How do you perform exponential regression on a TI-84 calculator?

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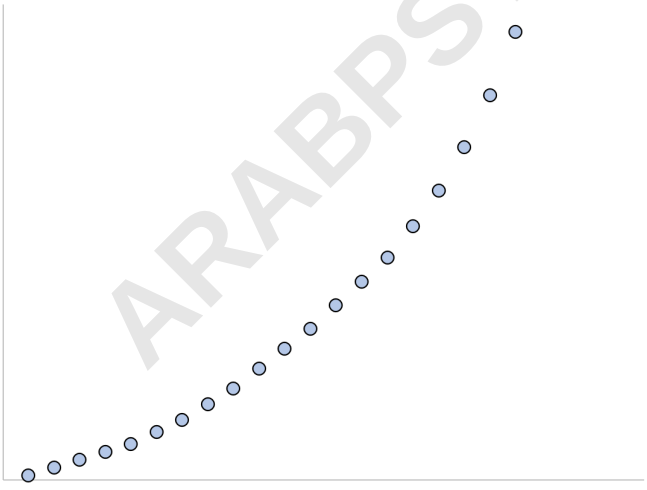
April 29, 2024

Exponential regression is a statistical method used to find the best-fit exponential curve for a given set of data points. This technique is commonly used in various fields such as finance, engineering, and science to analyze trends and make predictions. On a TI-84 calculator, exponential regression can be performed by using the built-in function "ExpReg". This function utilizes the least squares method to determine the parameters of the exponential equation (y = ab^x) that best fits the data. The calculator then displays the values of a and b, as well as the coefficient of determination (r^2) which indicates the goodness of fit for the regression. By following a few simple steps, users can easily perform exponential regression on a TI-84 calculator and obtain valuable insights from their data.

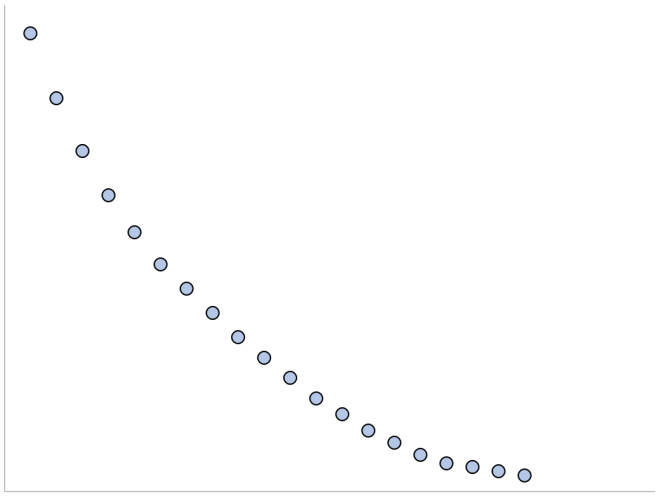
Perform Exponential Regression on a TI-84 Calculator

Exponential regression is a type of regression that can be used to model the following situations:

1. Exponential growth: Growth begins slowly and then accelerates rapidly without bound.



2. Exponential decay: Decay begins rapidly and then slows down to get closer and closer to zero.



The equation of an exponential regression model takes the following form:

y = abx

where:

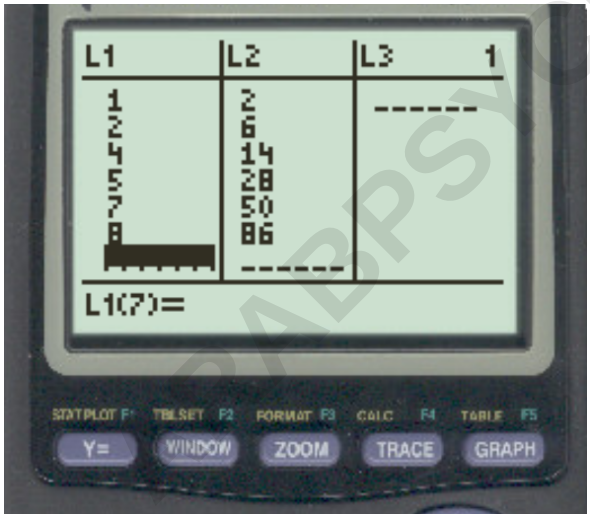
y: The response variablex: The predictor variablea, b: The regression coefficients that describe the relationship between *x* and *y*

The following step-by-step example shows how to fit an exponential regression model to the following dataset on a TI-84 calculator:

x	y
1	2
2	6
4	14
5	28
7	50
8	86

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 Exponential Regression Model

Next, we fill fit the exponential regression model.

Press Stat, then scroll over to CALC. Then scroll down

to ExpReg and press ENTER twice.

The following results will be displayed:

Step 3: Interpret the Results

From the results we can see that the fitted exponential model is:

y = 1.727 * 1.651x

We can use this equation to predict the response variable, *y*, based on the value of the predictor variable, *x*. For example, if *x* = 4, then we would predict that *y* would be 12.83:

y = 1.727 * 1.6514 = 12.83

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