TREND MODEL

When we view the description for a trend line model, there are several values listed. e.g: Model formula, Model degrees of freedom, Residual degrees of freedom (DF), R-Squared, Standard error, p-value (significance), Analysis of Variance etc.

Although there are many model terms, we will be concentrating on the 2 main terms

R-Squared

p-value (significance)

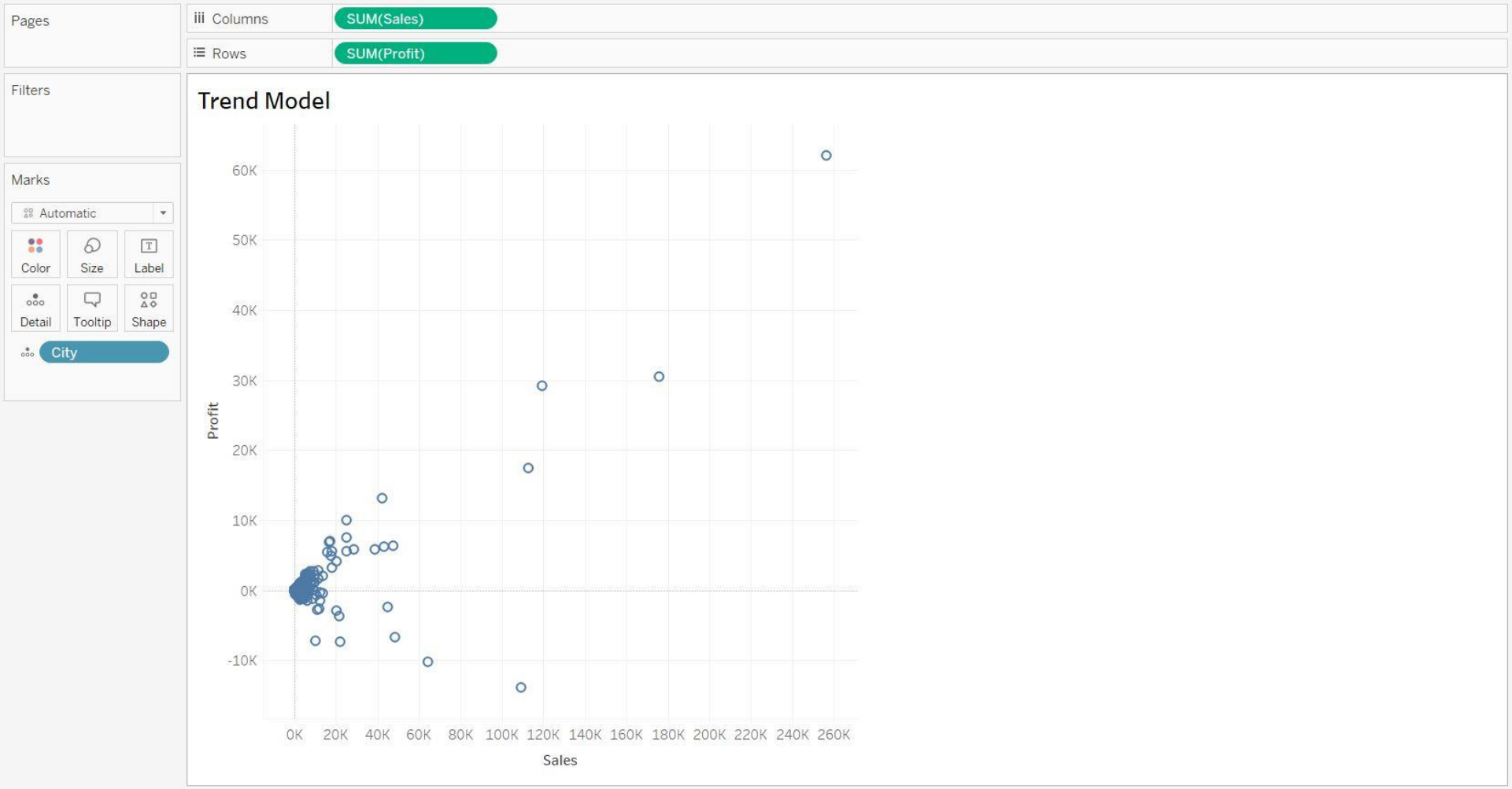
TREND MODEL

R-Squared:
R-squared is the statistical measure of how well the data fits the linear model.
R-squared value needs to be closer to 1 for a good fit
It is the ratio of the variance of the model's error, or unexplained variance, to the total variance of the data.

p-value:
p-value is the probability value that is associated with the trendline significance.
The p-value reports the probability that the equation in the trend line was a result of random chance.
The smaller the p-value, the more significant the model is.
A p-value of 0.05 or less is often considered sufficient

TREND MODEL

STEP 1: Assume that we have a Scatter Plot of **Sales** Vs **Profit** with **City** in **Detail** of **Marks** card

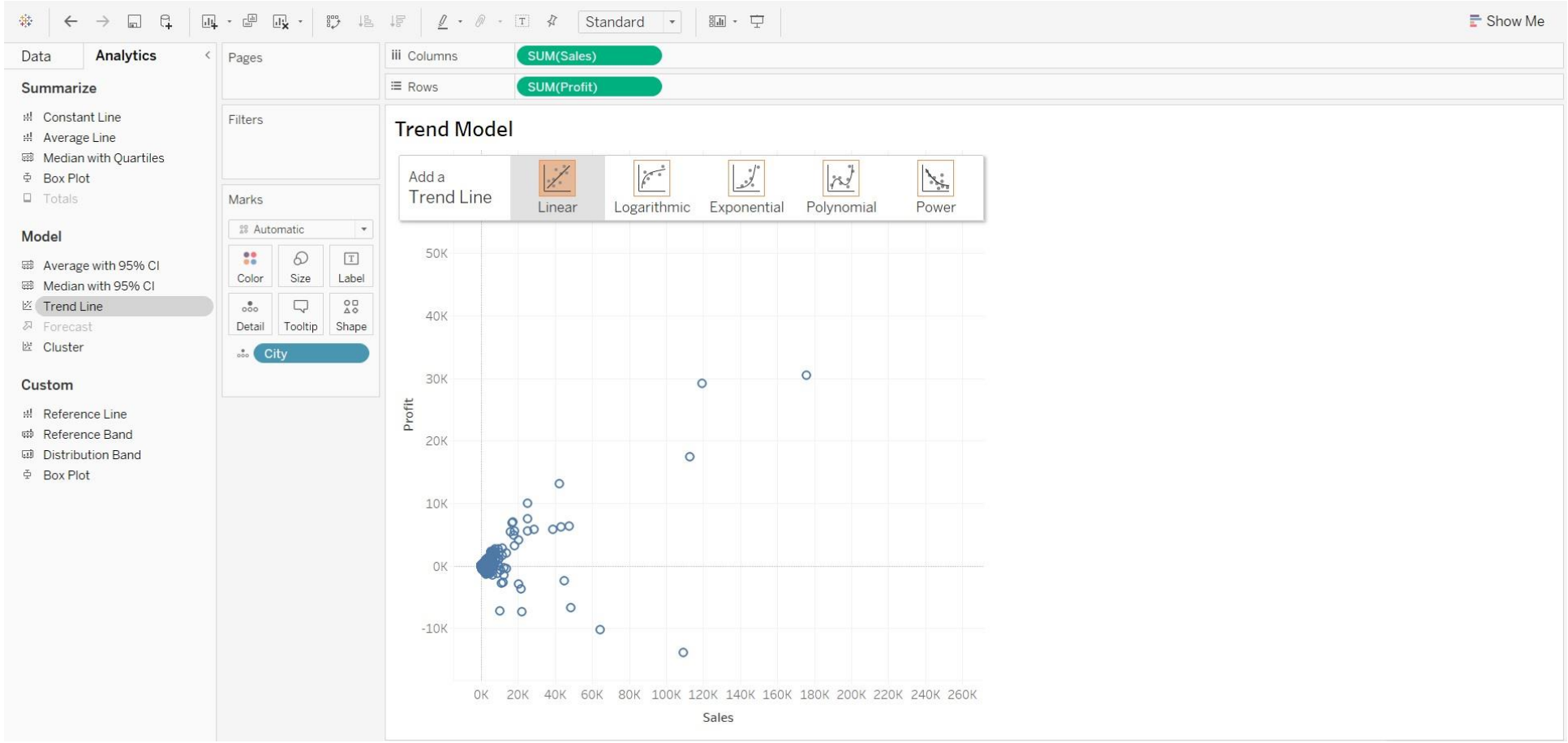


TREND MODEL

STEP 2: Drag **Trend Line** from the **Analytics** pane into the view.

