

Sine Regression on a TI-83 or TI-84

To do the Sine Regression described on p. 163 of the MATH 1316 text:

1. Press $\boxed{Y=}$ and clear all the functions Y_1 through Y_0 .
2. Press $\boxed{\text{STATPLOT}}$ ($\boxed{2\text{nd}}$ followed by $\boxed{Y=}$).
3. On the StatPlots screen press $\boxed{1}$.
4. Under Plot1, select $\boxed{\text{On}}$, after Type select $\boxed{\text{drawing of disconnected dots}}$, after Xlist: put L_1 ($\boxed{2\text{nd}}$ followed by $\boxed{1}$), after Ylist: put L_2 ($\boxed{2\text{nd}}$ followed by $\boxed{2}$), after Mark select $\boxed{\text{drawing of open circles}}$.
5. Press $\boxed{\text{STAT}}$. With EDIT highlighted, press $\boxed{1}$ to Edit.
6. In the table that appears, under L_1 , type the values of x (the month numbers 1 through 12 in the example) and under L_2 , type the values of y (the corresponding temperatures).
7. Set the WINDOW appropriately for the values of x and y . Then press $\boxed{\text{GRAPH}}$ to see a plot of your ordered pairs.
8. Press $\boxed{\text{STAT}}$. Press the right arrow key $\boxed{\rightarrow}$ to highlight CALC. Then scroll down (off the originally visible list of options) until you have highlighted SinReg. Instead of scrolling down to SinReg you can also get there by typing the letter C ($\boxed{\text{ALPHA}}$ followed by $\boxed{\text{PRGM}}$).
9. After the word SinReg, which should now be on the screen, enter L_1 ($\boxed{2\text{nd}}$ followed by $\boxed{1}$), then type a comma (it's just above the $\boxed{7}$ key), then enter L_2 ($\boxed{2\text{nd}}$ followed by $\boxed{2}$), then type another comma, and then enter Y_1 (press $\boxed{\text{VAR}}$, then select $\boxed{\text{Y-VARS}}$, then select $\boxed{\text{FUNCTION}}$, and then select $\boxed{\text{Y1}}$). Your screen should now read:
SinReg L_1, L_2, Y_1
10. Press $\boxed{\text{ENTER}}$ and the calculator determines and displays the values for a , b , c , and d in the function $f(x) = a\sin[b(x - d)] + c$ that fits the given data best.
11. Press $\boxed{\text{GRAPH}}$ to see the sine regression function plotted along with your scatter plot.