

User Guide for TI-84 Plus Programmed for Sight Reduction Using Law of Cosines Method

INSTRUCTIONS: Key in latitude (**T**), local hour angle (**A**), & declination (**D**) of the body converted to 5 place rounded decimal degrees (per USPS ED SR 96a Form). Enter latitude as a positive number. **If latitude and declination have contrary names enter the declination as a negative number.** Execute the **NAVSR** program to calculate the altitude of the body (**H**) and the azimuth angle (**Z**).

EXAMPLE: DR latitude = **47.59667 N**, local hour angle of the body = **302.19500** and the declination of the body = **3.29500 S**

- ❑ First turn on the calculator and clear the display by pressing the **ON** key then press the **CLEAR** key. You are now ready to enter the data for declination of the body, local hour angle of the body, and the DR latitude.
- ❑ Enter the declination of the body: Press the minus (-) key, then key in **3.29500** and pres the **STO->** key followed by the **ALPHA** key, and the **D** key. Now press the **ENTER** key.
- ❑ Enter the local hour angle: Key in **302.19500** and pres the **STO->** key followed by the **ALPHA** key, and the **A** key. Now press the **ENTER** key.
- ❑ Enter the latitude of your DR: Key in **47.59667** then pres the **STO->** key followed by the **ALPHA** key, and the **T** key. Now press the **ENTER** key.

The calculator display should appear as follows:

-3.29500
302.19500
47.59667

You are now ready to calculate the computed altitude of the body by executing the **NAVSR** program. Press the **PRGM**. Now verify **EXEC** is highlighted and **1:NAVSR** is displayed. Now press the **ENTER** key. The value of **H** will be displayed as **18.4367127481** and the value of **Z** will be displayed as **117.057631619**.

The calculator display should appear as follows:

prgmNAVSR
18.4367127481
117.057631619
Done

Program Listing

PROGRAM:NAVSR

:Degree

:sin-1((cos(A)*cos(T)*cos(D)) +(sin(T)*sin(D)))->H

:Disp H

:cos-1((sin(DE- (sin(T)*sin(H)))/(cos(T)*cos(H)))->Z

:Disp Z

:Stop

:End