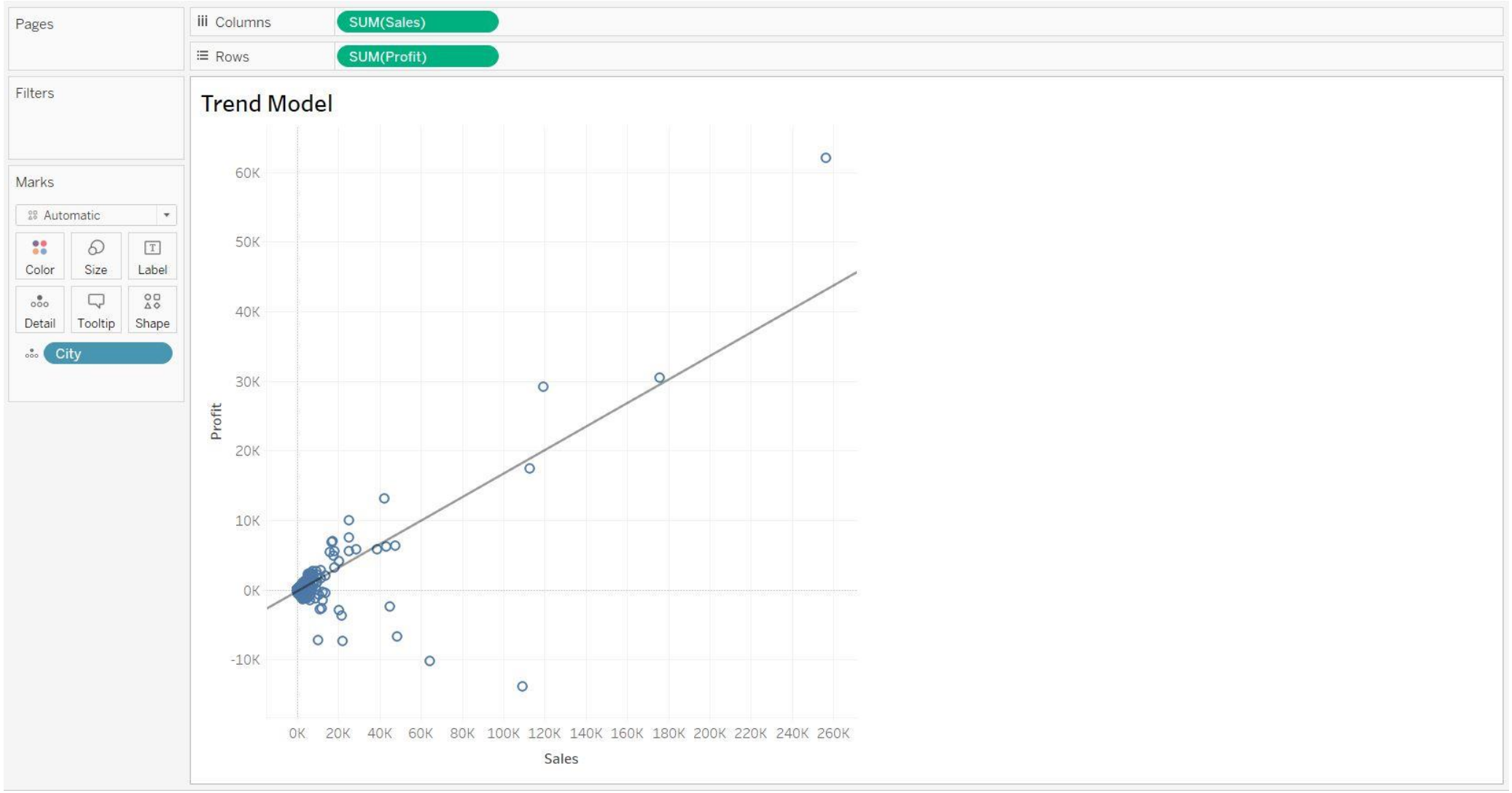
There are many drop target area options: Linear, Logarithmic, Exponential, Polynomial, or Power model types

For this example, we will drop it in **Linear**



TREND MODEL

STEP 3: The added Trend Line is now visible in the view



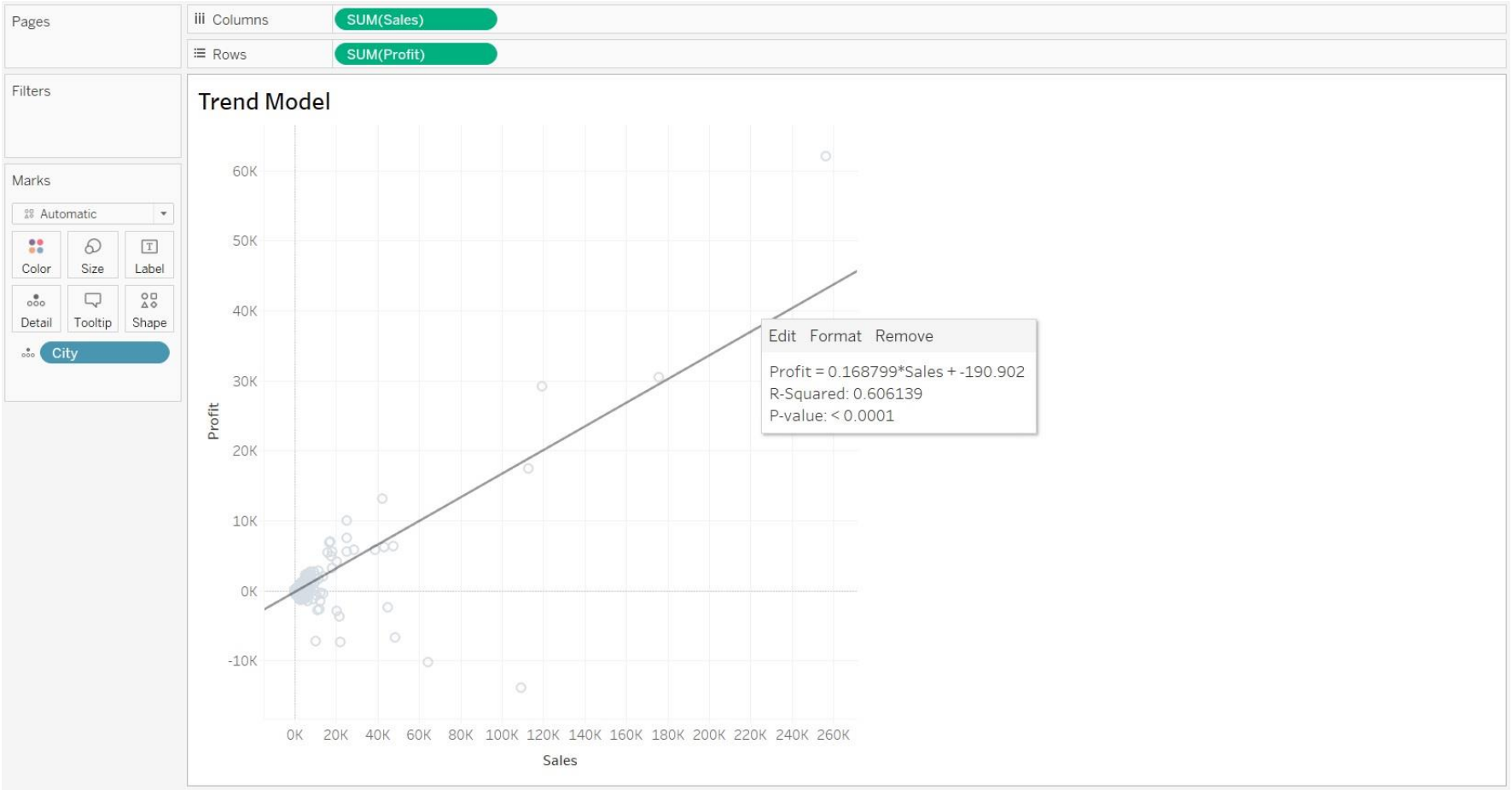
TREND MODEL

STEP 4: Click on the trend line to see its description.

The **Linear Trend Line** has a **R-Squared Value** of 0.606139 and **p-value** < 0.001

Let us try changing the type of Trend Line to see if we get a better R-Squared value

