 19 35 20.9 − 54 48.5

a = −55 9$\overset{1}{2}$53 19 31 29.$\overset{6}{7}$ −55 0.1 + 11$\overset{0.8}{1.9}$ = 19 33 2$\overset{0\,4}{1.5}$ + 8.$\overset{1}{1}$ = −54 5$\overset{2\,0}{1.9}$

b = −54 9464 19 34 45.2 −54 42.8 − 8$\overset{4.8}{5.7}$ = 19 33 $\overset{20.4}{19.5}$ − $\overset{8.9}{9.0}$ = −54 51.$\overset{7}{8}$

c = −54 9457 19 33 26.7 −54 5.4 19 33 20.$\overset{4}{5}$ −54 51.$\overset{8}{9}$

α

c − a = + 117.1 0.0 0.0 + 0.2 − 0.1

cos − 54.1 / 2 .293

+ 34.3

	α	y	α	y
a	40.0	12.5	45.0	15.0
b	96.4	46.6	101.3	49.1
n	71.9	28.8	76.9	31.$\overset{3}{2}$

x	x	y	y
n−a + 31.9	n−b − 24.5	n−a + 16.3	n−b − $\overset{1}{4}$7.8
+ 31.9	− 24.4	+ 16.3	− 17.8
+ 31.9	− 24.45	+ 16.3	− 17.8
+ 32.22	− 24.69	+ 16.46	− 17.98
÷ .288	÷ .288	+ 8.23	− 8.99
+ 111.9 ✓	− 85.7 ✓		

Plate A 7443 —

No. ~~Var~~ Neb.	Diff in R.A.	Diff in Dec	No. Var.	Diff in R.A.	Diff in Dec
67	+ 0.2	− 0.1	49	+ 0.2	0.0
71	+ 0.8	+ 0.2	52	+ 3.3	+ 0.2
69	+ 0.4	− 0.1	53	− 0.3	+ 0.2
68	− 0.7	− 0.1	50	+ 0.3	+ 0.3
84	+ 0.9	− 0.1	47	+ 2.0	− 0.2
85	+ 0.9	+ 0.4	57	+ 0.3	− 0.1
94	− 1.4	0.0	58	+ 0.4	0.0
95	+ 0.4	+ 0.2	59	+ 1.6	+ 0.4
89	+ 0.5	+ 0.2	74	+ 1.0	0.0
92	+ 0.4	0.0	76	− 0.[illegible]	+ 0.9
91	− 0.2	+ 0.1	77	− 0.1	+ 0.2
93	+ 1.3	+ 0.2	78	− 0.4	+ 0.1
90	− 0.2	0.0	80	+ 2.0	+ 0.1
96	+ 3.4	+ 0.6	81	+ 0.2	− 0.1
97	+ 0.7	0.0	82	+ 0.8	− 0.2
102	+ 1.1	+ 0.2	83	− 0.1	+ 0.4
101	− 2.2	+ 0.1	88	+ 0.9	+ 0.3
64	+ 1.3	− 1.1	86a	− 0.4	+ 0.1
"	+ 1.3	− 0.1	86	− 1.0	+ 0.1
65	+ 1.7	− 0.1	87	+ 1.6	+ 0.1
75	− 0.2	+ 0.3	✓ 106	+ 0.8	+ 0.2
66	+ 1.0	− 0.1	✓ 105	+ 1.2	+ 0.1
62	+ 0.8	+ 0.1	1.00	+ 0.1	+ 0.1
40	+ 0.7	0.0	(Dup-)✓ [illegible]	[illegible]	[illegible]
Dup 42	+ 2.2	0.0	109	+ 0.4	+ 0.3
"	+ 2.4	+ 0.0	14	+ 0.9	− 0.2
51	+ 0.3	+ 0.1	15	− 0.2	+ 0.1
48	+ 0.1	0.0	12	+ 0.7	+ 0.2

No. ~~Var.~~ Neb.	Diff in R. A.	Diff in Dec.	No Var	Diff in R.A.	Diff in Dec.
3	1.2	1.0	54	0.4	0.0
7	0.6	0.0	72	0.4	0.1
20	0.6	0.1	98	2.1	1.3
21	0.9	0.2	99	1.2	0.2
22	0.8	0.6	2	0.7	0.2
23	0.6	0.2	73	1.0	0.1
24	0.7	0.6	55	0.6	0.1
25	0.8	0.1	56	1.3	0.6
26	0.8	0.0	79	1.5	0.1
17	^{m}1.8	0.0	63 ~~98~~	0.9	0.3
33	1.7	0.2	60	0.8	0.3
34	1.7	0.2	61	0.8	0.1
32	3.1	0.2	45	0.4	0.1
31	2.6	0.1	43	0.5	0.0
35	1.9	0.4	16	0.6	0.0
36	0.6	0.1	41	0.5	0.1
38	0.5	0.4	45 111	2.0	0.3
27	1.6	0.0	a 6909 – 1(e)	1.0	0.1
30 ~~2~~x	0.7.	0.4	2(f)	0.6	0.0
18	0.5	0.0	3(g)	0.2	0.2
19	~~2~~1.4	0.2	4(h)	1.3	0.5
13	0.1	0.3	5(i)	0.7	0.0
11	1.4	0.0	6(j)	0.9	0.1
10	1.4	0.0	7(k)	1.5	0.0
9	1.5	0.2	8(l)	3.8	0.2
8	2.3	0.2	9(m)	1.2	0.0
5	1.1	0.2	10(n)	0.3	0.2
1	0.2	0.1	11(o)	0.3	0.2

