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MyCurveFit Excel Add-In

User's Guide

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Introducing MyCurveFit Excel Add-In

MyCurveFit Excel Add-In is an easy-to-use data analysis tool used to calculate parameters for commonly used curve fit methods within Microsoft Excel.

Using the MyCurveFit Excel Add-In, parameters associated with the selected curve fit method are calculated. This is performed completely within Excel, without the need to send data to a server for analysis. Once the parameters are computed, the curve fit equation can then be used to interpolate or extrapolate Unknown concentrations.

The following curve fit methods are supported:

- 4PL
- 5PL
- Custom Curve Fit Methods (user-entered)

How to Use This Guide

We have arranged this guide to help you get started quickly and to simplify how you can find the information and details that you need.

This **Introduction** contains a summary of the key features and editions of the software.

The **Getting Started** section covers installation and general orientation information. It also includes a Quick Start section to show you where the basics are and to walk you through your first data analysis. It also provides links to further information and online video guides.

The **Working with MyCurveFit Excel Add-In** section dives into further detail, covering each element in more detail with the content arranged into logical sections.

The final **Reference** section provides a more complete description of each facet. Here the content is arranged to simplify quick retrieval.

What Should I Read?

We encourage all new users to read through all of the **Introduction** and **Getting Started** sections.

You will find more information about the topics and get a better understanding from the **Working with MyCurveFit Excel Add-In** section.

The **Reference** section is a resource for providing further details as and when you need them.

What's New?

Updates in MyCurveFit Excel Add-In R2 (detailing changes since R1)

Additional Non-Linear Fit Methods

Support for additional non-linear fit methods has been added. These fit methods include:

- Exponential (Basic)
- Exponential (Half-life)
- Exponential (Proportional rate growth or decrease)
- Gaussian
- Michaelis Menten
- Power Curve

All Users Installation

Support for installing the MyCurveFit Excel Add-In for all system users has been added.

Advanced User Defined Fitting

Additional settings are now available to further customize user defined fit methods. This includes adding starting estimates and curve constraints. Video Walkthrough...

User Defined Coefficients

A new **MyCurveFit.UserDefined.Coeffs** function has been added. This function returns the coefficient names from the provided fit equation in the order they will be reported by the **MyCurveFit.UserDefined** function.

Additional Goodness Measures

Support for additional goodness measures has been added, depending on the fit method. These include: aR^2, P, SE, F, AIC, BIC, DoF, and SSE.

Fixes in MyCurveFit Excel Add-In R2 (detailing changes since R1)

Error Message: Please improve starting estimates to avoid division by zero or other invalid mathematical operations.

Fixed: For User Defined fit configurations using a unary minus operator the above error message was received. The error message has been improved and clarified.

5PL Negative Asymmetry

Fixed: Where a 5PL fit resulted in a negative asymmetry factor (m), MyCurveFit.5PL.CalcX might fail to compute a result when one is valid.

User Defined fit fails if expression contains a function call with no parameters followed by further terms

Fixed:

Getting Started

Installation

System Requirements

MyCurveFit Excel Add-In runs successfully on the minimum system configuration listed below. If your computer does not meet the technical requirements, you may be not able to use the MyCurveFit Excel Add-In.

CPU:	Inte/AMD 2GHz or faster processor (32- or 64-bit)
Memory:	2GB RAM
Available disk space:	300MB
Operating systems:	Windows 10, Windows 8.x, Windows 7
Other software:	Microsoft .NET 4.7.2 or later
Display:	1024x768 or higher resolution

Software Requirements

Microsoft .NET 4.7.2 or later must be installed (this is pre-installed on newer Windows 10 systems). For earlier versions of Windows, if it is not already installed on your system or you are not sure, please download and install from:
http://go.microsoft.com/fwlink/?LinkId=863262.

More information about the .NET 4.7.2 installation can be found at:
https://support.microsoft.com/en-gb/help/4054530/microsoft-net-framework-4-7-2-offline-installer-for-windows.

Supported Excel Versions

MyCurveFit Excel Add-In is compatible with 32-bit and 64-bit versions of Excel for Windows, including Excel 365, Excel 2019, and Excel 2016.

Installation Process

The latest version of MyCurveFit Excel Add-In can be downloaded here.

Upon downloading the installation package:

1. Double-click the installation package file to launch MyCurveFit Excel Add-In Setup Wizard and click **Next** to continue.
2. To proceed with installation on your computer, you must accept the terms of End-User License Agreement. Please read the license agreement carefully, then select **I accept the terms of the license agreement** and click **Next**.
   If you do not agree with terms of the license agreement, click **Cancel** to exit the wizard.
3. If you are content with the default path, click **Next**. To pick another destination folder, click **Change** and set preferable root.
4. If multiple users configured on the system require access to the MyCurveFit Excel Add-In, select the **Install for all users option**.
5. Review the selections made and click **Install**. The process will take a few moments.
6. Click **Finish** to complete the installation.
7. Activate MyCurveFit Excel Add-In with your product serial code and activate your license in order to start working with the application.

Product Licensing

MyCurveFit Excel Add-In requires a valid license to activate the application. You can obtain a trial, temporary, or permanent license from MyAssays Ltd.

A serial code represents your license to use the software. When you first launch the software, you must enter a valid serial code and activate your license.

A license can be transferred between systems but can only be active on one system at a time.

License Activation

On launching Excel, navigate to the MyCurveFit ribbon tab. Select **Activate**, and the Licensing Activation Wizard will appear.

An administrator account is required to activate (or deactivate) a license.

If you have a serial code, select **I have a serial code to activate** and click **Next**.

Paste in the serial code along with your email address into the Licensing Activation Wizard and click **Next**.

A working valid email address is required to administer your license. Access to this email account will be required to transfer your license to another system in the future.

Online Activation

If your PC is connected to internet:

1. Select **Use internet connection for activation** and click **Continue** to proceed.
2. Fill in your personal details and click **Activate**.
3. When prompted to grant **User Account Control** permission to access the licensing settings, confirm by selecting **Yes**.
4. If the license activation is accessed, a confirmation window appears.
5. Click **Close** to exit the **License Activation Wizard** and start the application.

Note: When activating a license, if an Excel file is already open and displays an **Invalid License** error in cells with MyCurveFit calculations, recalculate the results by pressing **Ctrl+Alt+F9**.

Offline Activation

If your PC is not connected to internet, it is still possible to activate the MyCurveFit Excel Add-In using a separate internet-connected device. In this case:

1. Clear the **Use internet connection for activation** check box and click **Continue** to proceed.
2. A QR code will appear; if you have a network-connected device (such as a smartphone or tablet) capable of reading this, then scan the QR code and follow the instructions.

Alternatively, copy and paste the provided link and open it on a system with internet connection (perhaps by transferring via USB memory device).

3. On successful activation of your serial code from your internet-connected device, a **license key** text string will be generated (with a copy sent to the provided email address).
4. Transfer this text string to your PC where the MyCurveFit Excel Add-In is installed and paste in the **License Activation Wizard** under the **license key** setting.
5. When prompted, grant **User Account Control** permission to access the licensing settings and confirm by selecting **Yes**.
6. If the license activation is accessed, a confirmation window appears.
7. Click **Close** to exit **License Activation Wizard** and start the application.

License Deactivation

If you need to transfer an activated license to another PC, it must first be deactivated from the PC where it is in use.

To deactivate MyCurveFit Excel Add-In on your PC, launch the Deactivation Wizard as follows:

1. Launch Excel.
2. Open the MyCurveFit ribbon Tab.
3. Click **Deactivate**.

Follow the steps of the **License Deactivation Wizard** as described below to deactivate the license:

Online Deactivation

If your PC is connected to internet:

1. Keep the **Use internet connection for deactivation** selected and click **Continue** to proceed with deactivation.
2. Confirm deactivation and click **Deactivate**.
3. When prompted to grant **User Account Control** permission to access the licensing settings, confirm by selecting **Yes**.
4. On successful deactivation, a copy of the license serial code will be sent to the email address it is associated with, ready for activation on another system.
5. Click **Finish** to close the **License Deactivation Wizard**.