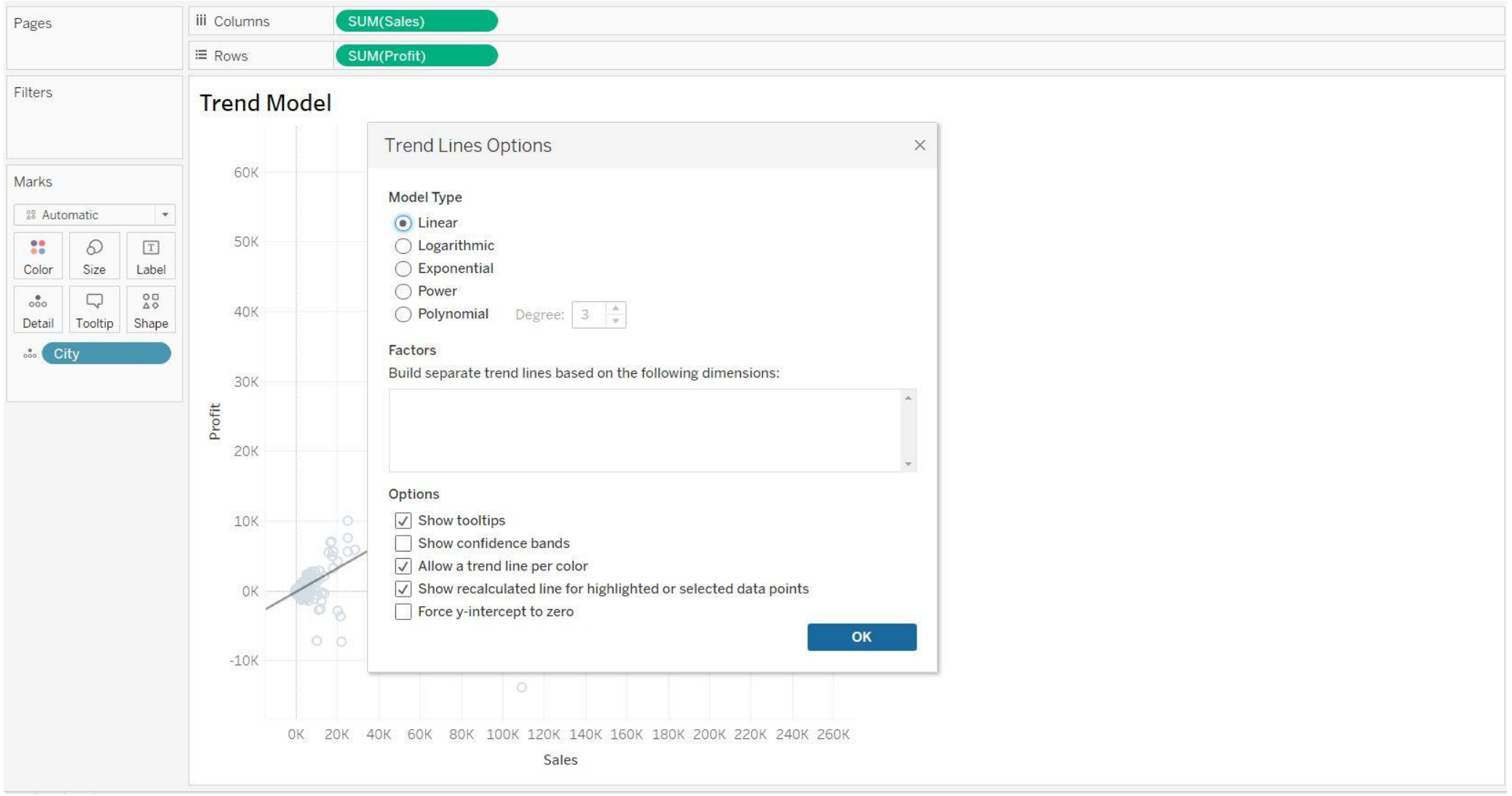
Click on **Edit**



TREND MODEL

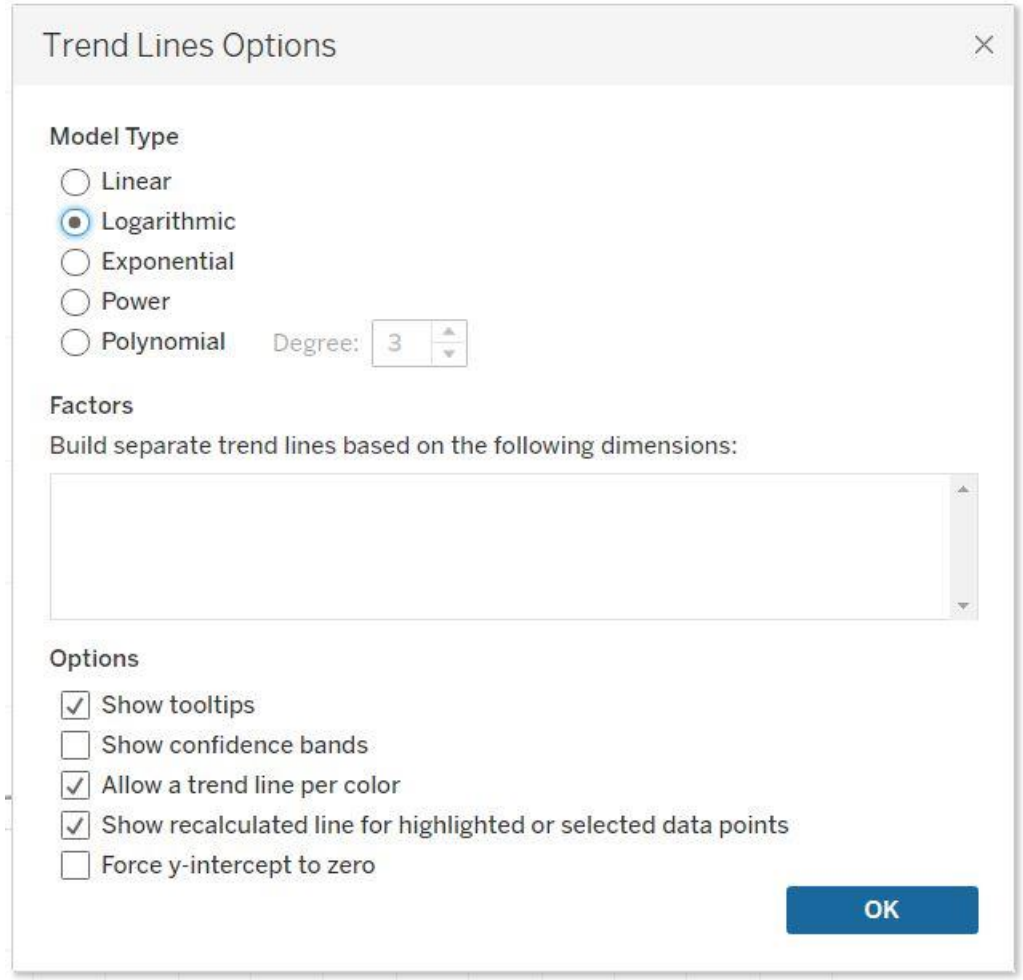
STEP 5: Trend Line Options dialog box opens

