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**

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          For HP11C
048 43,30, 8  g  x < y   TEST 8       f  x < y
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
```