How do I perform logarithmic regression on a TI-84 calculator?

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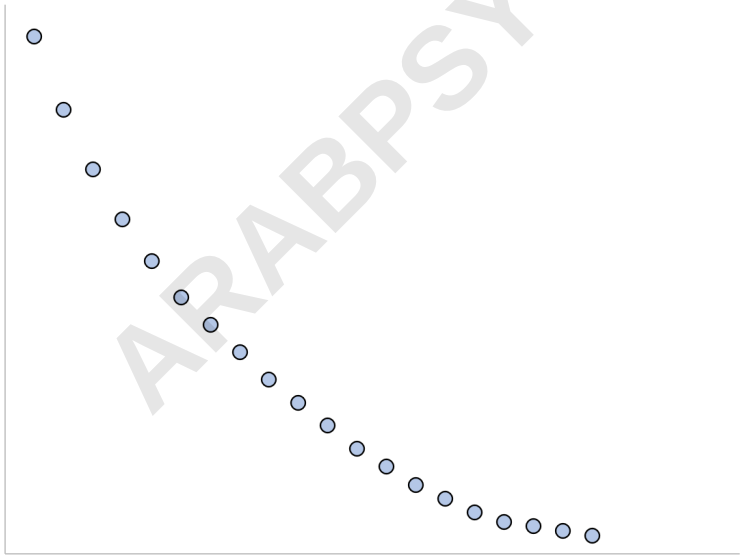
Logarithmic regression is a statistical technique used to model data that follows a logarithmic pattern. It is commonly used in various fields such as finance, biology, and engineering. If you have a TI-84 calculator, you can easily perform logarithmic regression to find the best-fitting logarithmic equation for your data. This process involves entering your data into the calculator, selecting the appropriate regression model, and interpreting the results to determine the accuracy of the model. By following a few simple steps, you can utilize the logarithmic regression feature on your TI-84 calculator to efficiently analyze and model your data.

Perform Logarithmic Regression on a TI-84 Calculator

Logarithmic regression is a type of regression used to model situations where growth or decay accelerates rapidly at first and then slows over time.

For example, the following plot demonstrates an example of logarithmic decay:



For this type of situation, the relationship between a predictor variable and a could be modeled well using

logarithmic regression.

The equation of a logarithmic regression model takes the following form:

y = a + b*ln(x)

where:

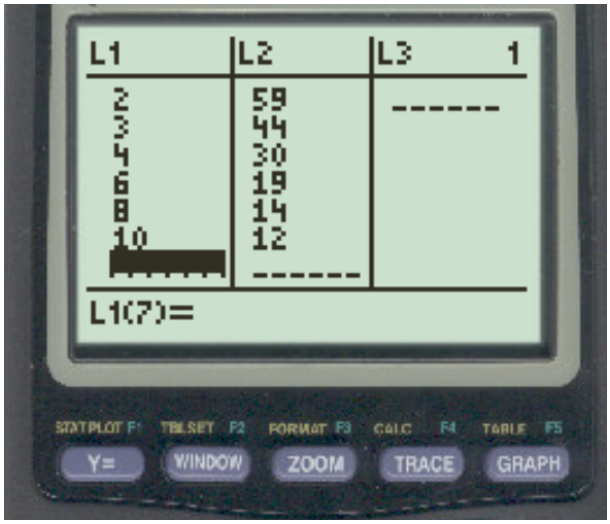
y: The response variable
x: The predictor variable
a, b: The regression coefficients that describe the relationship between *x* and *y*

The following step-by-step example shows how to perform logarithmic regression on a TI-84 calculator for the following dataset:

x	y
2	59
3	44
4	30
6	19
8	14
10	12

Step 1: Enter the Data

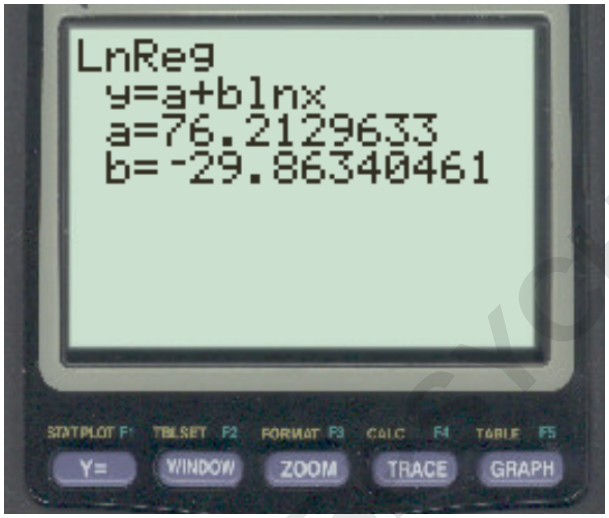
First, we will enter the data values. Press STAT, then press EDIT. Then enter the x-values of the dataset in column L1 and the y-values in column L2:



Step 2: Fit the Logarithmic Regression Model

Next, we fill fit the logarithmic regression model.

Press Stat, then scroll over to CALC. Then scroll down to LnReg and press ENTER twice.



Step 3: Interpret the Results

We can use the coefficients in the output to write the following fitted logarithmic regression equation:

y = 76.21296 - 29.8634 * ln(x)

We can use this equation to predict the response

variable, *y*, based on the value of the predictor variable, *x*. For example, if *x* = 8, then we would predict that *y* would be 14.11:

y = 76.21296 - 29.8634 * ln(8) = 14.11

Bonus: Feel free to use this online to automatically compute the logarithmic regression equation for a given predictor and response variable.