

All-purpose Sight Worksheet

Object:

Date
Time (GMT)

DR / AP	Deg	Min	Sec
N / S			
E / W			

Sight

Sextant reading Deg/Hrs Min Sec

add Index Error + +

subtract Dip Correction = =

= Apparent Altitude

use Apparent Altitude to find the following corrections...

Corrections

add Alt/SD: L / U Limb + +

add Refraction + +

add HP: L / U (Moon only) = =

Rule: Subtract 30' if shooting U

= Height Observed (Ho)

Rule: if LHA > 360, replace result with LHA - 360
Rule: if GHA > 360, replace result with GHA - 360

Almanac Stuff

Dec Deg Min Sec d=
v=

add or subtract? (according to almanac trend) ? ? ?

d Corr = =

Corrected Dec

GHA + +

SHA (star only) + +

v Corr or increment = =

Corrected GHA

LHA Calculations

GHA plus East / minus West

DR / AP Longitude = =

LHA

Advanced Polaris Sight Worksheet

Sight		Deg/Hrs	Min	Sec
Date				
Time (GMT)				
Sextant reading		+	+	+
add	Index Error		-	-
subtract	Dip Correction		=	=
	= Apparent Altitude			

use Apparent Altitude to find the following corrections...

Corrections		+	+	+
add	Alt/SD : Lower Limb		+	+
add	Refraction		=	=
	= Height Observed (Ho)			

use Adjusted Sextant Angle in the next stage...

Almanac Stuff		Deg	Min	Sec
GHA Aries				
Assumed Longitude	<i>add East, subtract West</i>	=	=	=
LHA Aries				

use LHA Aries to find...

LHA Aries Correction		+	+	+
Adj. Sextant Angle <i>(from below left)</i>		=	=	=
= "Lat"		+	+	+
use "Lat" to find...	Lat corr (a1)	=	=	=
= Corrected Lat		+	+	+
use to find...	Month corr (a2)	=	=	=
Almost done!		-1		
magical mystery degree				
= Final Latitude				

Noon Sight Longitude Worksheet

Working in units of Time:

Date	Deg/Hrs	Min	Sec

Time (GMT) of Local Noon

subtract

H/M/S difference from 12:00 GMT

-12

+ - + -

in 24:00 format

may be a negative number

Equation of Time Correction

from Almanac (add if almanac box is grey
subtract if box is plain / white)

=

X 60	X 1	X 1
min	min	sec

condense minutes

= total minutes (in decimal form)

between Local Noon and True Noon

multiply by 15

min	decimal
x 15	x 15

= total minutes of longitude between
current position and Prime Meridian

divide by 60

/ 60	/ 60

= Longitude of Local Noon
(current position)

carry secs and mins into Degrees

Noon Sight Latitude Worksheet

Sight

Date	Deg/Hrs	Min	Sec
Time (GMT)			

Sextant reading + +

add Index Error - -

subtract Dip Correction = =

= Apparent Altitude =

use Apparent Altitude to find the following corrections...

Corrections

add ALWS D : Lower Limb + +

add Refraction + +

= Height Observed (Ho) =

use Adjusted Sextant Angle in the next stage...

Calculations

Sun's GP Altitude 90 00 00

subtract ... Height Observed (from above) =

= Distance from Sun's GP Latitude

add or subtract? (See math table) ? ?

Corrected Dec Sun =

Final Latitude of Observer

Almanac Stuff

Dec Sun Deg Min Sec

add or subtract? (according to almanac trend)

d Corr ? ? ?

Corrected Dec Sun =

Declination Math Table

Hemisphere?	Sun's relation to You?	What do you do with the Dec?
You	Sun	
N	N	Subtract & use abs. value
N	N	Add
N	S	Subtract
S	N	Subtract
S	S	Add
S	S	Subtract & use abs. value

Date & UT of observation		Body	Estimated Latitude & Longitude
h m s			° ' "
Step	Calculate Altitude & Azimuth	Summary of Rules & Notes	
Assumed latitude	Lat = °	Nearest estimated latitude, integral number of degrees.	
Assumed longitude	Long = ° ' "	Choose Long so that LHA has integral number of degrees.	
1. From the almanac: GHA Aries h Increment m s SHA GHA = GHA Aries + SHA Assumed longitude LHA = GHA + Long	Dec = ° ' "	Record the Dec for use in Step 3.	
	= ° ' "	Needed if using SHA. Tabular value for minutes and seconds of time.	
	SHA = ° ' "		
	GHA = ° ' "	Remove multiples of 360°.	
	Long = ° ' "	West longitudes are negative.	
	LHA = °	Remove multiples of 360°.	
2. Reduction table, 1 st entry (Lat, LHA) = (°, °) record A, B and Z ₁ .	A = ° ' " A° = ° A' = ' "	nearest whole degree of A. minutes part of A.	
	B = ° ' " Z ₁ = ° ' "	B is minus if 90° < LHA < 270°. Z ₁ has the same sign as B.	
3. From step 1 F = B + Dec	Dec = ° ' "	Dec is minus if contrary to Lat.	
	F = ° ' "	Regard F as positive until step 7.	
	F° = ° F' = ' "	nearest whole degree of F. minutes part of F.	
4. Reduction table, 2 nd entry (A°, F°) = (°, °) record H, P and Z ₂ .	H = ° ' " P° = ° Z ₂ = ° ' "	nearest whole degree of P.	
	5. Auxiliary table, 1 st entry (F', P°) = (' , °) record corr ₁	corr ₁ = ' "	corr ₁ is minus if F < 90° & F' > 29', or if F > 90° & F' < 30'.
6. Auxiliary table, 2 nd entry (A', Z ₂ °) = (' , °) record corr ₂		corr ₂ = ' "	Z ₂ ° nearest whole degree of Z ₂ . corr ₂ is minus if A' < 30'.
	7. Calculated altitude = H _C = H + corr ₁ + corr ₂	H _C = ° ' "	H _C is minus if F is negative, and object is below the horizon.
8. Azimuth, 1 st component 2 nd component Z = Z ₁ + Z ₂	Z ₁ = ° Z ₂ = ° Z = °	Z ₁ has the same sign as B. Z ₂ is minus if F > 90°. If F is negative, Z ₂ = 180° - Z ₂ Ignore the sign of Z.	
	True azimuth Z _N = °	N Lat: If LHA > 180°, Z _N = Z, or if LHA < 180°, Z _N = 360° - Z, S Lat: If LHA > 180°, Z _N = 180° - Z, or if LHA < 180°, Z _N = 180° + Z.	

©HMNAO

For use with *The Nautical Almanac's* Concise Sight Reduction Tables pages 284-318.

Copyright Council for the Central Laboratory of the Research Councils 2005