Offline Deactivation

If your PC is not connected to internet, it is still possible to deactivate the MyCurveFit Excel Add-In using a separate internet-connected device. In this case:

1. Clear the **Use internet connection for deactivation** check box and click **Continue** to proceed with deactivation.
2. Confirm deactivation and click **Deactivate**.
3. When prompted to grant **User Account Control** permission to access the licensing settings, confirm by selecting **Yes**.
4. A QR code will appear; if you have a network-connected device (such as a smartphone or tablet) capable of reading this, then scan the QR code and follow the instructions.

Alternatively, copy and paste the provided link and open it on a system with internet connection (perhaps by transferring via USB memory device).

5. On successful deactivation of your serial code, a confirmation message will appear in the browser and a copy of the license serial code will be sent to the email address it is associated with, ready for activation on another system.
6. Confirm that the email has been received in the **License Deactivation Wizard** and click **Finish**.

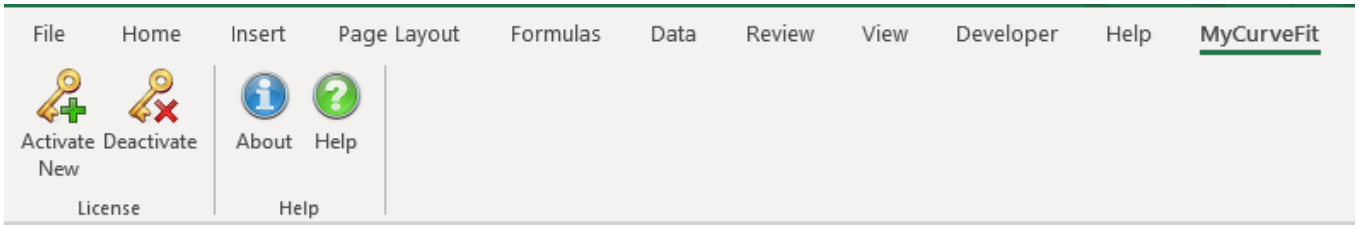
Quick Start

MyCurveFit Add-In – The Basics

This section introduces the basics of working with the MyCurveFit Excel Add-In.

The MyCurveFit Excel Add-In uses CSE Arrays to compute the parameters associated with the selected curve fit method. This is performed completely within Excel, without the need to send data to a server for analysis. Once the parameters are computed, the curve fit equation can then be used to interpolate or extrapolate Unknown concentrations.

Once MyCurveFit Excel Add-In has been installed, a MyCurveFit tab will appear in the Excel Ribbon.

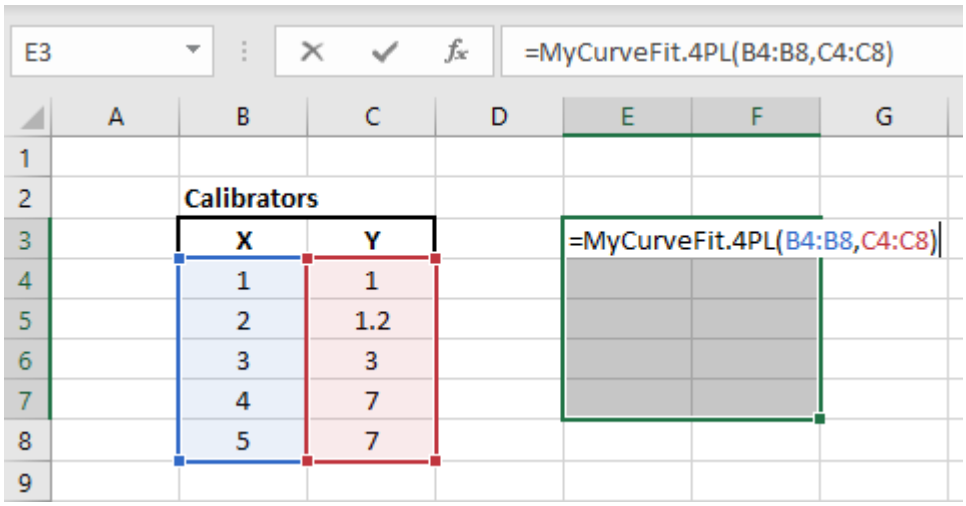


Using the **Activate New** option, activate the license following the steps here.

Add calibrators X and Y values.

	A	B	C	D
1				
2		**Calibrators**		
3		**X**	**Y**	
4		1	1	
5		2	1.2	
6		3	3	
7		4	7	
8		5	7	
9				

Select Output cells, and enter the curve fit equation.



Press **Ctrl+Shift+Enter** to calculate curve fit parameters.

Calibrators	
X	**Y**
1	1
2	1.2
3	3
4	7
5	7

Parameters	
a	1.099995
b	31.0305
c	3.072862
d	7.000825
R^2	0.99944

Video Tutorials

For the latest video content please visit https://myassays.com/mycurvefit-excel-add-in-training-course.html

Selected video links are provided here:

Getting Started

https://www.myassays.com/video/getting-started-with-mycurvefit-excel-add-in

Basics

https://www.myassays.com/video/mycurvefit-excel-add-in-basics

Charting a 4PL Curve

https://www.myassays.com/video/charting-a-4pl-curve-with-mycurvefit-excel-add-in

Interpolating Results

https://www.myassays.com/video/interpolating-results-using-mycurvefit-excel-add-in

Adding Observations to Curve Chart

https://www.myassays.com/video/adding-observations-to-curve-chart-with-mycurvefit-excel-add-in

Weighted Curve Fits

https://www.myassays.com/video/weighted-curve-fits-with-mycurvefit-excel-add-in

Calculating User Defined Fit Parameters

https://www.myassays.com/video/calculating-user-defined-fit-parameters-with-mycurvefit-excel-add-in

ELISA Data Analysis

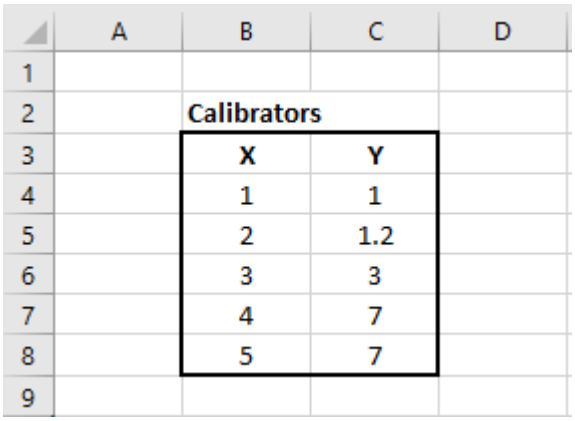
https://www.myassays.com/video/elisa-data-analysis-using-mycurvefit-excel-add-in

Using the MyCurveFit Excel Add-In

Performing Analyses

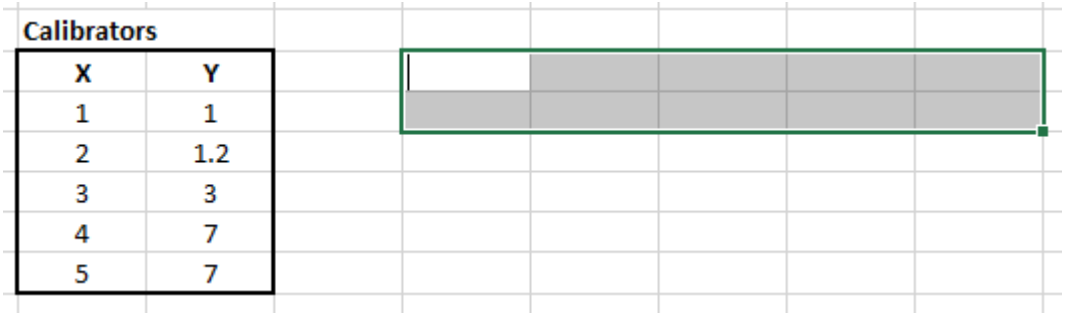
To calculate parameters using the MyCurveFit Excel Add-In:

