

# RE: Regression results

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- *From:* David <[David@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx](mailto:David@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx)>
  - *Date:* Mon, 24 Apr 2006 06:07:02 -0700
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Hi Again Jerry,

What I am recording are weekly closes of stocks and the precision displayed is to the 100ths. And it is graphed based on the time line of a week. I do not know what orthogonal polynomials are, so I would not know how to implement that, but the 6th degree polynomial that is displayed appears very good to me. My understanding is that it is based on a least squares and that the numbers are so large that Excel has a difficult time calculating out as far as the equation requires? Thank again for your help.

—

David

"Jerry W. Lewis" wrote:

How widely spaced are these 375 x-values?

If the x-values are 1,2,3,... then fitting a 6th degree polynomial is a very difficult problem numerically (condition number ~3E31). The direct algorithm used by LINEST prior to 2003 would likely produce meaningless results. The chart trendline and LINEST might be accurate to a few figures, but the problem could be challenging for them as well. To reliably fit a problem this numerically difficult, you might need a package that uses quadruple precision (I don't know of any statistics programs that do) or arbitrary precision (cf.

<http://groups.google.com/group/microsoft.public.excel.programming/msg/d2fdea49d5c999a7> ). You could probably do this in double precision by fitting orthogonal polynomials, assuming that the x-values themselves are really accurate enough to be worth the effort.

Your mention of "the formula provided by the graph" raises another issue: while the chart trendline (unchanged with 2003) has always been quite good numerically (better than almost all dedicated statistical packages, except where they fit by orthogonal polynomials), by default very few figures of this high quality fit get displayed on the graph. You need to right click on the equation and change the numeric format to display scientific notation with 14 decimal places.

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Jerry

"David" wrote:

Hi Jerry,

I usually have somewhere around 375 data points, which goes up by 1 each week, as I am tracking a stock closing, but only on a weekly basis. Yes, it is the 6th degree polynomial that I add to the graph. I tried to figure out the individual data points represented by the graph, using the formula provided by the graph, but the "point" was not very accurate and I am given the understanding that this was due to rounding errors and the precision of Excel, prior to Office 2003.

Maybe this has all changed? I had also run across a third party add-on that was claiming to have increased the accuracy, but did not purchase it and have not heard anyone else mention it or vouch for it. But if I could find a way to figure out the individual points represented by the graph, I would be interested in doing that.

Thanks for your help.

—

David

"Jerry W. Lewis" wrote:

If by "6th degree", you mean a 6th degree polynomial, then you should be concerned about whether you have sampled a wide enough range of data to be able to reliably estimate the parameters. Even with independent parameters and/or adequate data range, validation of the formula could be interesting. Remember the famous quote of von Neumann "With four parameters I can fit an elephant, and with five I can make him wiggle his trunk."

Jerry

"David" wrote:

I just started reading your thread and have become interested. I was at one

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time trying to create data points from an analysis of Stock closings, that are represented by a regression (6th degree) line. I was not able to use the formula supplied in previous versions of Excel, prior to Ver 2003. But I would be interested in trying this again, since i have the new version. I would like to actually create data points as respresented by the regression line, fi that is possible?

Thanks,

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David