

(0)

LoP = _____

Dec ____°__' (N/S)

GHA ____°__'

iteration #0

Lat_{AP} ____°__' (N/S)
Lon_{AP} ____°__' (E/W)

iteration #1

Lat_{AP} ____°__' (N/S)
Lon_{AP} ____°__' (E/W)

iteration #2

Lat_{AP} ____°__' (N/S)
Lon_{AP} ____°__' (E/W)

(1) LHA = GHA + Lon_{AP}

GHA ____°__'
± Lon_{AP} ____°__'
= t ____°__'
± 360°00'
LHA = ____°__'

GHA ____°__'
± Lon_{AP} ____°__'
= t ____°__'
± 360°00'
LHA = ____°__'

GHA ____°__'
± Lon_{AP} ____°__'
= t ____°__'
± 360°00'
LHA = ____°__'

+ for East, - for West

If t < 0°

LHA = t + 360°

if t > 360°

LHA = t - 360°

if 0° < t < 360°

LHA = t

(2)

		0° < LHA < 90°	90° < LHA < 180°	180° < LHA < 270°	270° < LHA < 360°
	H = LHA	H = 180° - LHA	H = LHA - 180°	H = 360° - LHA	
	LHA ____°__'	179°60'	LHA ____°__'	359°60'	LHA ____°__'
	= H ____°__'	- LHA ____°__'	- 180°00'	- LHA ____°__'	= H ____°__'
		= H ____°__'	= H ____°__'		
If H < 1° or H > 89° choose Lon _{AP} to bring H within the 1°~89° range					
Lat _{AP} and Dec	same name	+W	-W	-W	+W
	contrary name	-W	-W	-W	-W

If Dec < 1° set W = Dec skipping tan(Dec)/cos(H) division

(3) tan(W) = tan(Dec) / cos(H)

cos	cotan
set 0°	set Dec
set H	read W

If Lat_{AP} < 1° assume Lat_{AP} = 1°

(3a) X = 90° - Lat_{AP} ± W

89°60'
- Lat_{AP} ____°__'
(PD) = ____°__'
± W ____°__'
= X ____°__'

X	< 90°	< X
Y = X	Y = 180° - X	
X ____°__'	179°60'	X ____°__'
= Y ____°__'	- X ____°__'	= Y ____°__'

If Y > 89° choose Lat_{AP} to make Y < 89°

(4) tan(Az) = cos(W) · tan(H) / cos(Y)

cos	cotan
set W	set H
set Y	read Az

Compute Z_n from Az .

Azimuth rules		0°	$<$	LHA	$<$	180°	$<$	LHA	$<$	360°	
Lat _{AP} N	$X < 90^\circ$	$Z_n = Az + 180^\circ$					$Z_n = 180^\circ - Az$				
		Az					179°60'				
		+		180°00'				- Az			
		=	Zn				=	Zn			
$X > 90^\circ$	$Z_n = 360^\circ - Az$					$Z_n = Az$					
				359°60'			Az				
		- Az					= Zn				
		= Zn									
Lat _{AP} S	$X < 90^\circ$	$Z_n = 360^\circ - Az$					$Z_n = Az$				
					359°60'			Az			
		- Az					= Zn				
		= Zn									
$X > 90^\circ$	$Z_n = Az + 180^\circ$					$Z_n = 180^\circ - Az$					
	Az					179°60'					
	+		180°00'				- Az				
	=	Zn				=	Zn				

(5)

if $Az < 85^\circ$ and $Lat_{AP} > 1^\circ$

(5a) $\tan(Hc) = \cos(Az) \cdot \tan(Y)$

cos	cotan
set Az	set Y
set 0°	read Hc

Use Z_n and Hc for LoP.
Done.

if $Az > 85^\circ$ or $Lat_{AP} < 1^\circ$

if $Lat_{AP} < 1^\circ$ set $W = Lat_{AP}$ skipping $\tan(Lat_{AP})/\cos(H)$ division

(5b) $\tan(W) = \tan(Lat_{AP}) / \cos(H)$

cos	cotan
set 0°	set Lat_{AP}
set H	read W

If $Dec < 1^\circ$ assume $Dec = 1^\circ$

(5c) $X = 90^\circ - Dec \pm W$

	89°60'
- Dec	
=	
$\pm W$	
= X	

X	$<$	90°	$<$	X
		Y = X		Y = 180° - X
X				179°60'
= Y				- X
				= Y

(5d) $\tan(Az^*) = \cos(W) \cdot \tan(H) / \cos(Y)$

Do not use Az^* for LoP but calculate Hc from it.

(5e) $\tan(Hc) = \cos(Az^*) \cdot \tan(Y)$

cos	cotan
set Az^*	set Y
set 0°	read Hc

Use Az from (4) and Hc from (5e) for LoP.
Done.