1. Open Excel.
2. Enter Calibrator X and Y values.



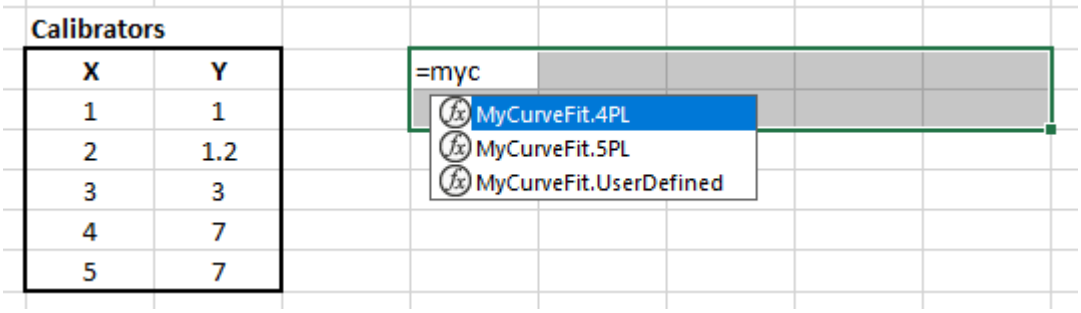
	A	B	C	D
1				
2		Calibrators		
3		X	Y	
4		1	1	
5		2	1.2	
6		3	3	
7		4	7	
8		5	7	
9				

3. Select the number of cells corresponding to the number of parameters for your curve fit. For example, for a 4PL fit, select at least 4 cells. For more information on selecting an appropriate number of cells, see Cell Selection.

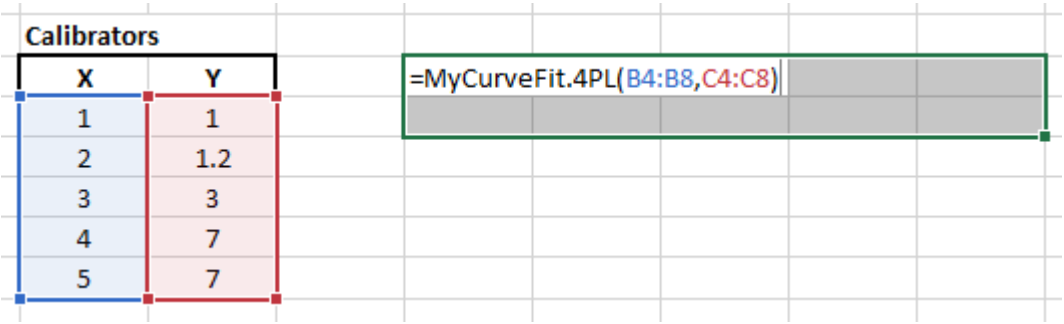


Calibrators	
X	Y
1	1
2	1.2
3	3
4	7
5	7

4. Add **Equal** and begin typing **"MyCurveFit"** and select from the available fit methods.



5. Highlight the calibrator X and Y value columns, separated by a comma.



Calibrators	
X	Y
1	1
2	1.2
3	3
4	7
5	7

=MyCurveFit.4PL(B4:B8,C4:C8)

6. Press **Ctrl+Shift+Enter** to calculate the parameters.

Calibrators	
X	Y
1	1
2	1.2
3	3
4	7
5	7

a	b	c	d	R^2
1.099995	31.0305	3.072862	7.000825	0.99944

Supported Fit Methods

The MyCurveFit Excel Add-In supports 4PL, 5PL and User Defined fit methods.

Four Parameter Logistic Curve

The four parameter logistic curve fit (or 4PL) method is an excellent fit method for modeling biological data, and is commonly recommended by assay kit manufacturers. This fit method models sigmoidal data well, with high accuracy at the endpoints or saturation points of the curve. The fit equations (solved for x and y) are as follows:

$$x = c\left(\frac{a-d}{y-d} - 1\right)^{\frac{1}{b}}$$

$$y = d + \frac{a-d}{1+\left(\frac{x}{c}\right)^{b}}$$

The four computed parameters are:

- **a** = the minimum value that can be obtained (i.e. what happens at 0 dose)
- **d** = the maximum value that can be obtained (i.e. what happens at an infinite dose)
- **c** = the point of inflection (i.e. the point on the S shaped curve halfway between a and d)
- **b** = Hill's slope of the curve (this is related to the steepness of the curve at point c).

Note that the **a** and **d** parameters might be flipped, however a and d will always define the upper and lower asymptotes of the curve. The **a** and **d** parameters are in the same units as y.

Five Parameter Logistic Curve

The five parameter logistic curve fit (or 5PL) fit method is another great choice for modeling biological data, and is very similar to the 4PL fit described above. This fit method differs from the 4PL fit in that it does not assume symmetry around the midpoint of the curve. The fit equations (solved for x and y) are as follows:

$$x = c\left[\left(\frac{a-d}{y-d}\right)^{\frac{1}{m}} - 1\right]^{\frac{1}{b}}$$

$$y = d + \frac{a-d}{\left[1+\left(\frac{x}{c}\right)^{b}\right]^{m}}$$

You'll notice the fit is very similar to the 4PL method, with the addition of a 5th parameter **m**. This parameter accounts for asymmetry in the curve fit, if the value is 1 the fit is symmetrical.

User Defined

The User Defined fit method will allow you to specify a custom fit. This provides additional flexibility for curve fitting beyond 4PL and 5PL. For more information see User Defined.

User Defined

Adding a User Defined fit method follows a similar method to 4PL and 5PL, with the added step of selecting the curve fit equation. For more information on configuring your curve fit equation, please see User Defined Fit Configuration.

1. Open Excel
2. Enter Calibrator X and Y values.

	A	B	C	D
1				
2		**Calibrators**		
3		**X**	**Y**	
4		1	1	
5		2	1.2	
6		3	3	
7		4	7	
8		5	7	
9				

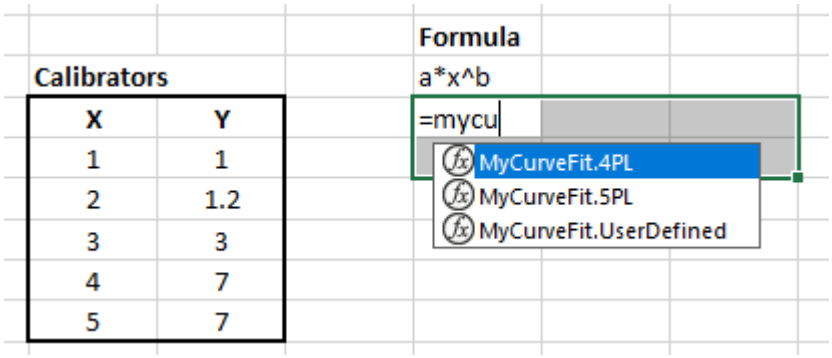
3. Enter the curve fit equation for example a*x^b.