Click **OK**



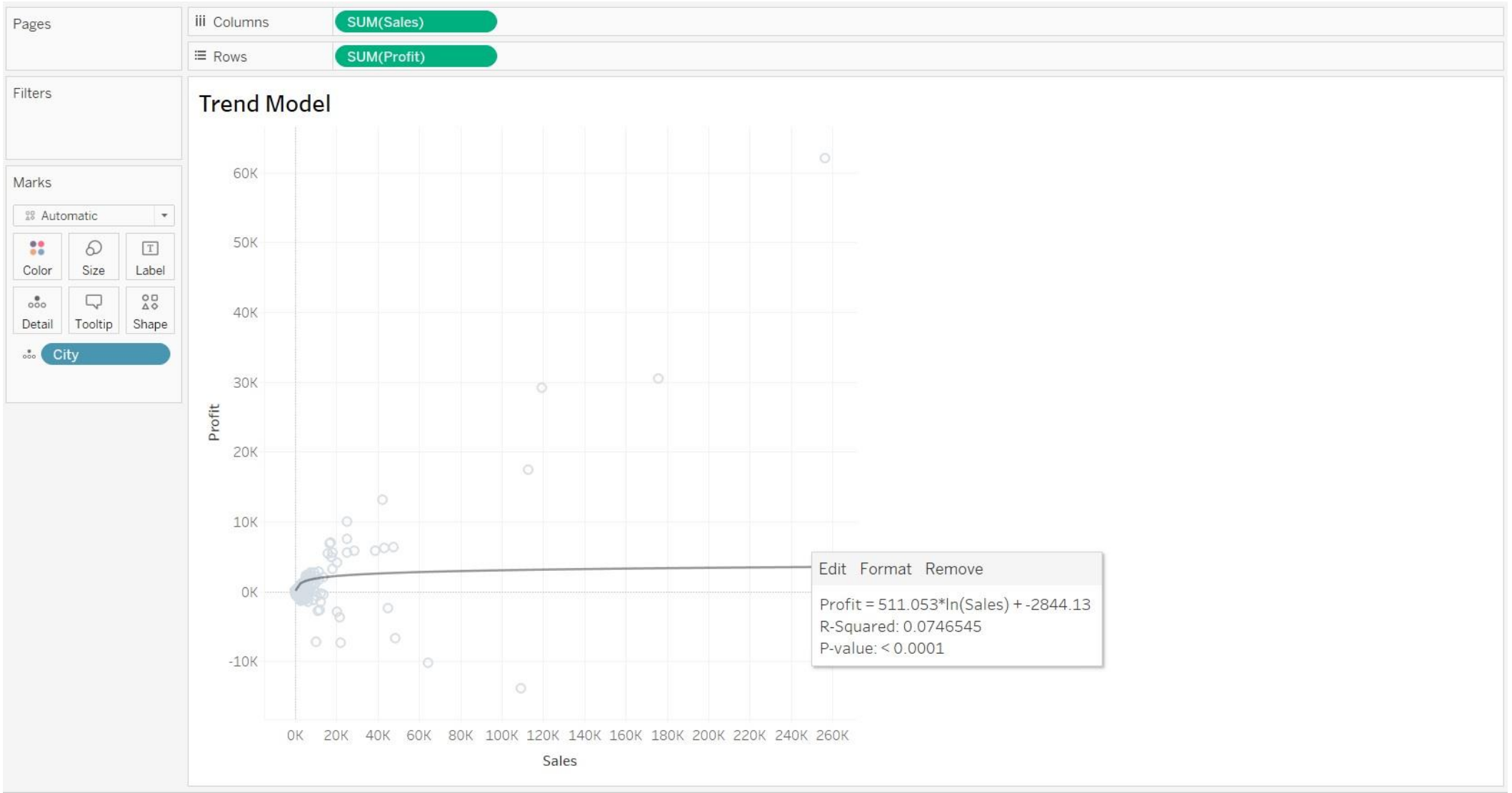
TREND MODEL

STEP 6: Change the **Model Type** to **Logarithmic**
Click **OK**



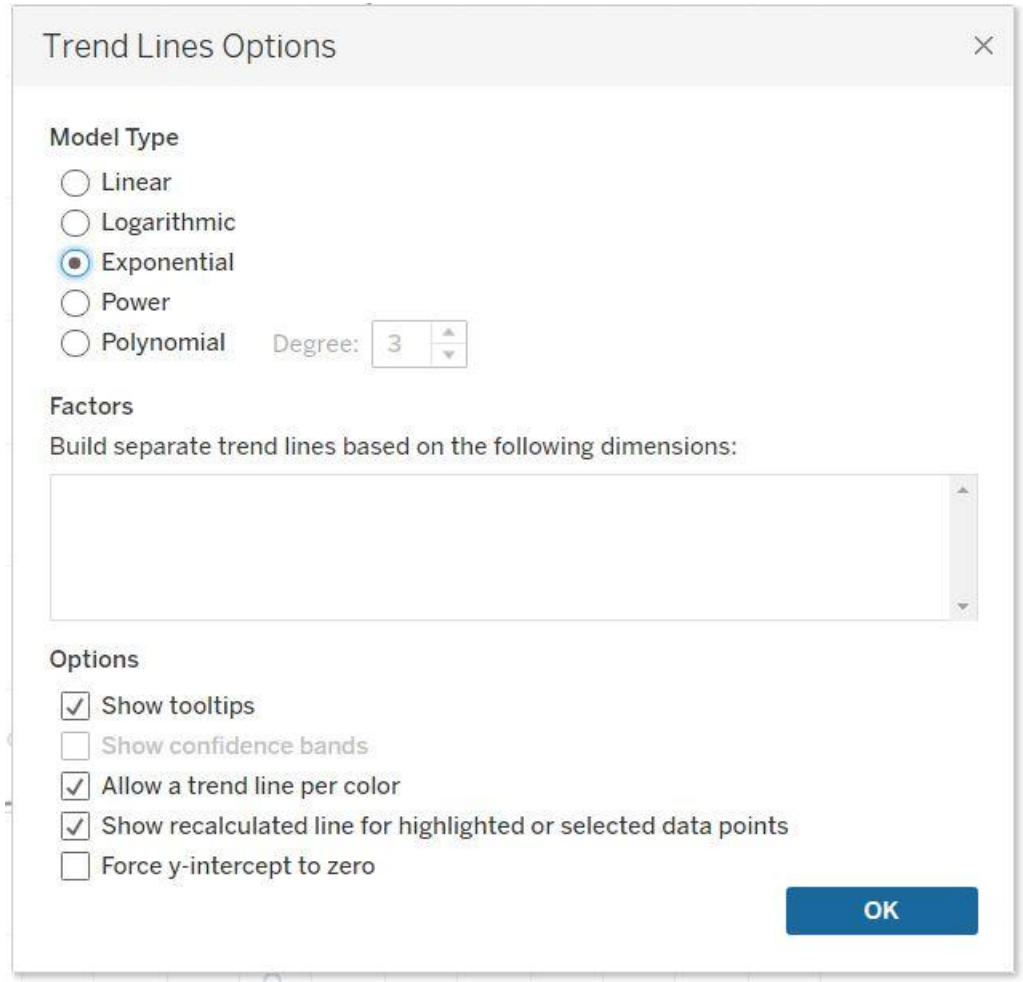
TREND MODEL

STEP 7: We observe that **R-Squared value** is lesser for **Logarithmic Trend Line**
Click on the trend line and Click on **Edit**



TREND MODEL

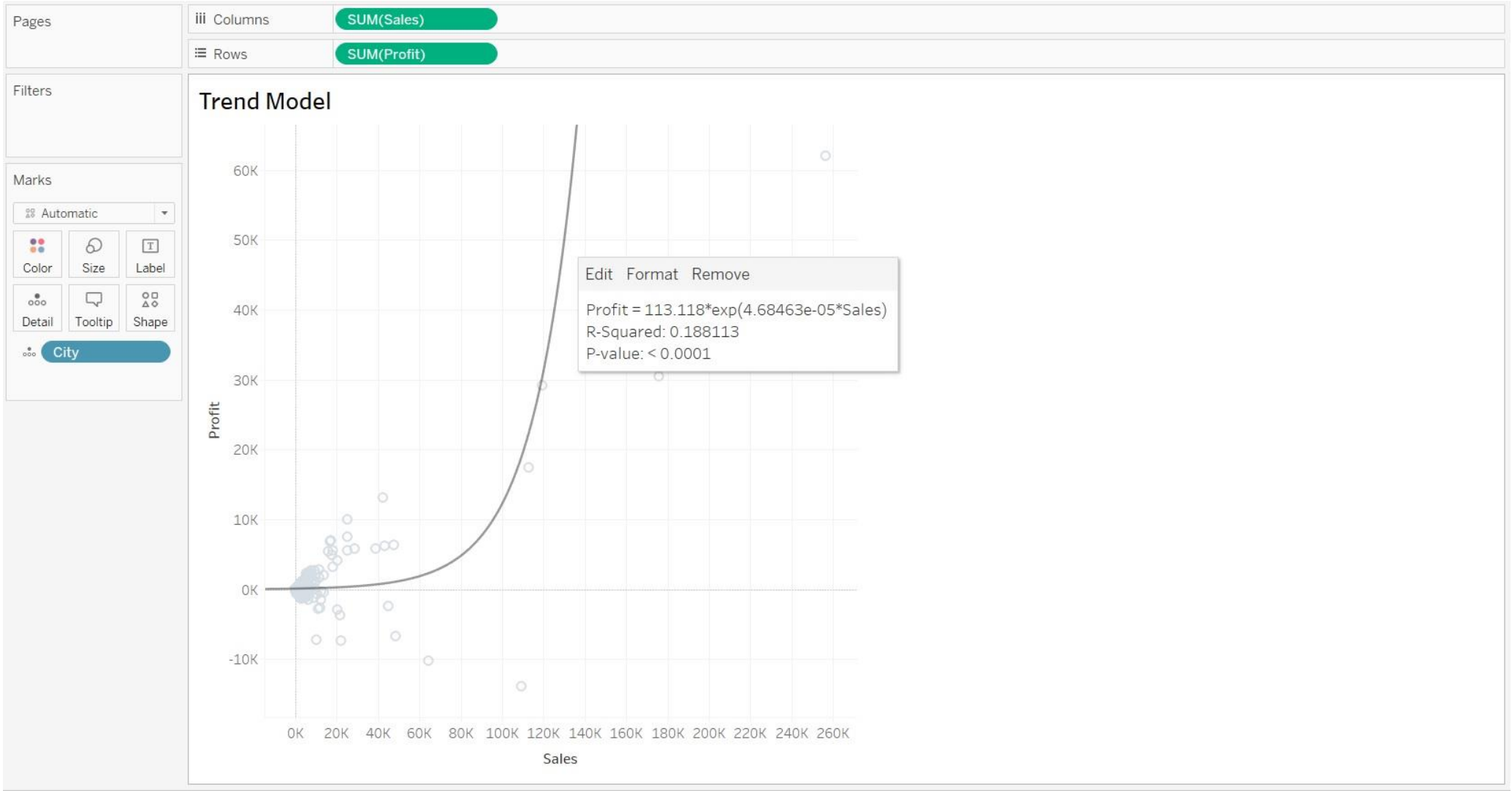
STEP 8: Change the **Model Type** to **Exponential**
Click **OK**



TREND MODEL

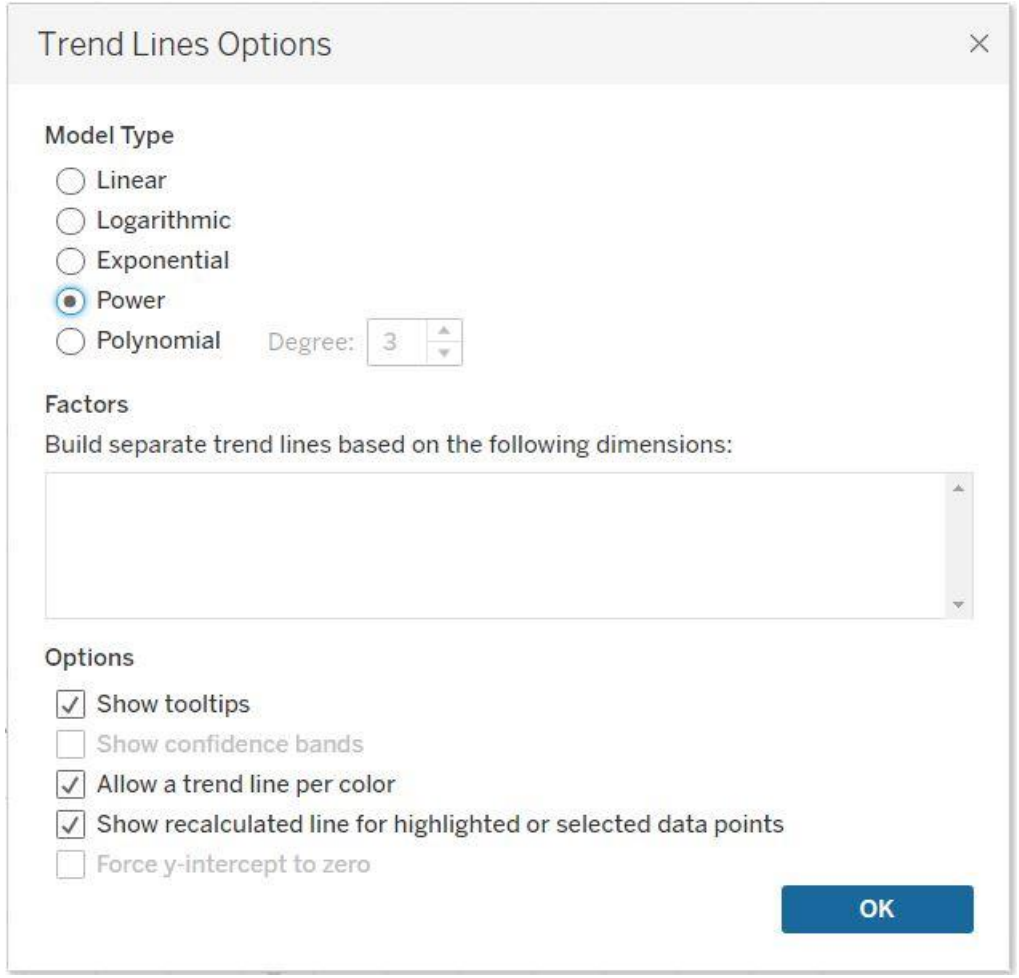
STEP 9: We observe that **R-Squared value** is also less for **Exponential Trend Line**

