

How can I fit a polynomial curve in Excel step-by-step?

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Fitting a polynomial curve in Excel is a simple and efficient way to analyze data and make predictions. This process involves finding the best mathematical equation that fits the data points on a scatter plot. By following a few steps, you can easily fit a polynomial curve in Excel. First, organize your data into two columns: the x-values and the corresponding y-values. Next, insert a scatter plot chart and add a trendline. Then, select the polynomial trendline option and choose the degree of polynomial you want. Finally, adjust the display options, such as the equation and R-squared value, to see the accuracy of the curve. By following these steps, you can effectively fit a polynomial curve in Excel and utilize it for data analysis and forecasting.

Fit a Polynomial Curve in Excel (Step-by-Step)

You can use the LINEST() function in Excel to fit a polynomial curve with a certain degree.

For example, you can use the following basic syntax to fit a polynomial curve with a degree of 3:

=LINEST(known_ys, known_xs^{1, 2, 3})

The function returns an array of coefficients that describes the polynomial fit.

The following step-by-step example shows how to use this function to fit a polynomial curve in Excel.

Step 1: Create the Data

First, let's create some data to work with:

	A	B	C	D	E	F	G	H
1	x	y						
2		2	30					
3		3	34					
4		4	30					
5		5	22					
6		6	18					
7		1	24					
8		7	19					
9		8	20					
10		9	22					
11		10	25					
12		11	28					
13		12	31					
14		13	32					
15		14	37					
16		15	43					
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Step 2: Fit a Polynomial Curve

Next, let's use the **LINEST()** function to fit a polynomial curve with a degree of 3 to the dataset:

	A	B	C	D	E	F	G	H
1	x	y						
2	2	30		=LINEST(B2:B16, A2:A16^{1,2,3})				
3	3	34						
4	4	30						
5	5	22						
6	6	18						
7	1	24						
8	7	19						
9	8	20						
10	9	22						
11	10	25						
12	11	28						
13	12	31						
14	13	32						
15	14	37						
16	15	43						
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Step 3: Interpret the Polynomial Curve

Once we press ENTER, an array of coefficients will appear:

	A	B	C	D	E	F	G	H
1	x	y						
2	2	30		0.021828	-0.22395	-0.60841	30.09158	
3	3	34						
4	4	30						
5	5	22						
6	6	18						
7	1	24						
8	7	19						
9	8	20						
10	9	22						
11	10	25						
12	11	28						
13	12	31						
14	13	32						
15	14	37						
16	15	43						
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Using these coefficients, we can construct the following equation to describe the relationship between x and y:

$$y = .0218x^3 - .2239x^2 - .6084x + 30.0915$$

We can also use this equation to calculate the expected value of y, based on the value of x.

$$y = .0218(4)^3 - .2239(4)^2 - .6084(4) + 30.0915 = 25.47$$