		Formula
Calibrators		a*x^b
X	**Y**	
1	1	
2	1.2	
3	3	
4	7	
5	7	

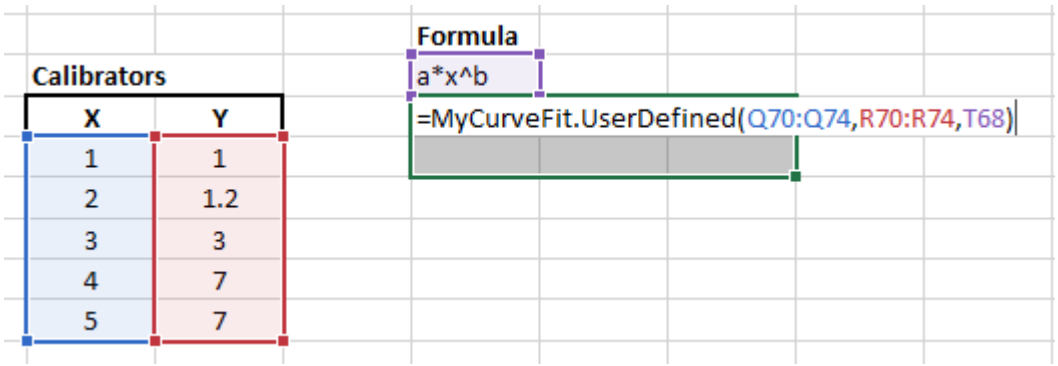
4. Select the number of cells corresponding to the number of parameters for your curve fit. For example, for a*x^b, select at least 2 cells. For more information on selecting an appropriate number of cells, see Cell Selection.

		Formula
Calibrators		a*x^b
X	**Y**	
1	1	
2	1.2	
3	3	
4	7	
5	7	

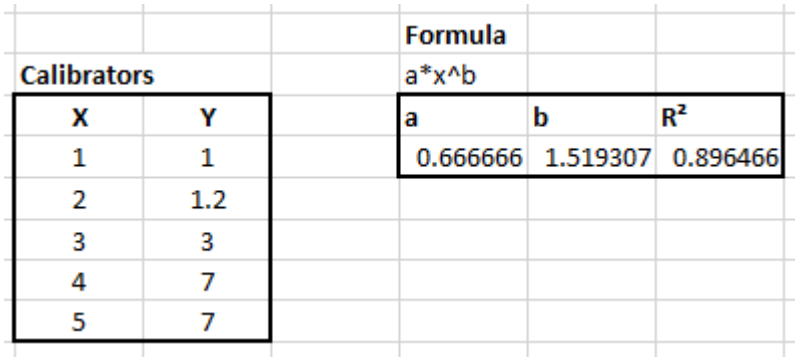
5. Add **Equal** and begin typing **"MyCurveFit"** and select **MyCurveFit.UserDefined** from the available fit methods.



6. Select the x and y calibrator values, separated by a comma, followed by the cell containing the curve fit equation.



7. Press **Ctrl+Shift+Enter** to calculate the parameters.



User Defined Advanced

Adding a User Defined fit method follows a similar method to User Defined Fit, with the added option of including parameter starting estimates and constraints. For more information on configuring your curve fit equation, please see User Defined Advanced Fit Configuration.
Video Walkthrough...

1. Open Excel
2. Enter Calibrator X and Y values.

Calibrators	
X	**Y**
1	7
2	7
3	3
4	1.2
5	1

3. Enter the curve fit equation for example **[y0]-([v0]/k)*(1-exp(-k*x))**.

Calibrators	
X	**Y**
1	7
2	7
3	3
4	1.2
5	1

Fit Equation

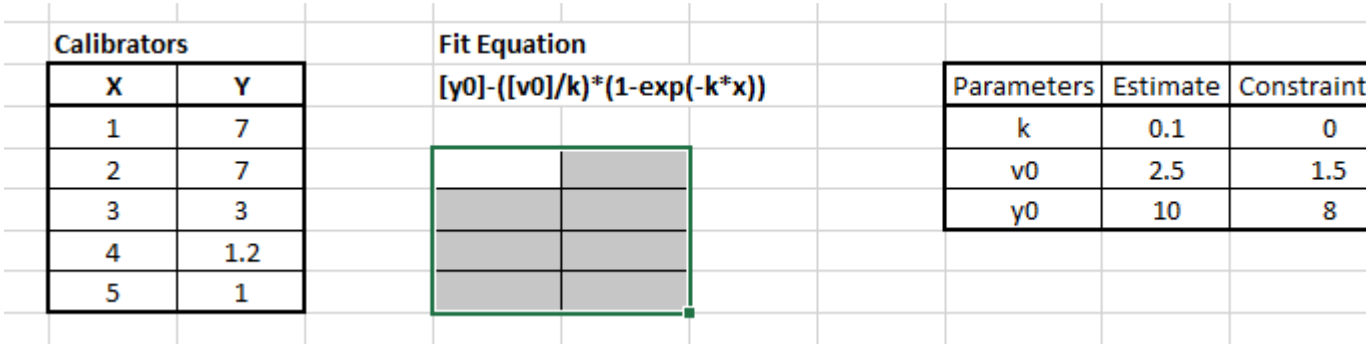
[y0]-([v0]/k)*(1-exp(-k*x))

4. Add a table containing the starting estimates and constraints for your parameters. This should contain the same number of rows as fit parameters, and 3 columns consisting of Estimate, Constraint Min, and Constraint Max. To assist with determining the order the parameters will be returned, the **MyCurveFit.UserDefined.Coeffs** function can be used.

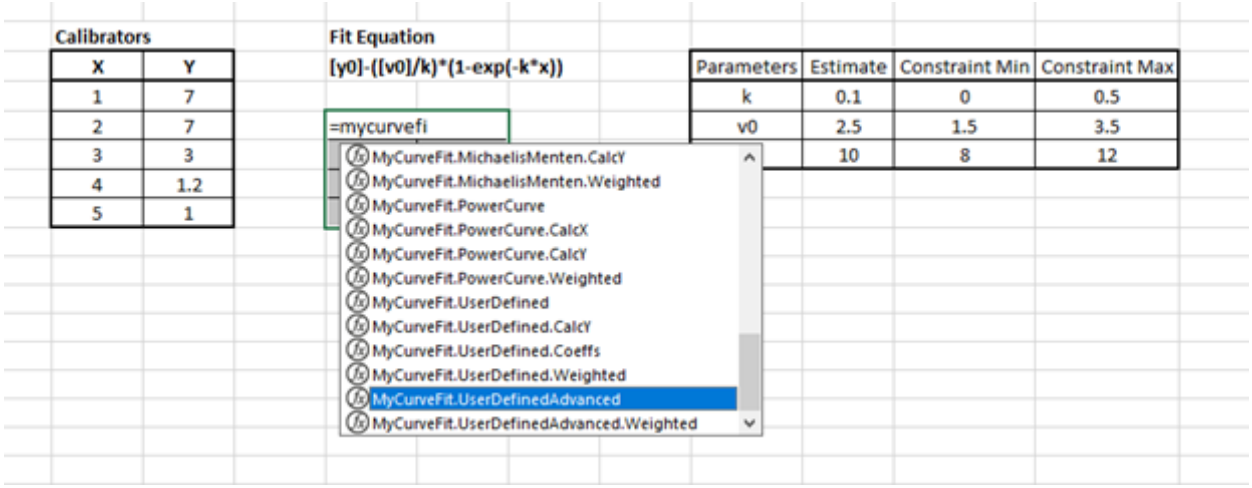
Parameters	Estimate	Constraint Min	Constraint Max
k	0.1	0	0.5
v0	2.5	1.5	3.5
y0	10	8	12

5. Select the number of cells corresponding to the number of parameters for your curve fit. For example, for **[y0]-([v0]/k)*(1-exp(-k*x))**, select at least 3 cells. For more