Click on the trend line and Click on **Edit**



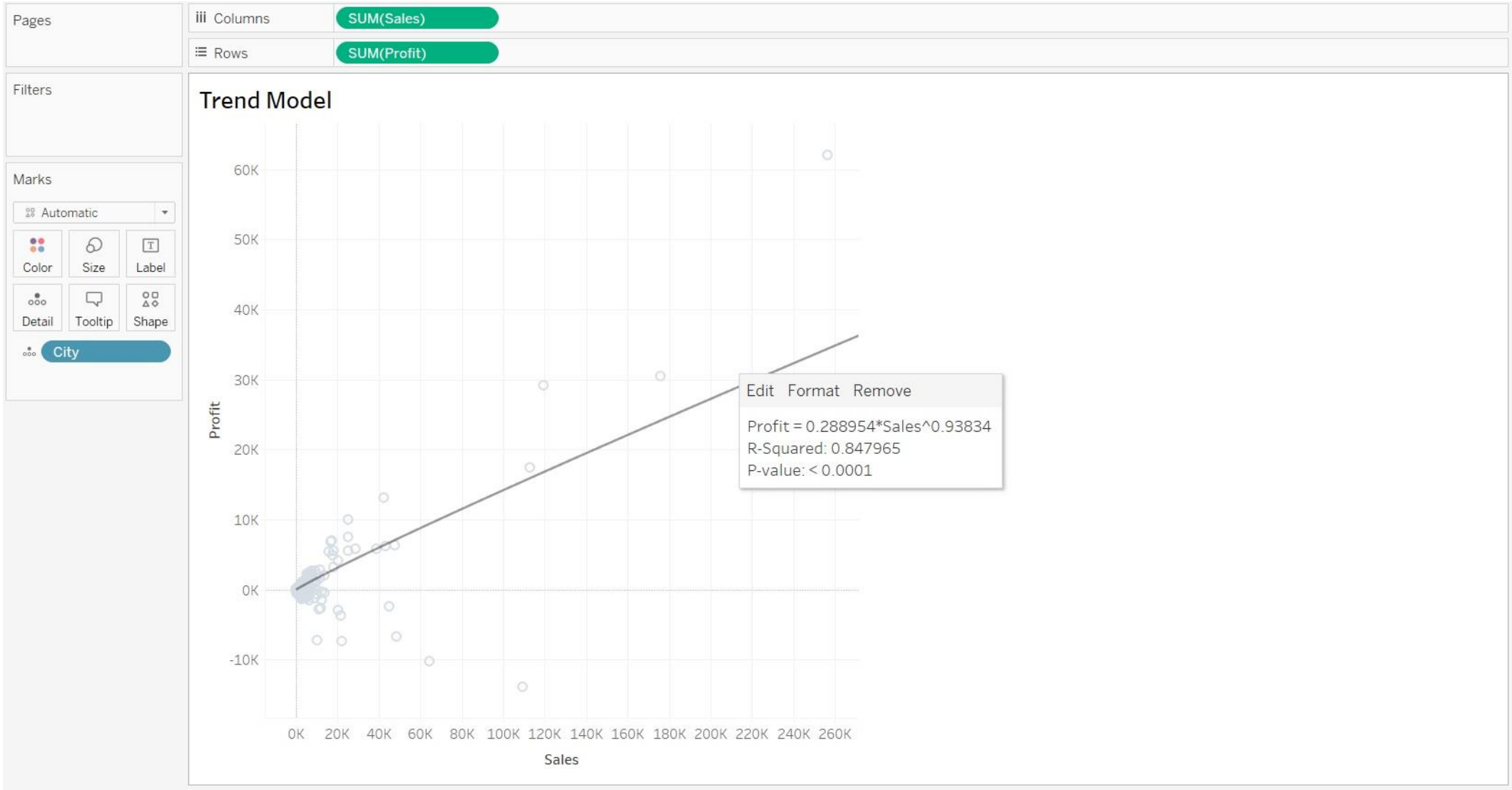
TREND MODEL

STEP 10: Change the **Model Type** to **Power**
Click **OK**



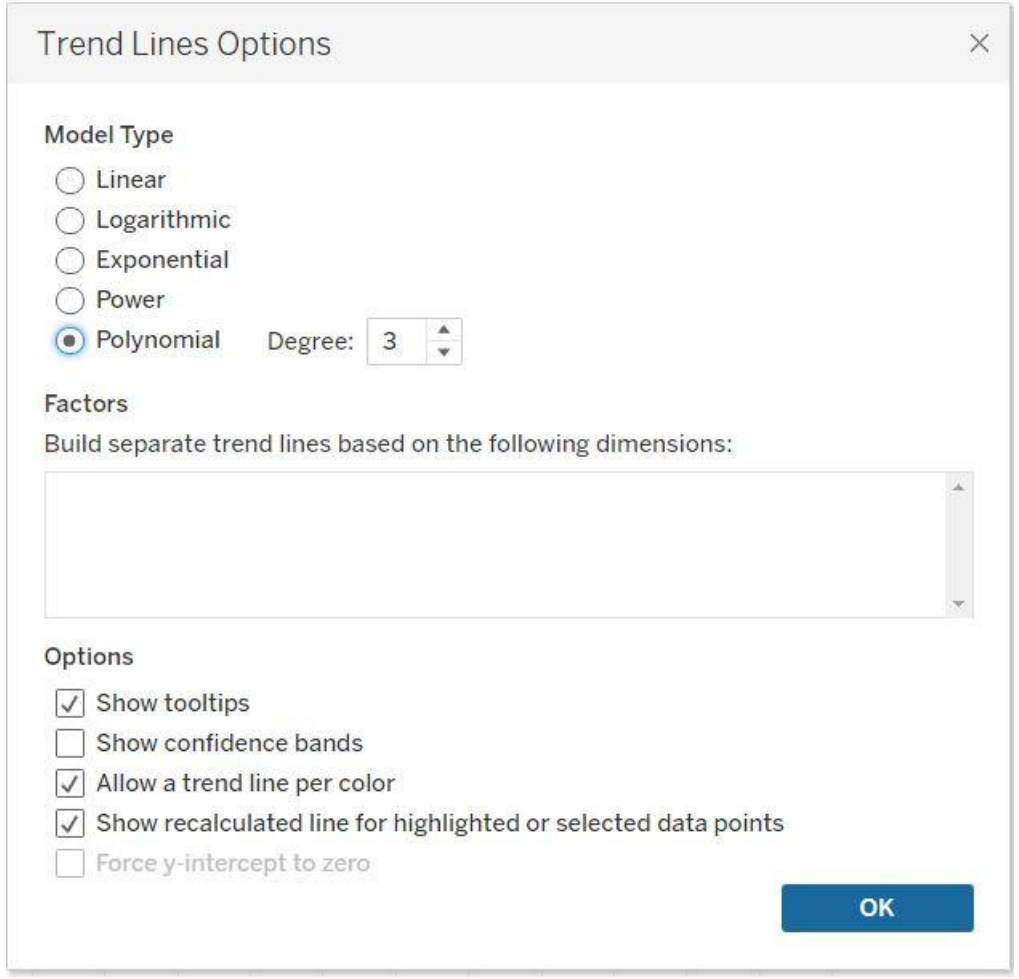
TREND MODEL

STEP 11: We observe that **R-Squared value** is the best for **Power Trend Line**
Click on the trend line and Click on **Edit**



