

INTERCEPT (a) and AZIMUTH (Zn) with HP PROGRAMABLE CALCULATOR

A Celestial Sight Reduction Program for the HP15C Calculator

Also works on HP11C with minor change to line 048 as shown

Enter angles as D.mmss (Degrees.MinutesSeconds), Negative (-) if South

For Example, Enter 5° 30.1' S as -5.3006

Test Data

LHA 28.2724 ENTER
 Lat 45 ENTER
 Dec 6.5748 ENTER
 Ho 44.4606 fA

Program flashes "running" for ~ 15 seconds, then displays:

Zn 221.7 degrees True

Press x-y exchange:

x <-> y

a (+Away -To) -6.9 nautical miles, Towards GP of celestial body

```
#####
##                                     ##
## LICENSE GRANT and SOURCE CODE      ##
##                                     ##
## Copyright Craig A. Smith 1990, 2012 ##
##                                     ##
## This program is free software: you can redistribute it and/or modify      ##
## it under the terms of the GNU General Public License as published by      ##
## the Free Software Foundation, either version 3 of the License, or        ##
## (at your option) any later version.                                       ##
##                                     ##
## This program is distributed in the hope that it will be useful,          ##
## but WITHOUT ANY WARRANTY; without even the implied warranty of          ##
## MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the          ##
## GNU General Public License for more details.                             ##
##                                     ##
## You should have received a copy of the GNU General Public License        ##
## along with this program. If not, see <http://www.gnu.org/licenses/>.    ##
##                                     ##
#####
```

Step	code(s)	Key(s)	Comment - see Instructions tab
001	42,21,11	f LBL A	
002	43 2	g ->H	H.MS -> H
003	44 4	STO 4	Ho
004	33	R ↓	
005	43 2	g ->H	H.MS -> H
006	44 3	STO 3	Dec
007	33	R ↓	
008	43 2	g ->H	H.MS -> H
009	44 2	STO 2	Lat
010	33	R ↓	
011	43 2	g ->H	H.MS -> H
012	44 1	STO 1	LHA
013	24	COS	
014	45 2	RCL 2	

015 24	COS	
016 45 3	RCL 3	
017 24	COS	
018 20	x	
019 20	x	--- 1 ---
020 45 2	RCL 2	
021 23	SIN	
022 45 3	RCL 3	
023 23	SIN	
024 20	x	--- 2 ---
025 40	+	--- 3 ---
026 43 23	g SIN -1	
027 44 5	STO 5	Hc
028 45 3	RCL 3	
029 23	SIN	--- 4 ---
030 45 2	RCL 2	
031 23	SIN	
032 45 5	RCL 5	
033 23	SIN	
034 20	X	--- 5 ---
035 30	-	--- 6 ---
036 45 2	RCL 2	
037 24	COS	
038 45 5	RCL 5	
039 24	COS	
040 20	X	--- 7 ---
041 10	÷	--- 8 ---
042 43 24	g COS -1	
043 44 6	STO 6	Zc
044 1	1	
045 8	8	
046 0	0	
047 45 1	RCL 1	LHA
048 43,30, 8	g x < y	TEST 8
049 32 1	GSB 1	true
050 45 5	RCL 5	else
051 45 4	RCL 4	
052 30	-	--- a ---
053 6	6	
054 0	0	
055 20	x	
056 45 6	RCL 6	
057 43 32	g RTN	
058 42,21, 1	f LBL 1	Subroutine
059 3	3	
060 6	6	
061 0	0	
062 45 6	RCL 6	
063 30	-	
064 44 6	STO 6	
065 43 32	g RTN	

For HP11C
f x < y