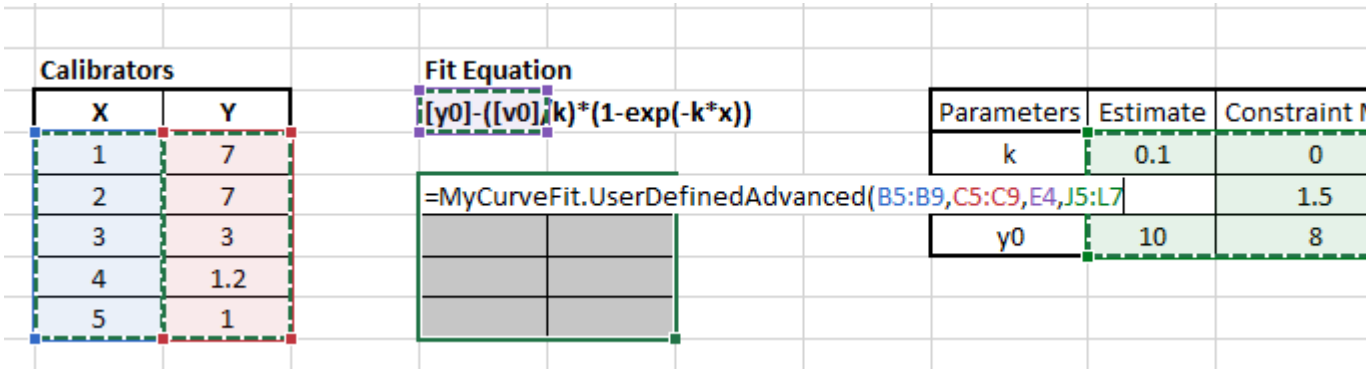
information on selecting an appropriate number of cells, see Cell Selection.



6. Add **Equal** and begin typing **"MyCurveFit"** and select **MyCurveFit.UserDefinedAdvanced** from the available fit methods.



7. Select the x and y calibrator values, separated by a comma, the cell containing the curve fit equation, and the table containing the estimates and constraints.



8. Press **Ctrl+Shift+Enter** to calculate the parameters.

Calibrators	
X	**Y**
1	7
2	7
3	3
4	1.2
5	1

Fit Equation

[y0]-([v0]/k)*(1-exp(-k*x))

k	0.105802
v0	2.431247
y0	9.901668
R^2	0.891959

Parameters	Estimate	Constraint M
k	0.1	0
v0	2.5	1.5
y0	10	8

Cell Selection

When selecting a number of cells to contain parameters, the number of cells selected should be *at least* equal to the number of parameters used in the fit. For example, a 4PL fit requires at least 4 cells, a 5PL fit requires at least 5 cells, and a user defined fit requires the number of parameters not including x and y. Beyond selecting the cells required for parameters, there are formatting options for how your parameters will appear.

Parameter Orientation

Parameters can be oriented **horizontally** or **vertically**, depending on how the cells are selected.

Calibrators	
X	Y
1	1
2	1.2
3	3
4	7
5	7

Vertical
1.099995
31.0305
3.072862
7.000825

Horizontal			
1.099995	31.0305	3.072862	7.000825

Adding Headers

In addition to orientation options, headers can be added by selecting either an additional column or row.

Calibrators	
X	Y
1	1
2	1.2
3	3
4	7
5	7

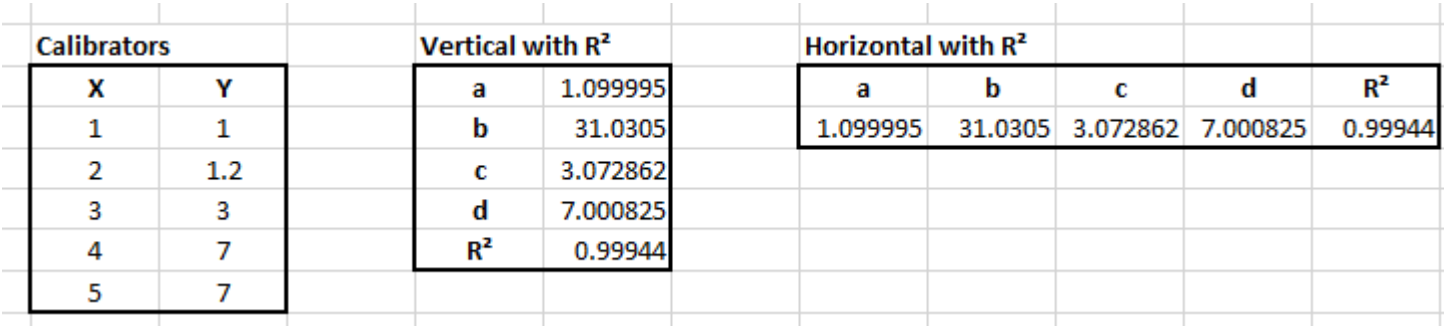
Vertical with Headers	
a	1.099995
b	31.0305
c	3.072862
d	7.000825

Horizontal with Headers			
a	b	c	d
1.099995	31.0305	3.072862	7.000825

Adding R^2 Value

The R^2 is 1 minus the ratio of the sum of the squares of the residuals divided by the sum of the squares of the differences between *y* fit and the mean *y* value. This will equal 1 for a perfect fit and tend toward 0 for a bad fit. In other words, R^2 is the ratio of variation that is explained by the curve-fitting model to the total variation in the model. In most situations, irreducible errors in measurement will prevent the model from explaining all the variation. Models using a larger set of factors may produce an R^2 value that is closer to 1. However, it may be that the additional factors are essentially modeling noise.

To add an R^2 value, select an additional cell (or two cells to include a header). The R^2 will be automatically calculated and included.



Calibrators	
X	Y
1	1
2	1.2
3	3
4	7
5	7

Vertical with R^2	
a	1.099995
b	31.0305
c	3.072862
d	7.000825
R^2	0.99944

Horizontal with R^2				
a	b	c	d	R^2
1.099995	31.0305	3.072862	7.000825	0.99944

Other Goodness Measures

Additional goodness measures can be added according to the fit method. These include:

Name	Description
aR^2	aR^2 is the adjusted R^2 value. aR^2 is R^2 adjusted downward to compensate for overfitting. The larger the number of independent variables is (compared to the number of observations), the lower the adjusted R^2 value will be. When using curve fitting models with a larger number of independent variables, the additional variables may be simply modeling noise.
P	P is the P-value. P is the significance of the model as a probability. It is the P-value of F for the curve-fitting model. This compares the variance attributed to the model with the variance of the residual.
SE	SE is the standard error. The standard error is the root mean square of the residuals.
F	F is the F-statistic. F is the ratio of the variance explained by the curve fitting model to the residual variance.
AIC	AIC is Akaike's Information Criterion; this provides an estimate of the quality of the curve-fitting model for comparison against other models. AIC can be used to compare curve-fitting models and determine which is the best. The model with the lowest AIC value is most likely to be correct (AIC values can be negative). AIC will favour simpler curve-fitting models over those with more parameters (it achieves this by applying a penalty proportional to the number of parameters).
BIC	BIC is Bayesian Information Criterion; this is very similar to AIC. The key difference is that BIC imposes a higher penalty for the number of parameters in the model.
DoF	DoF is Degrees of Freedom; this is computed as the number of calibrators

Name	Description
	minus the number of parameters in the fit. The number of calibrators depends on the selected **Fit To Standard** option; for **Replicates** (if there are replicates) will be more degrees of freedom than for **Average**. If there are not enough **Degrees of Freedom**, then values for **P**, **F**, **SE** and **aR^2** cannot be computed.
SSE	SSE is the Sum of Squared Errors, the sum of squares of the residuals of the model.

To include these goodness measures, select additional cells for your fit and the goodness measures will automatically be included.