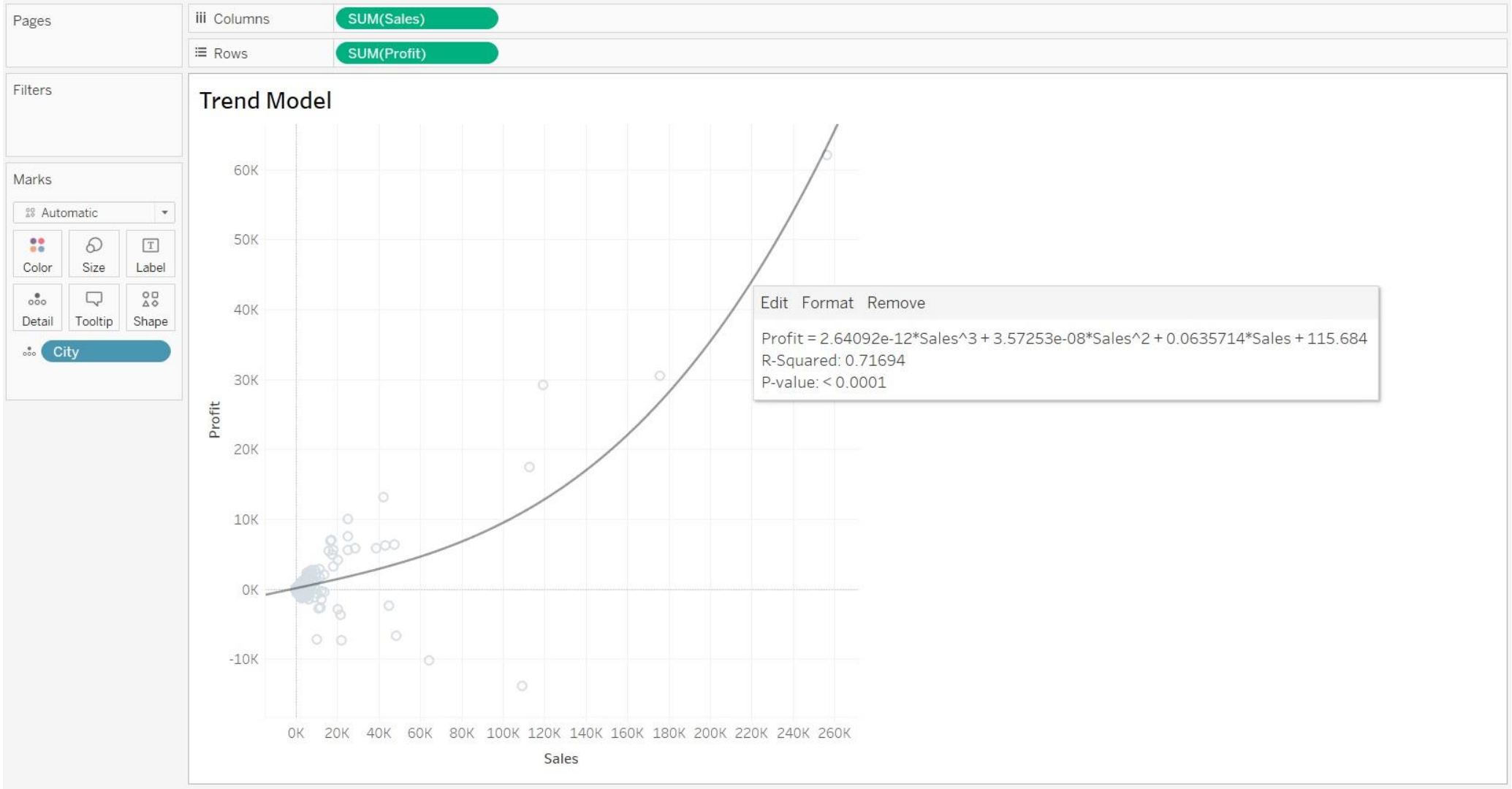
TREND MODEL

STEP 12: Change the **Model Type** to **Polynomial** and change **Degree** to **3**
Click **OK**



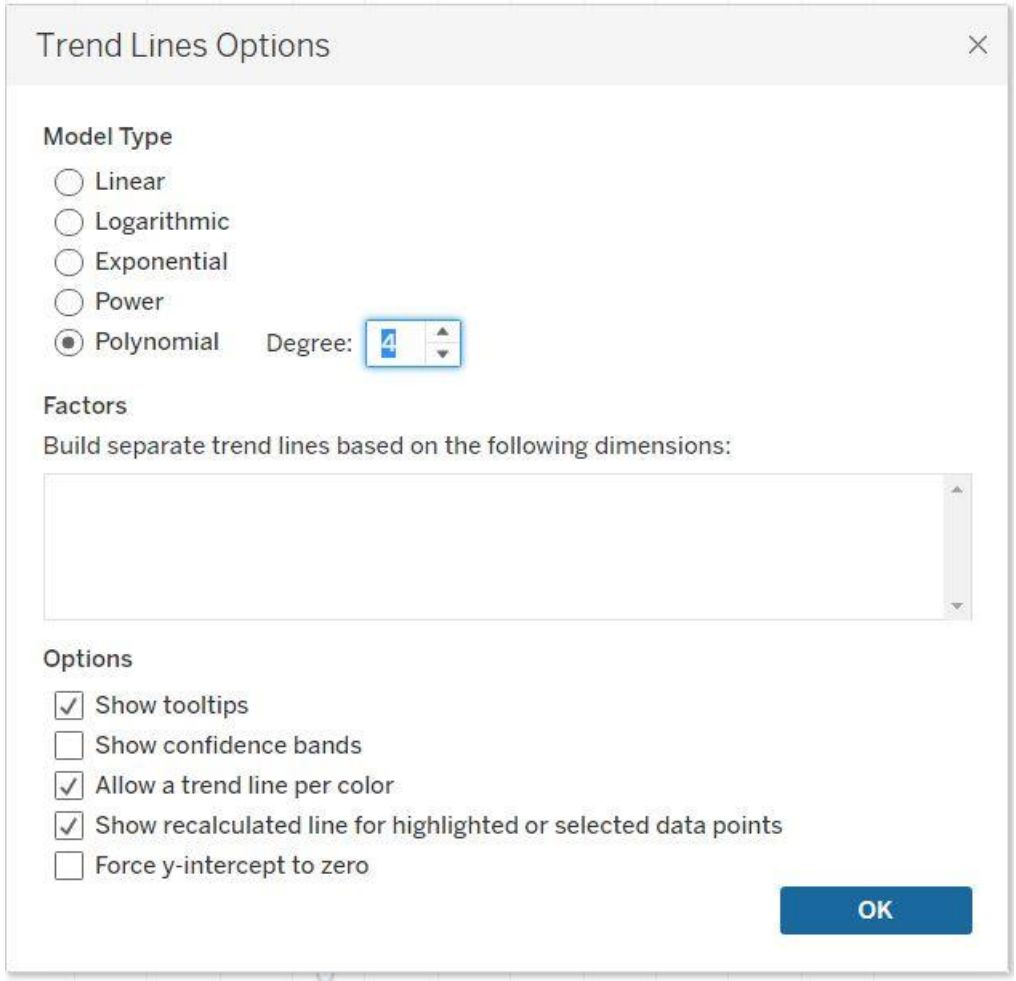
TREND MODEL

STEP 13: We observe that R-Squared value is the lesser than of **Power Trend Line**
Click on the trend line and Click on **Edit**



