

# How can I add a polynomial trendline in Excel?

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## RECOMMENDED CITATION

stats writer (2024). *How can I add a polynomial trendline in Excel?*. PSYCHOLOGICAL SCALES. Retrieved from <https://scales.arabpsychology.com/?p=146591>

To add a polynomial trendline in Excel, first select the data points and then click on the "Insert" tab. Next, click on "Charts" and select "Scatter," followed by "Scatter with Smooth Lines and Markers." Then, right-click on any data point and select "Add Trendline." In the "Format Trendline" options, choose "Polynomial" as the type of trendline. Finally, select the desired degree for the polynomial and click "Close." The polynomial trendline will now be added to the chart.

## Add a Polynomial Trendline in Excel (With Example)

**A polynomial trendline is a type of trendline that can capture a non-linear relationship between two variables.**

**The following step-by-step example shows how to calculate and interpret a polynomial trendline for a dataset in Excel.**

### Step 1: Create the Data

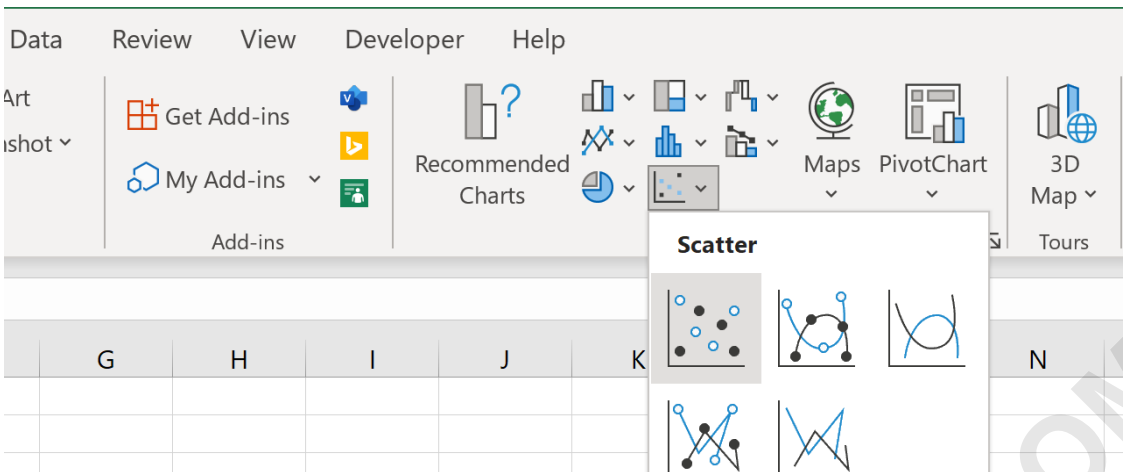
**First, let's create the following dataset in Excel:**

	A	B	C	D	E	F
1	<b>x</b>	<b>y</b>				
2	1	4				
3	2	7				
4	3	10				
5	4	12				
6	5	14				
7	6	10				
8	7	7				
9	8	7				
10	9	9				
11	10	13				
12	11	18				
13	12	26				
14	13	36				
15	14	49				
16						
17						
18						
19						