" see page 216 for continuation of Plate a 7443

No. neb Var	Dif. in R.A.	Dif. in Dec.	No. neb	Dif. in R.A.	Dif. in Dec.
a 6909			a 7443 - cont.		
12 (p)	2.3	0.0	4	+ 2.4	0.0
13 (q)	2.4	0.2	6	- 3.5	- 2.0
14 (r)	2.3	0.2	44	+ 0.9	+ 0.2
15 (s)	0.9	0.1	70	+ 3.1	- 0.2
16 (t)	1.7	0.2	28	+ 2.5	+ 0.2
17 (u)	0.8	1.0	29	+ 1.0	+ 0.5
18 (v)	0.0	0.2	103	+ 0.8	+ 0.1
19 (w)	0.1	0.1	104	+ 4.3	+ 0.1
20 (x)	1.2	0.0	107	+ 4.0	+ 0.3
21 (y)	0.8	0.1	108	0.0	0.0
22 (z)	2.2	0.0			
23 (a′)	2.2	0.1			
24 (b′)	0.6	0.1			
25 (c′)	0.5	0.1			
26 (d′)	1.8	0.2			
27 (e′)	1.9	0.1			
28 (f′)	0.3	0.3			
29 (g′)	0.4	0.2			
30 (h′)	0.8	0.7			
31 (i′)	+ 5.3	+ 0.4			
32 (j′)	1.3	0.2			
33 (k′)	1.7	0.3			
34 (l′)	1.3	0.4			
35 (m′)	0.2	0.2			
36 (n′)	1.2	0.3			
37 (o′)	0.9	0.2			
38 (p′)	1.0	0.1			

No. Neb.	Dif. in R.A.	Dif. in Dec.	No. Neb.	Dif. in R.A.	Dif. in Dec.
a 6909 cont.					
39 (q″)	0.2	0.1	67 ($\overset{x}{s}$‴)	0.7	0.0
40 (r″)	3.2	0.0	68 (t)	2.2	0.3
41 (s″)	0.1	0.2	69 (u)	1.7	0.0
42 (t″)	1.1	0.4	70 (x)	0.9	0.3
43 (u″)	1.2	0.4	71 ($\overset{*}{w}$)	1.0	0.2
44 (v″)	1.4	0.1	72 ($\overset{y}{x}$)	1.1	0.1
45 (w″)	1.2	0.3	73 $\overset{(z)}{(y)}$	1.1	0.2
46 (x″)	0.3	0.3	74 (z)	3.6	0.2
47 (y″)	0.9	0.1	75 (a^{3v})	1.0	0.4
48 (z″)	2.1	0.1	76 (b)	1.9	0.1
49 (a‴)	2.3	0.1	77 (c)	1.1	0.0
50 (b‴)	1.7	0.3	78 (d)	1.3	0.3
51 (c‴)	0.4	0.9	79 (e)	0.4	0.4
52 (d‴)	1.5	0.2	80 (f)	0.1	0.2
53 (e‴)	0.3	0.2	81 (g)	0.5	0.1
54 (f‴)	0.2	0.2	82 (h)	0.0	0.1
55 (g‴)	0.1	0.1	83 (i)	1.8	0.1
56 (h‴)	1.1	0.1	84 (j)	0.3	0.1
57 (i‴)	1.0	0.2	85 (k)	0.7	0.1
58 (j‴)	1.6	0.0	86 (l)	1.2	0.0
59 (k‴)	0.7	0.2	87 (m)	0.9	0.4
60 (l‴)	1.3	0.2	88 (n)	0.4	0.3
61 (m‴)	0.9	0.1	89 (o)	0.4	0.3
62 (n‴)	0.1	0.2	90 ($\overset{3}{p}$) +	$\overset{0.3}{\cancel{2}.8}$	0.0
63 (o‴)	0.2	0.0	91 (q)	1.8	0.2
64 (p‴)	1.8	0.9	92 (r)	2.5	0.1
65 (q‴)	0.6	0.3	93 ($\overset{*}{s}$)	2.5	0.1
66 (r‴)	0.4	0.2	94 ($\overset{y}{t}$)	0.9	0.3

(no s) x out.

No. obj	Dif. in R. A.	Dif in Dec.
95 (N)	0.5	0.1
96 (m)	0.8	0.3
97 ($\overset{4}{x}$)	1.7	0.2
98 (x)	2.0	0.1