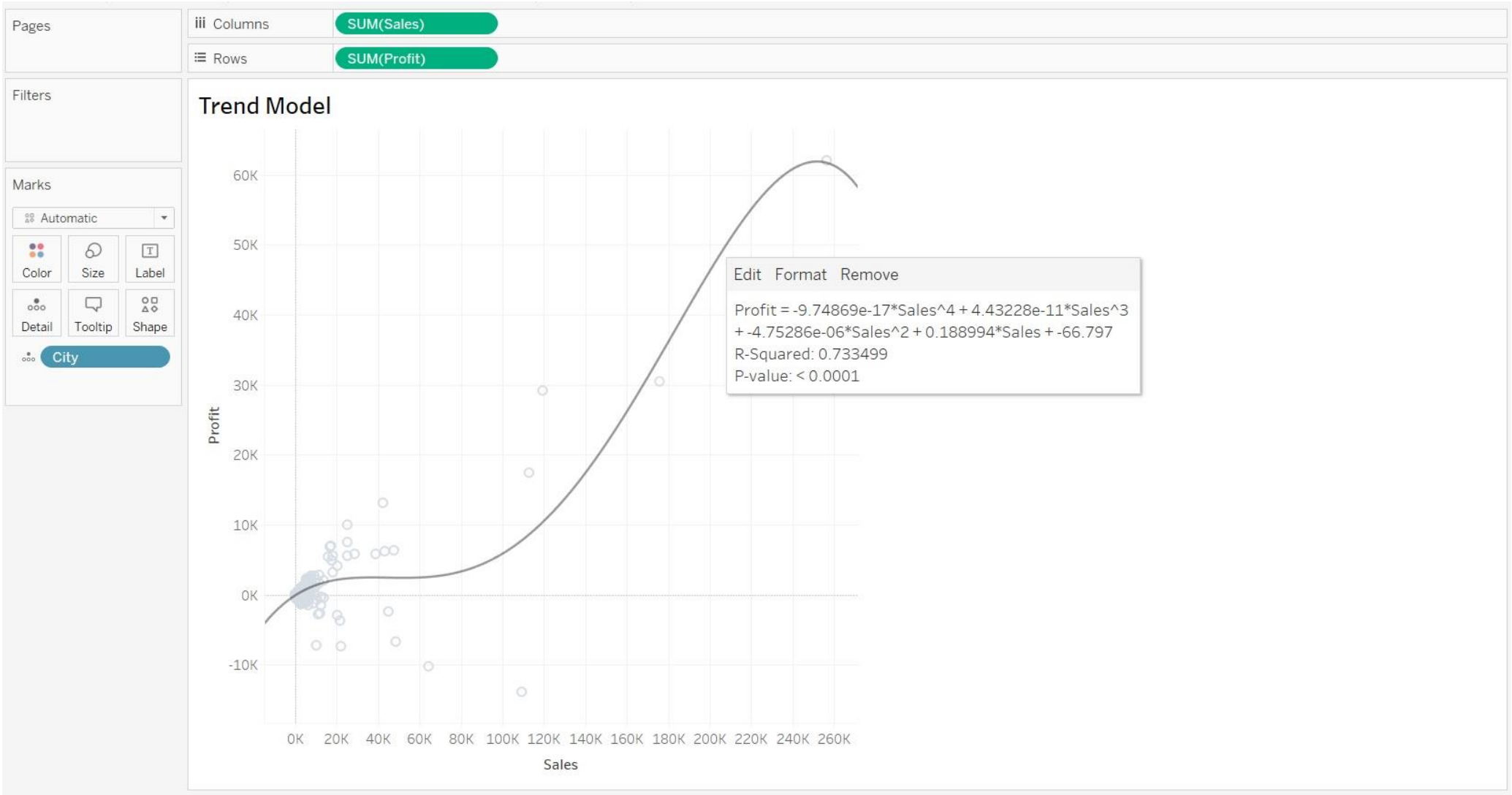
TREND MODEL

STEP 14: Change the **Model Type** to **Polynomial** and change **Degree** to **4**
Click **OK**



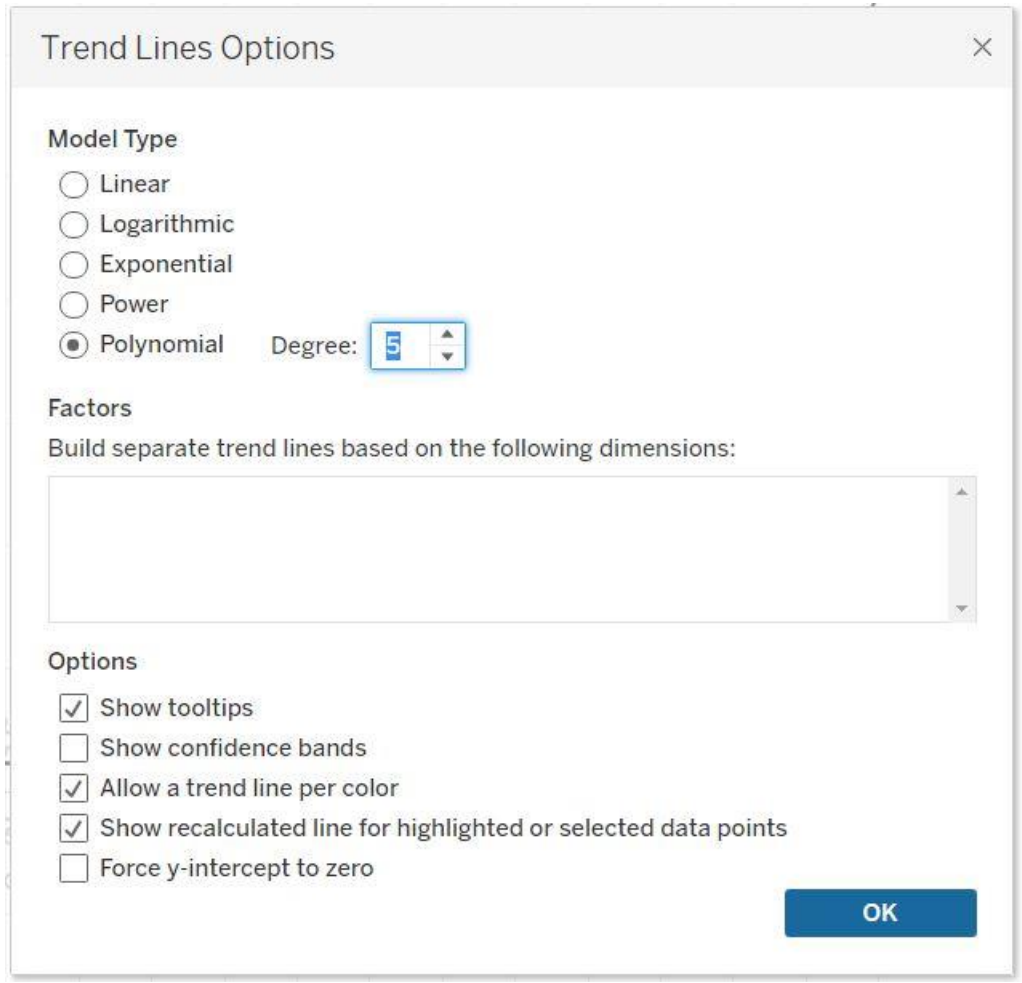
TREND MODEL

STEP 15: We observe that **R-Squared value** is the lesser than of **Power Trend Line**
Click on the trend line and Click on **Edit**



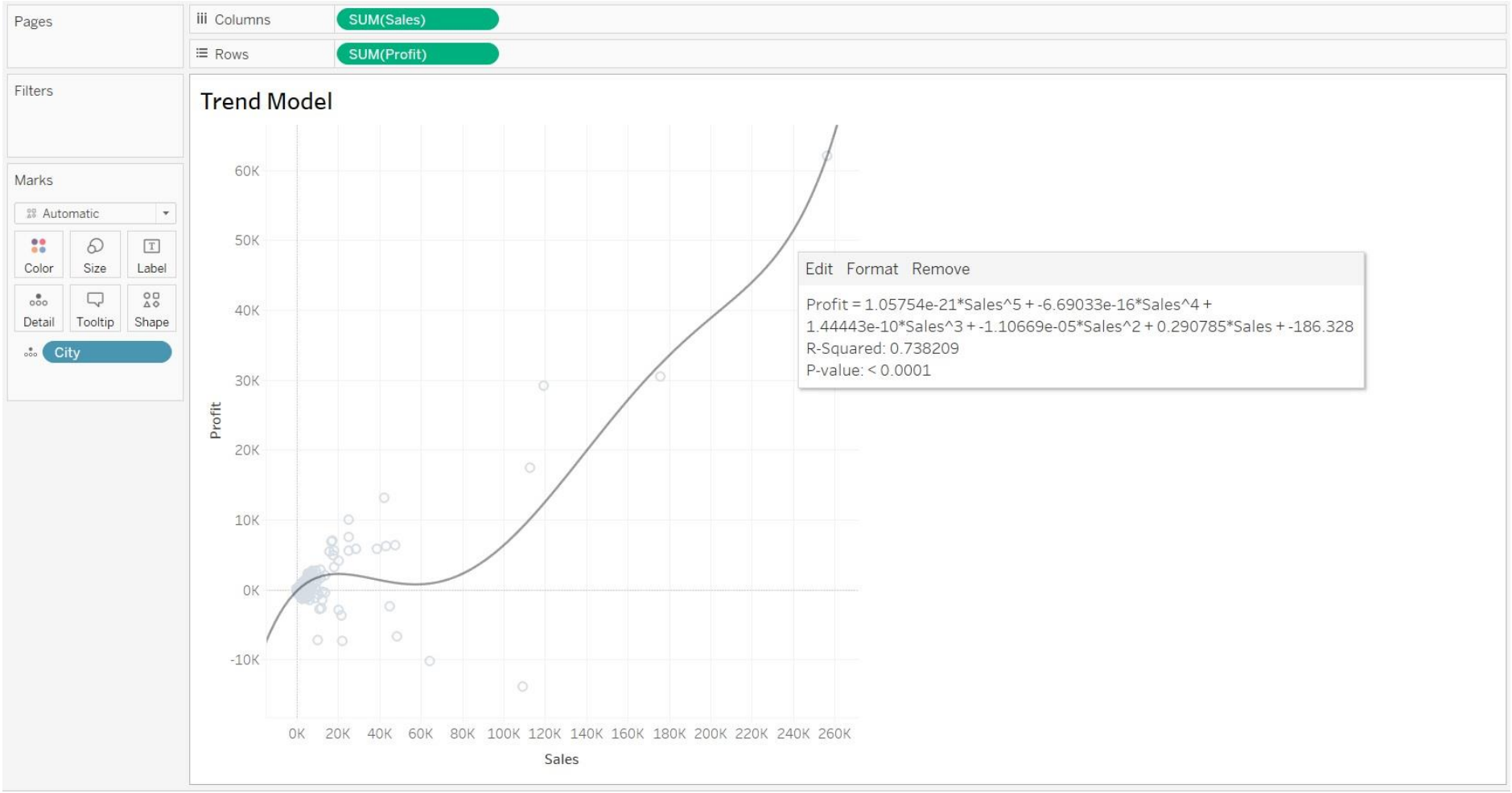
TREND MODEL

STEP 16: Change the **Model Type** to **Polynomial** and change **Degree** to **5**
Click **OK**