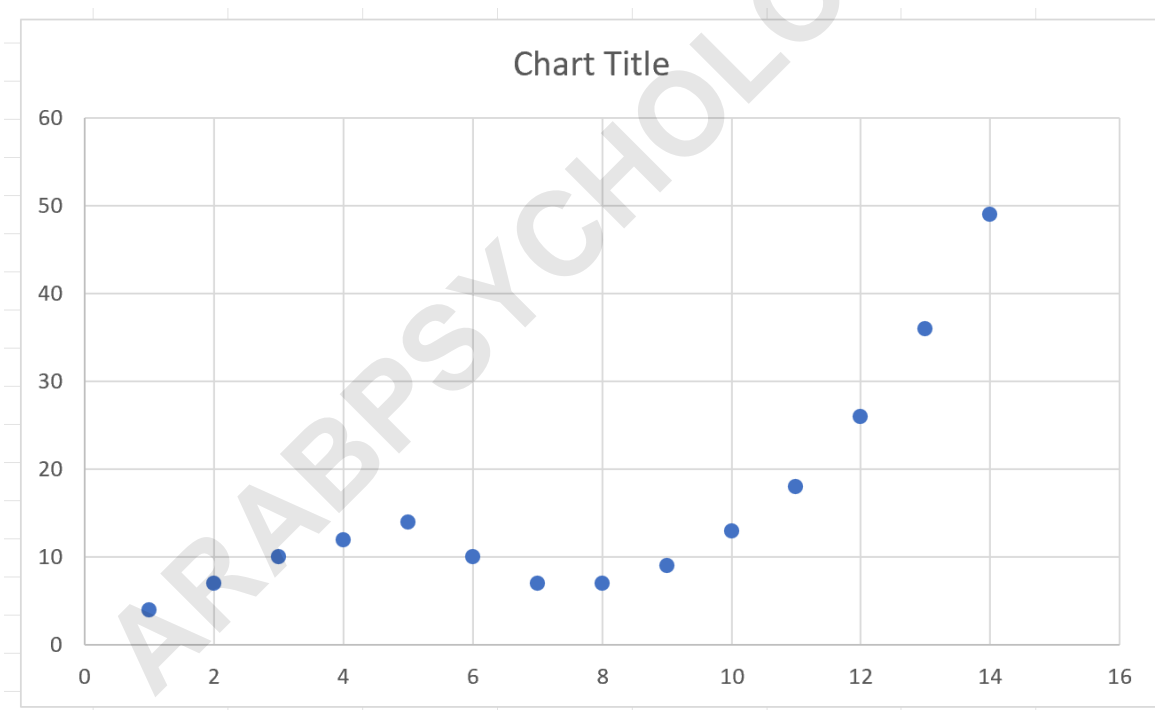
## Step 2: Insert Scatter Plot

Next, we will insert a scatter plot to visualize the relationship between the two variables in our dataset.

To do so, highlight the cell range A2:B15, then click the Insert tab along the top ribbon, then click the Scatter icon within the Charts group:



**The following scatter plot will automatically appear:**



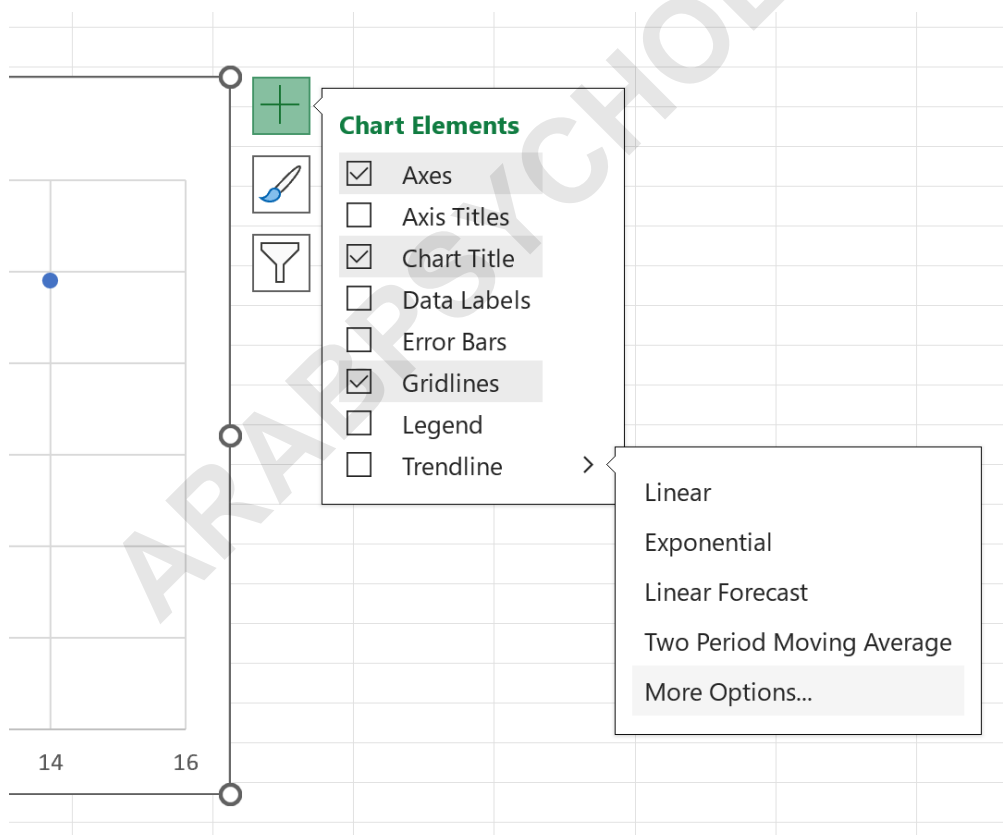
**Just from looking at the plot we can tell that the two variables in our dataset do not have a linear relationship.**

