

## Data Regression on the TI nSpire – for Trigonometry Solar Eclipse Lab

Enter your data:

From the home screen (top right “on” button with a house), select “Lists and Spreadsheets.”

Name your columns: Replace Letters A, B, etc. with descriptive names for each column of data (“years” “degrees”); press “enter” key after typing each name

So you don’t have to manually enter every number in column with data that increases incrementally by hand, you can generate a sequence to describe the data.

In cell A1, go to: menu → 3 data → 1 generate sequence

Example: If independent variable corresponds to years with values -10000, -9000, -8000, -7000, ..., 10000

Formula  $u(n) = 1000n - 11000$

Initial terms: -10000

n0: 1

nMax: 21

nStep: 1

Ceiling Value: <leave blank>

Hit “OK”

Manually enter all the dependent variable data in column B

To generate a scatter plot of your data:

From your data spreadsheet, press the “doc” button (top right, below home/on key)

Select: 4 insert → 4 graphs → press “menu” button → 3 graph edit/entry → 6 scatter plot

Use the “var” button (above the 9 key) to select your data column, e.g. years for x and degrees for y.

So you can see your scatterplot, press “menu” → 4 window/zoom → 1 Window Settings

Set Xmin to -10000, Xmax to 10000, Xscale to 2000, Ymin to 22.4, Ymax to 24.4, Yscale to 0.2 so data matches handout.

To find an equation that fits this data:

Go to data table, and click in a cell that does not contain any data (e.g. C1)

Press menu → 4 statistics → 1 stat calculations → C sinusoidal regression

Delete anything in X list and Y list boxes and replace X with “years” and Y with “degrees” by using the arrow to select these from the drop-down box (it doesn’t work if you type it in)

Set Iterations to 16

Set period to the smallest interval of x-values over which your function repeats itself (year 0 minus year the degrees reach their maximum) \* 4