

Polynomial Fitting (POLYFIT)

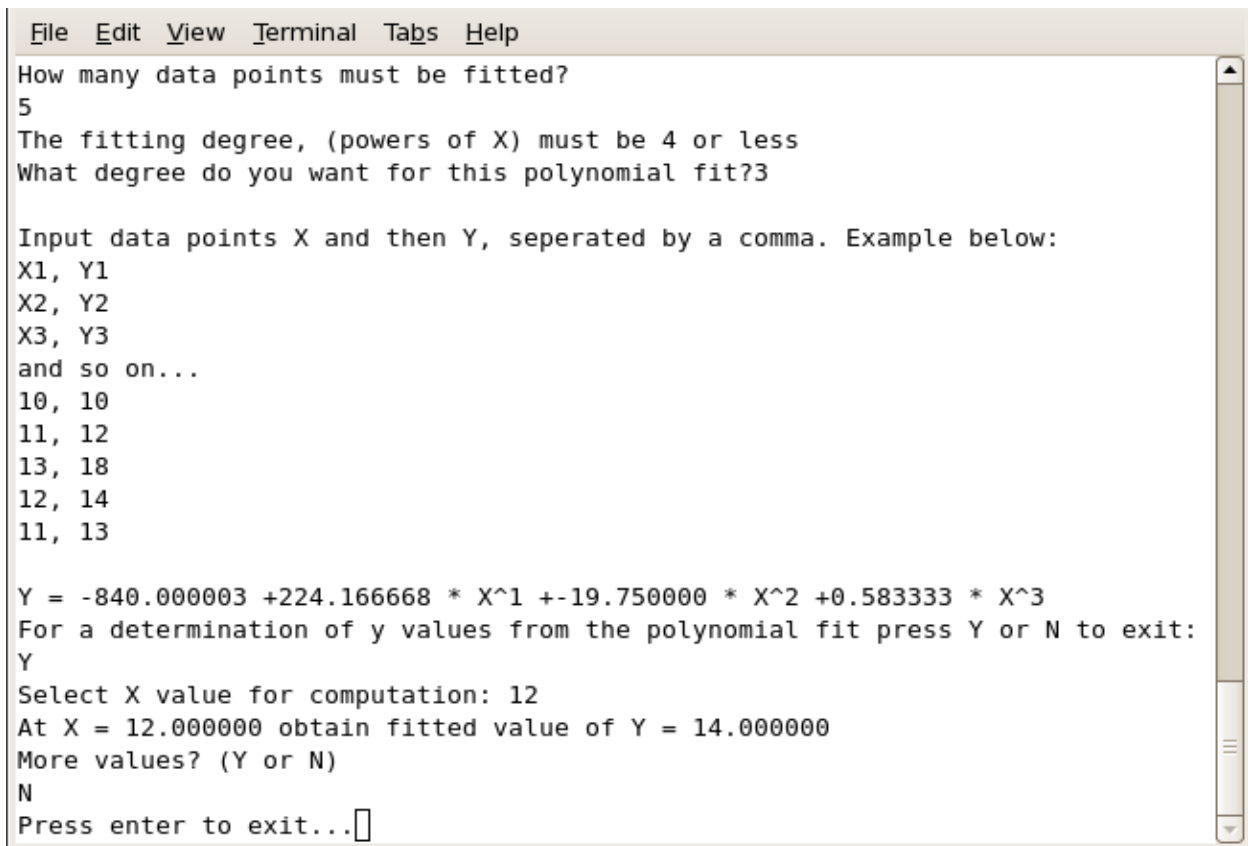
The POLYFIT program creates a polynomial equation (see Appendix A, Section 1) portrayal of data points (independent variable X, dependent variable Y). Such useful representations of related phenomena have the form:

$$Y = c + a_1X + a_2X^2 + a_3X^3 + \dots + a_n X^n$$

C, a^1 , a^2 , a^3 , ... a^n are constants, and the "degree" of the polynomial, n, is at least two less than the number of data points. To run the program, insert the disk into the computer drive bay, set the computer for that drive, and enter POLYFIT. Answer the questions regarding the number of data points and desired degree of the fitting. Then enter the pairs of points, X and Y, separated by a comma. The program gives the values of the constant and the polynomial coefficients.

Also, an opportunity is provided to use the polynomial to determine any Y value for a given X.

An example screen is shown below:



```
File Edit View Terminal Tabs Help
How many data points must be fitted?
5
The fitting degree, (powers of X) must be 4 or less
What degree do you want for this polynomial fit?3

Input data points X and then Y, seperated by a comma. Example below:
X1, Y1
X2, Y2
X3, Y3
and so on...
10, 10
11, 12
13, 18
12, 14
11, 13

Y = -840.000003 +224.166668 * X^1 + -19.750000 * X^2 +0.583333 * X^3
For a determination of y values from the polynomial fit press Y or N to exit:
Y
Select X value for computation: 12
At X = 12.000000 obtain fitted value of Y = 14.000000
More values? (Y or N)
N
Press enter to exit...□
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