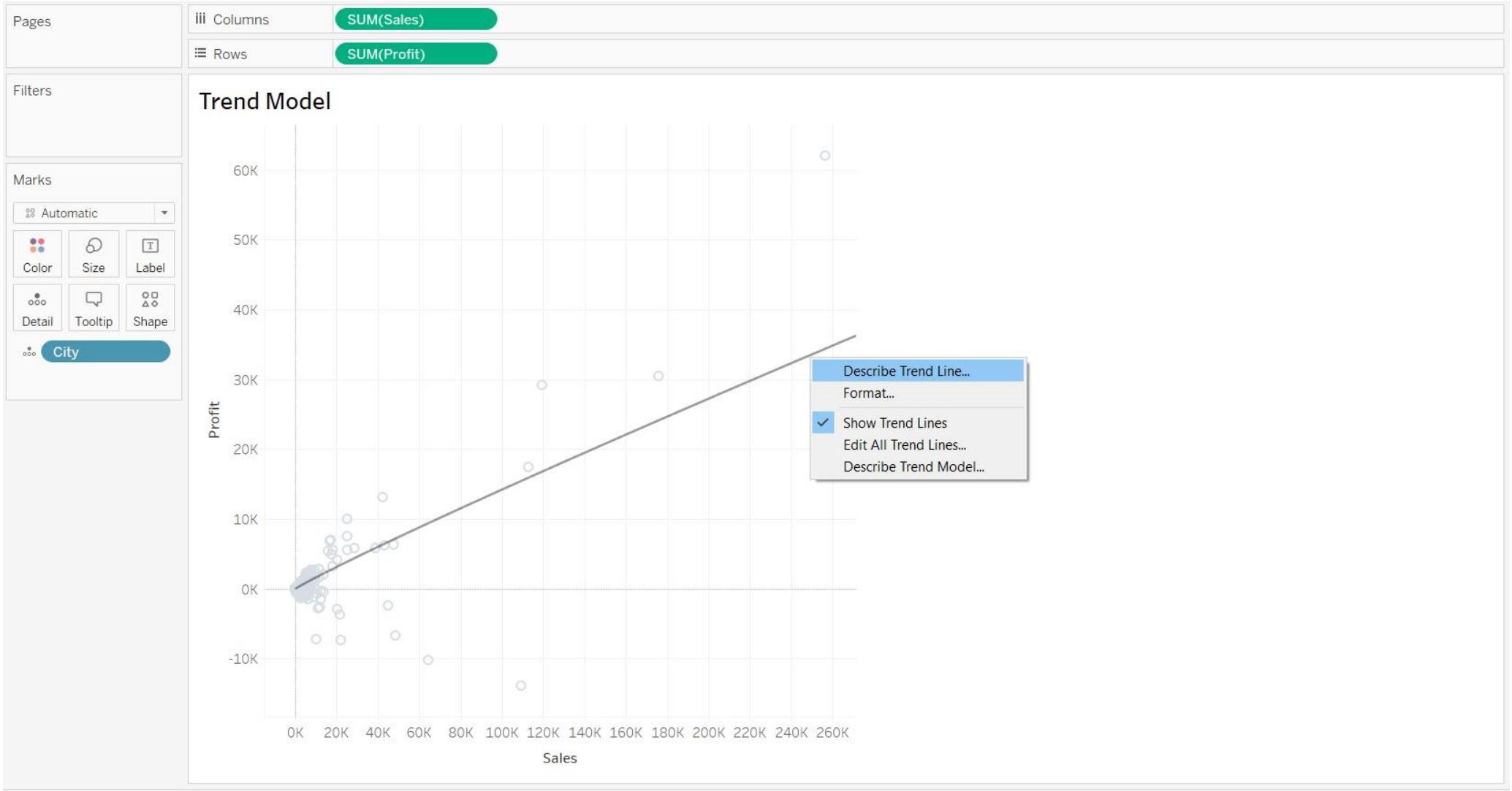
TREND MODEL

STEP 17: We observe that R-Squared value is the lesser than of **Power Trend Line** Click on the trend line and Click on **Edit** Click on **Edit** and let us go back to **Power Trend Line**



TREND MODEL

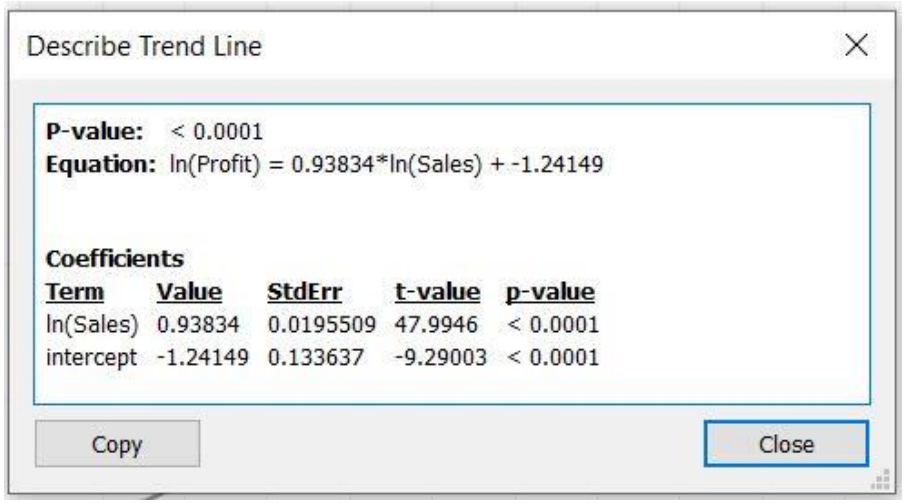
STEP 18: Right-click the **Trend Line**, Click **Describe Trend Line**



TREND MODEL

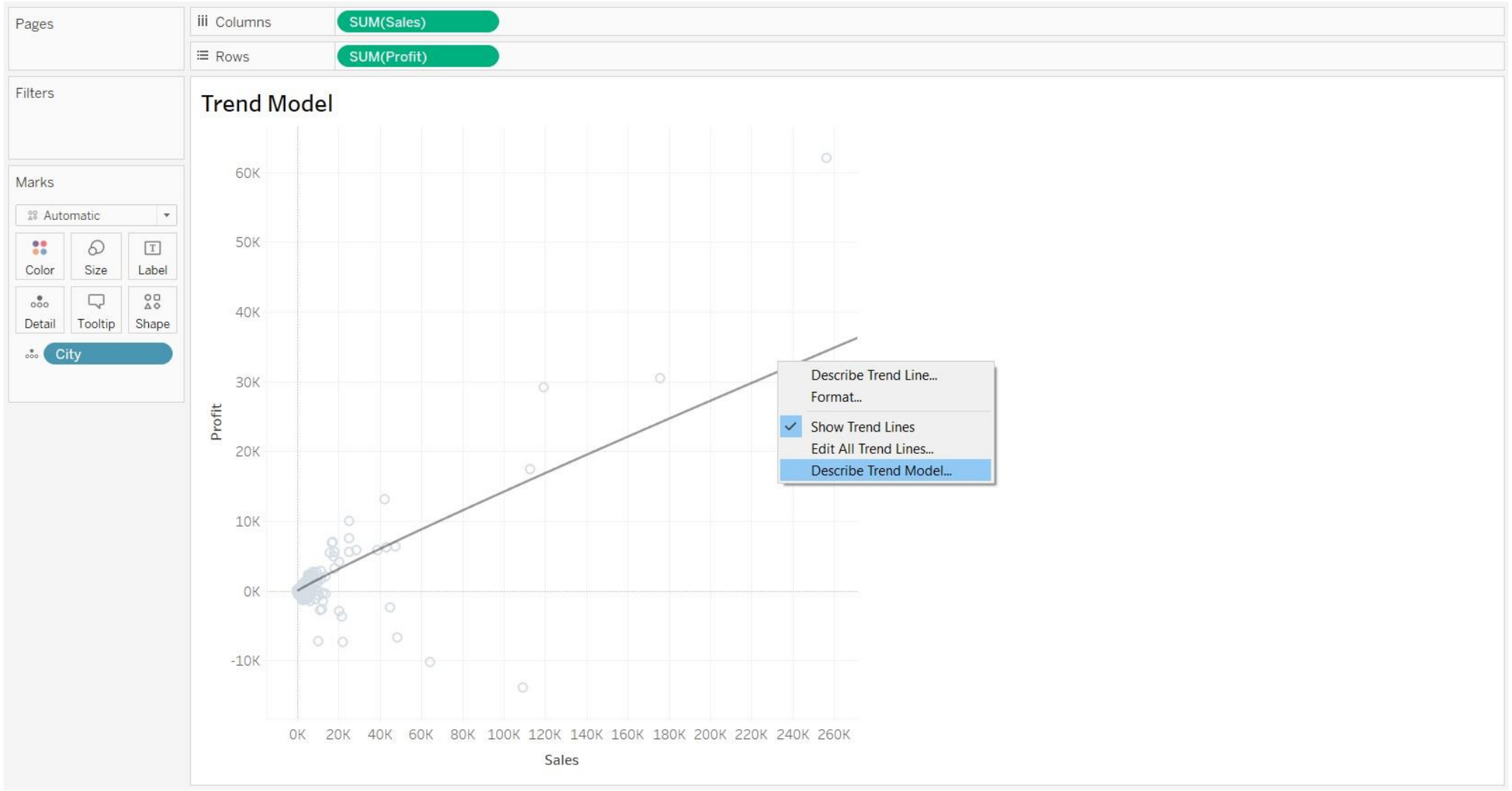
STEP 19: Given below is the brief description of **Trend Line**

Click **Close**



TREND MODEL

STEP 20: Right-click the **Trend Line**, Click **Describe Trend Model**



TREND MODEL

STEP 21: Given below is the full description of the model being used in the current view

Click **Close**