

Quadratic Regression

College Algebra

Outline

- Finding a Quadratic Regression Equation
- Example

Finding a Quadratic Regression Equation

How To – Do Quadratic Regression

1. Type “STAT” and go to “1:Edit...”.
2. Enter the values of the inputs in “L1” and the matching values of the outputs in “L2”.
3. Type “STAT”, to right to “CALC”, and go to “5:QuadReg”.
4. Press “ENTER” or go to “CALCULATE” depending on the calculator.

Example

Example 1

The table to the right shows the average fuel economy, in miles per gallon, of all automobiles in the U.S. as a function of the year.

Year	Average MPG
1940	14.8
1950	13.9
1960	13.4
1970	13.5
1980	15.5
1986	18.3

Source: Earth Algebra, Schaufele and Zumoff

Example 1a

Find a quadratic regression equation where A is the average fuel economy and t is years after 1940.

Example 1b

Use the regression equation to predict the average fuel economy in 1994.

Example 1c

Use the regression equation to predict the years after 1940 when the average fuel economy reached 25 mpg.