Calibrators	
X	**Y**
1	1
2	1.2
3	3
4	7
5	7

4PL Fit	
a	1.099995
b	31.0305
c	3.072862
d	7.000825
R^2	0.99944
aR^2	0.9972
P	0.03549
SE	0.141419
SSE	0.019999
F	446.1627
AIC	-5.41806
BIC	-6.98031
DoF	1

Selecting Additional Cells

If too many cells are selected for the number of parameters included in the fit, **#N/A** will return in the unused cells.

Calibrators	
X	Y
1	1
2	1.2
3	3
4	7
5	7

4PL Fit	
a	1.099995
b	31.0305
c	3.072862
d	7.000825
R^2	0.99944
aR^2	0.9972
P	0.03549
SE	0.141419
SSE	0.019999
F	446.1627
AIC	-5.41806
BIC	-6.98031
DoF	1
#N/A	#N/A

Building a Plot Data Table

Excel offers basic curve fitting tools and regression analysis, however to chart more complicated curve fit methods like 4PL or 5PL, a Plot Data Table is required to form the curve.
Video Walkthrough...

1. Create a table with x values that span the range of your calibrator x values, at sufficiently small increments. For example, for calibrators with x value from 1 to 5, plot data from 1 to 5 with increments of 0.1 would be appropriate.

Calibrators

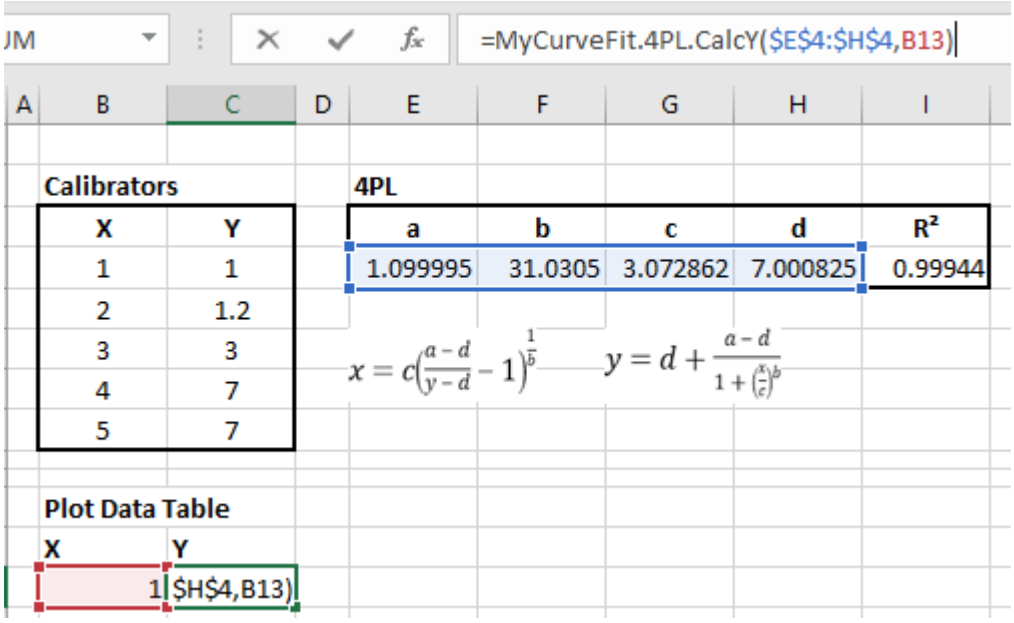
X	Y
1	1
2	1.2
3	3
4	7
5	7

Plot Data Table

X	Y
1	
1.1	
1.2	
1.3	
1.4	
1.5	
1.6	
1.7	
1.8	
1.9	
2	
2.1	

2. Calculate the y values using the curve fit equation including the calculated parameters. For a 4PL fit, this is **d+((a-d)/(1+power((x/c),b)))**. For a 5PL fit, this is **d+((a-d)/((1+power((x/c),b)^m))**. To simplify the addition of these formulas, the MyCurveFit

Excel Add-In offers CalcX and CalcY functionality for 4 and 5PL fit methods.



3. Drag the function down to complete the calculation for y values for the entirety of the Plot Data Table.

Calibrators

X	Y
1	1
2	1.2
3	3
4	7
5	7

4PL

a	b	c	d	R^2
1.099995	31.0305	3.072862	7.000825	0.99944

Plot Data Table

X	Y
1	1.099995
1.1	1.099995
1.2	1.099995
1.3	1.099995
1.4	1.099995
1.5	1.099995
1.6	1.099995
1.7	1.099995
1.8	1.099995
1.9	1.099997
2	1.100004
2.1	1.100038
2.2	1.10018
2.3	1.10073
2.4	1.10275
2.5	1.109762
2.6	1.132851
2.7	1.204676
2.8	1.411993
2.9	1.939461
3	3.000002
3.1	4.45043
3.2	5.694884

CalcX and CalcY

CalcX and CalcY functions are used to assist with the interpolation or extrapolation of results from a computed curve fit. This is accomplished by substituting the calculated parameters back into the curve fit equation, and solving for either X or Y. To simplify this process, for 4PL and 5PL fit methods, MyCurveFit Excel Add-In includes dedicated CalcX and CalcY functions.
Video Walkthrough...

A curve fit equation is written in terms of x, such as:

$$y = d + \frac{a - d}{1 + \left(\frac{x}{c}\right)^b}$$

This can be used to compute the y-value at a specific x-value using the computed coefficients. The CalcY functions provide this functionality to simplify computing y (so that the curve-fit formula does not need to be manually entered).

Similarly, the x-values can be computed from a curve by rearranging the curve in terms of y, such as:

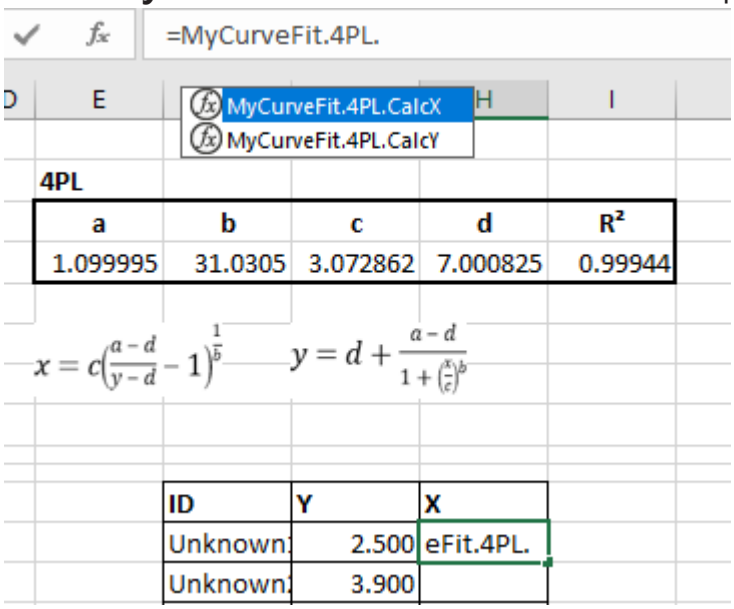
$$x = c\left(\frac{a - d}{y - d} - 1\right)^{\frac{1}{b}}$$

Where possible, the MyCurveFit Excel Add-In provides the CalcX function to simplify computing the x-value. It is important to note that for some curve-fits it may not be easy or possible to rearrange the curve-fit equation in terms of y. Also, in some cases there may be multiple x results for any given y-value. In those cases, the MyCurveFit Excel Add-In will only return one result.