**Thus, a polynomial trendline would likely do a better job of capturing the relationship between the two variables.**

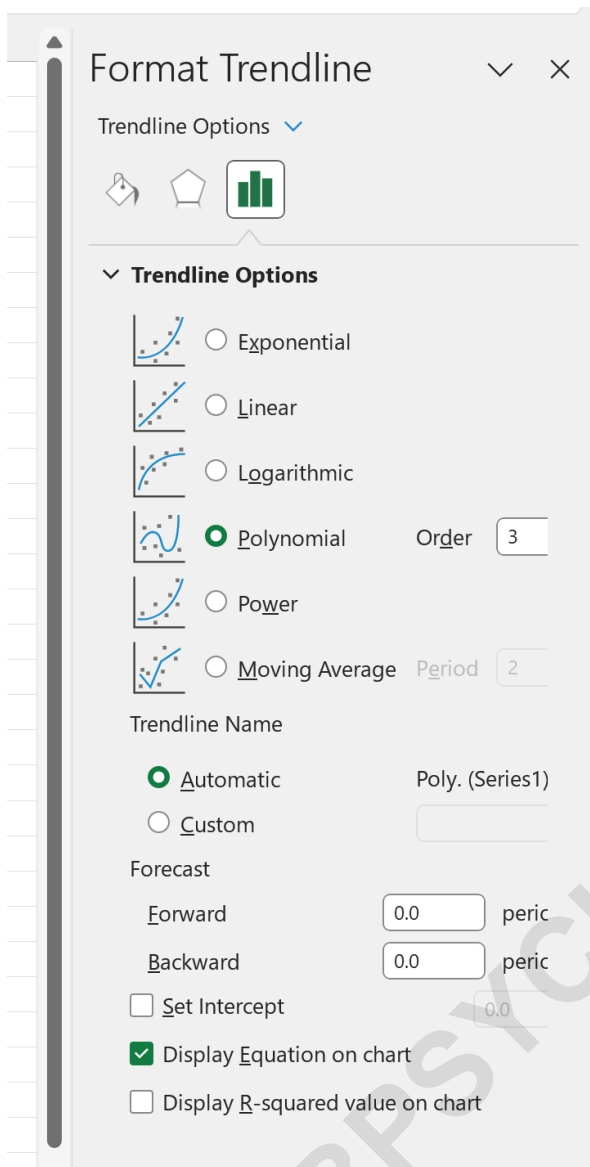
### Step 3: Insert Polynomial Trendline

**To insert a polynomial trendline into our plot, click anywhere on the chart to make it active.**

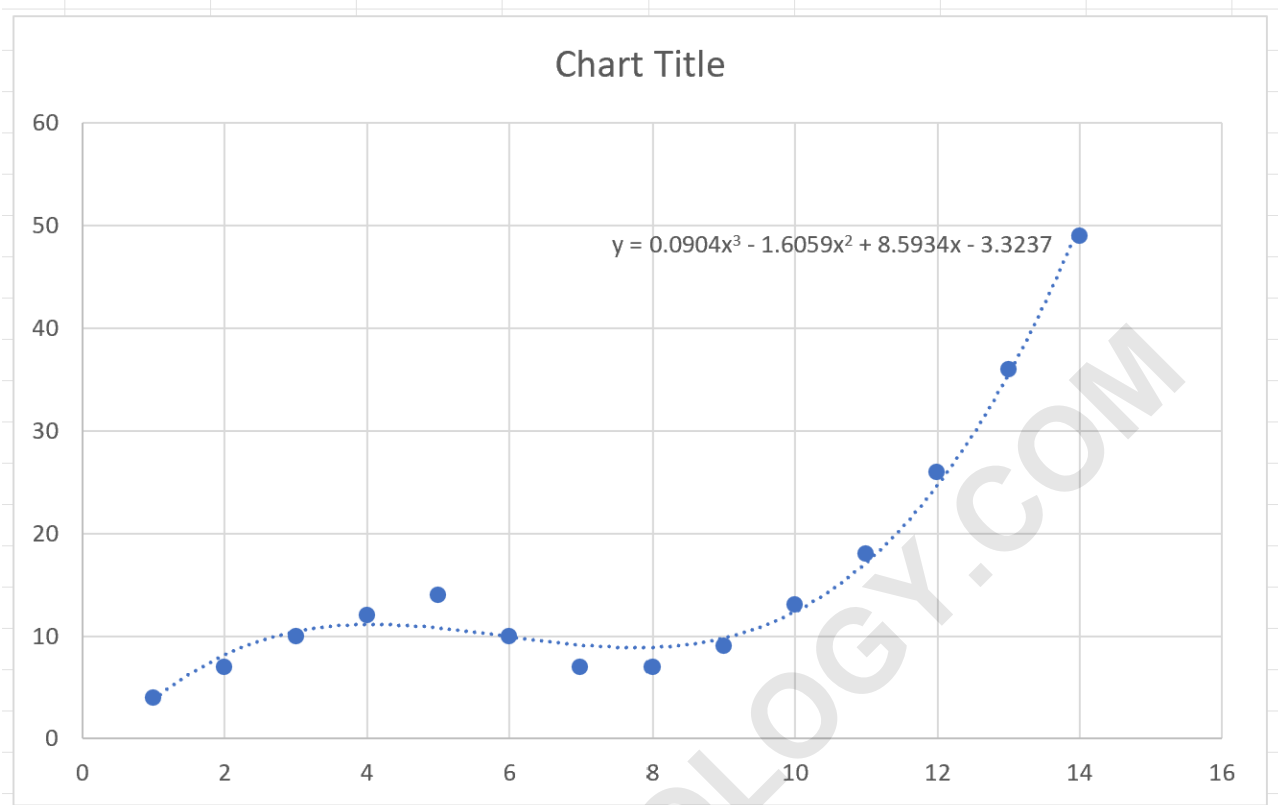
**Then click the tiny green plus sign in the top right corner, then click the dropdown arrow next to Trendline, then click More Options:**



**Lastly, check the box next to Display Equation on chart:**



**A polynomial trendline with an order of 3 will appear on the scatter plot:**



**We can see that the trendline does a pretty good job of capturing the relationship between the two variables in our dataset.**

**We can also see the polynomial trendline equation on the chart:**

$$y = .0904x^3 - 1.6059x^2 + 8.5934x - 3.3237$$

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

**For example, suppose  $x = 4$ . The expected value of y**

**would be:**

$$y = .0904(4)^3 - 1.6059(4)^2 + 8.5934(4) - 3.3237 = 11.1411$$

**When x is equal to 4, the expected value of y is 11.1411.**

**The following tutorials explain how to perform other common tasks in Excel:**

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