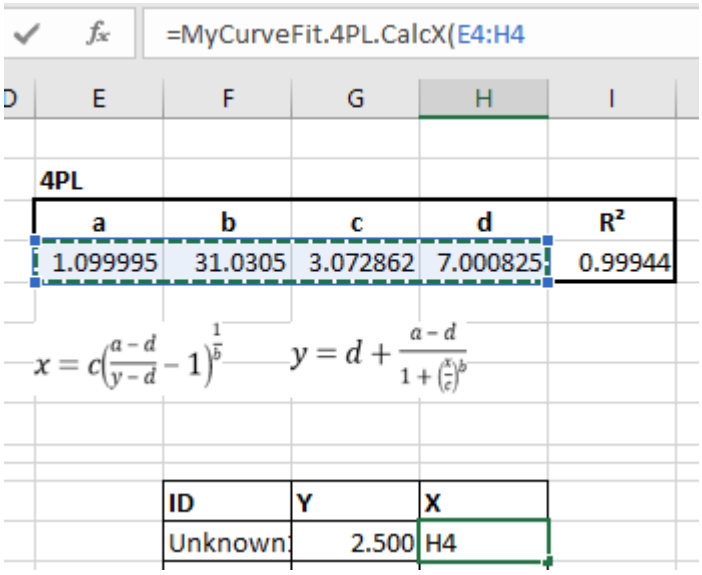
CalcX

The CalcX functions use the 4 or 5PL curve equations to calculate the x-value for a specified y-value. To apply the CalcX function:

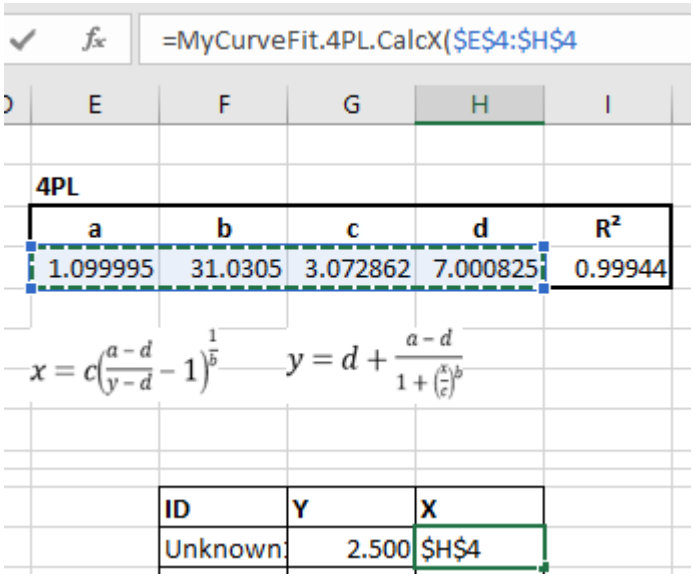
1. Select the cell that should contain the calculated x-value.
2. Enter **=MyCurveFit** and select the CalcX function applicable for your fit method.



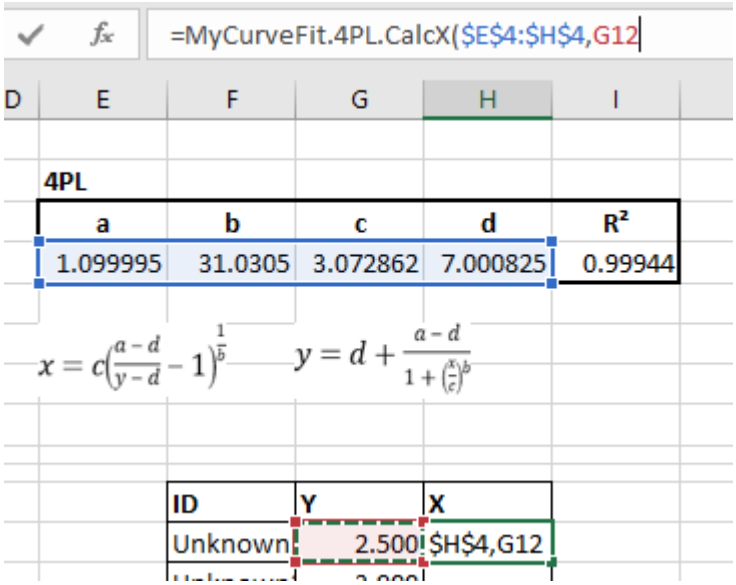
3. Select the calculated parameters.



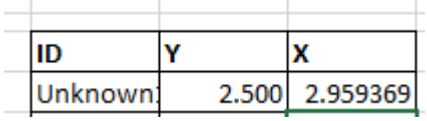
4. Press F4 to add dollar signs to designate the parameters as absolute references.



5. Enter a comma, and select the y-value to be used for the calculation. Note, this cell should not be designated as an absolute reference.



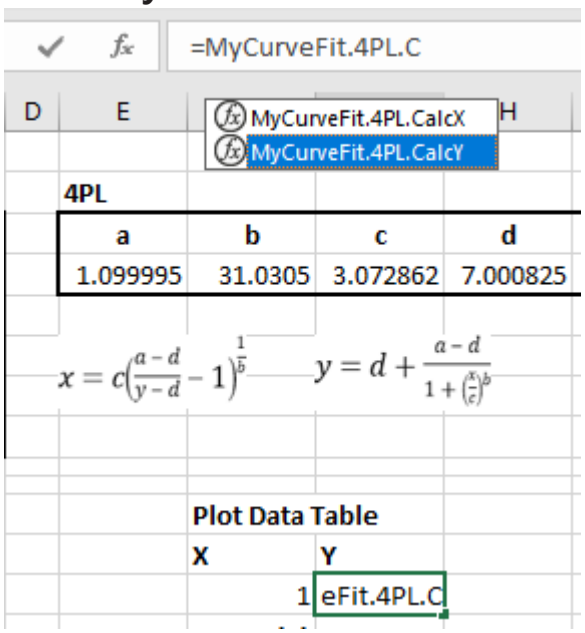
6. Press enter to apply the function. If applying the function to multiple cells, hover over the lower right-hand corner of the cell containing the function and drag to populate additional cells.



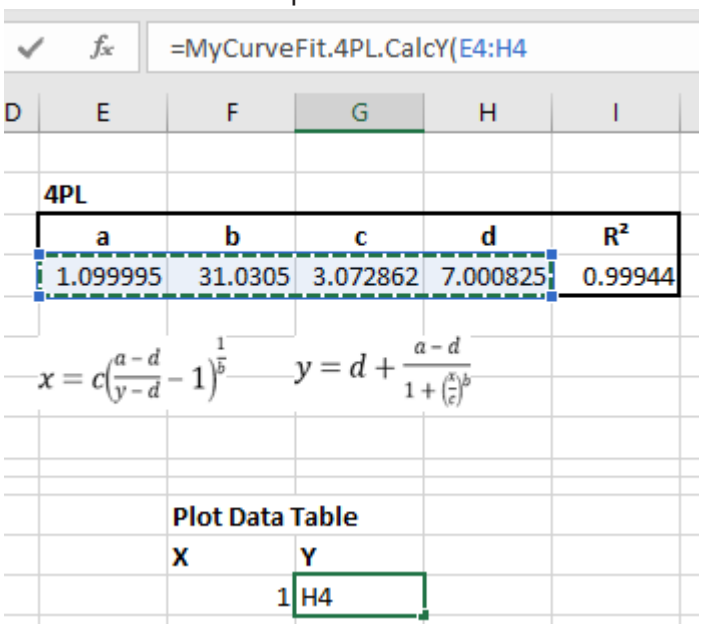
CalcY

The CalcY functions use the 4 or 5PL curve equations to calculate the y-value for a specified x-value. To apply the CalcY function:

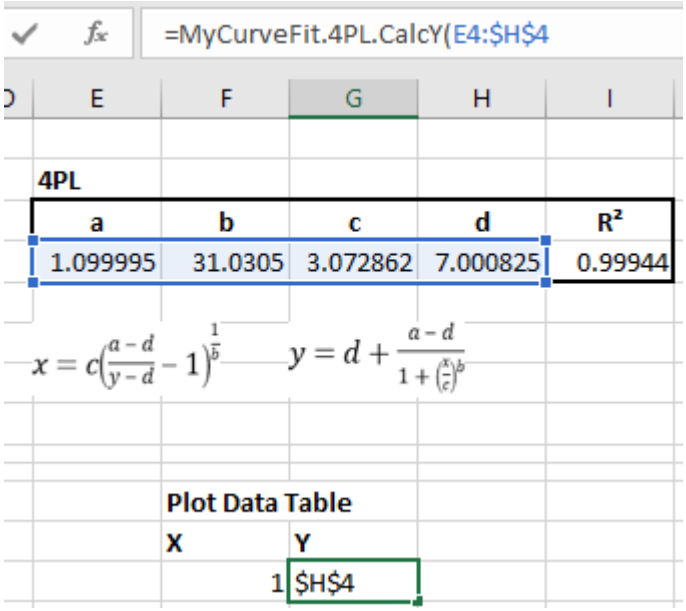
1. Select the cell that should contain the calculated y-value.
2. Enter **=MyCurveFit** and select the CalcY function applicable for your fit method.



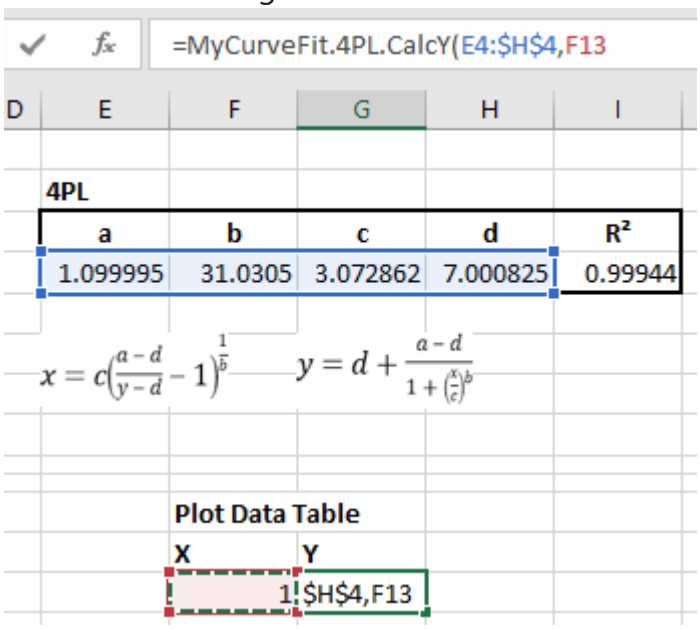
3. Select the calculated parameters.



4. Press F4 to add dollar signs to designate the parameters as absolute references.

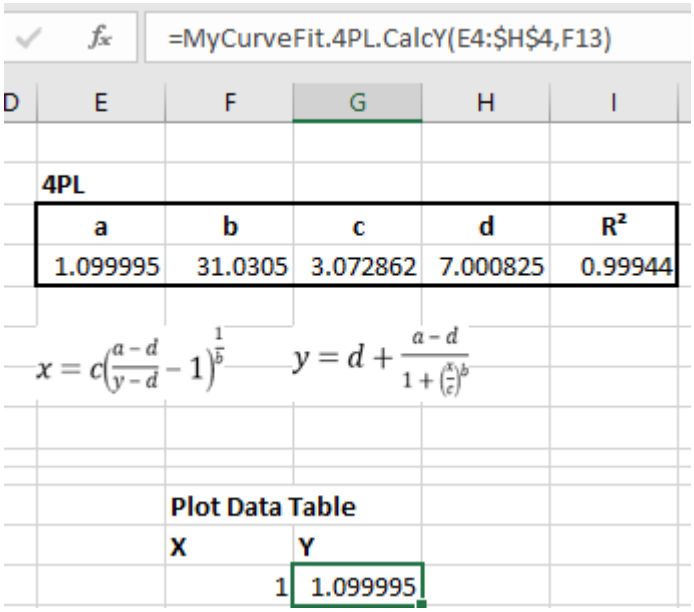


5. Enter a comma, and select the x-value to be used for the calculation. Note, this cell should not be designated as an absolute reference.



6. Press enter to apply the function. If applying the function to multiple cells, hover over the lower right-hand corner of the cell containing the function and drag to populate

additional cells.



Charting in Excel

To create a chart in Excel demonstrating the chosen fit method (Video Walkthrough...):

1. Calculate the parameters for the fit method (in this example, 4PL).

Calibrators	
X	Y
1	1
2	1.2
3	3
4	7
5	7

Parameters				
a	b	c	d	R^2
1.099995	31.0305	3.072862	7.000825	0.99944

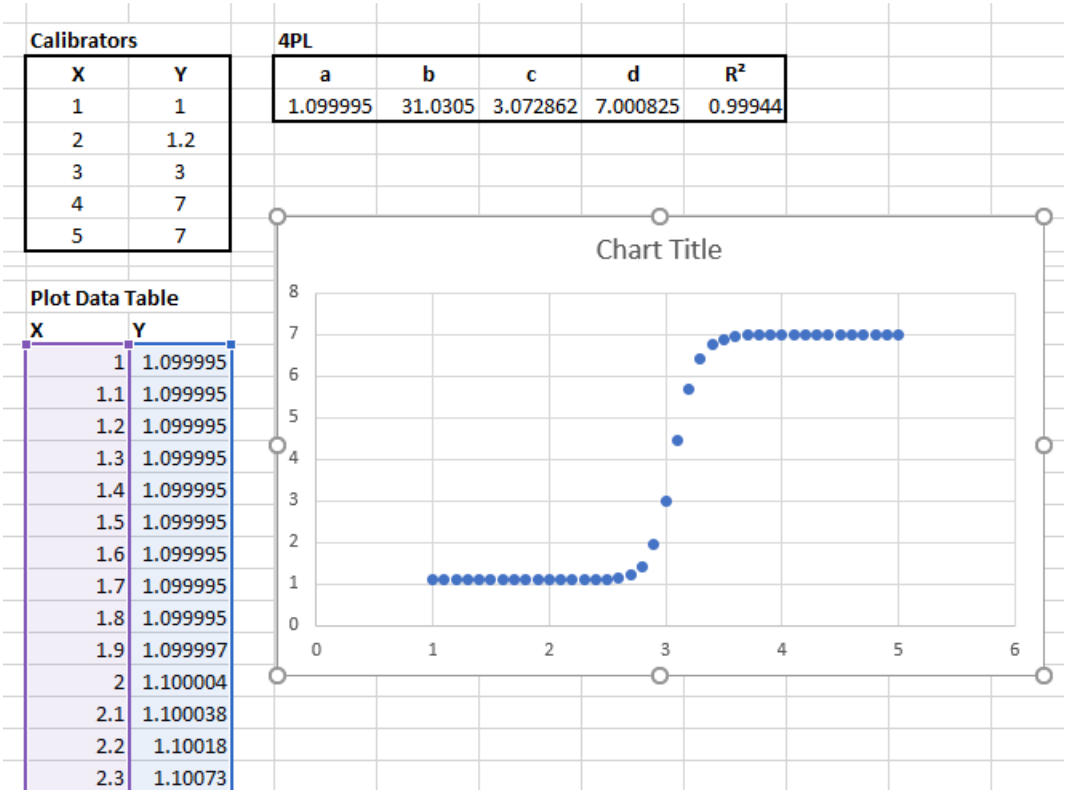
2. Build a Plot Data Table.

Calibrators	
X	Y
1	1
2	1.2
3	3
4	7
5	7

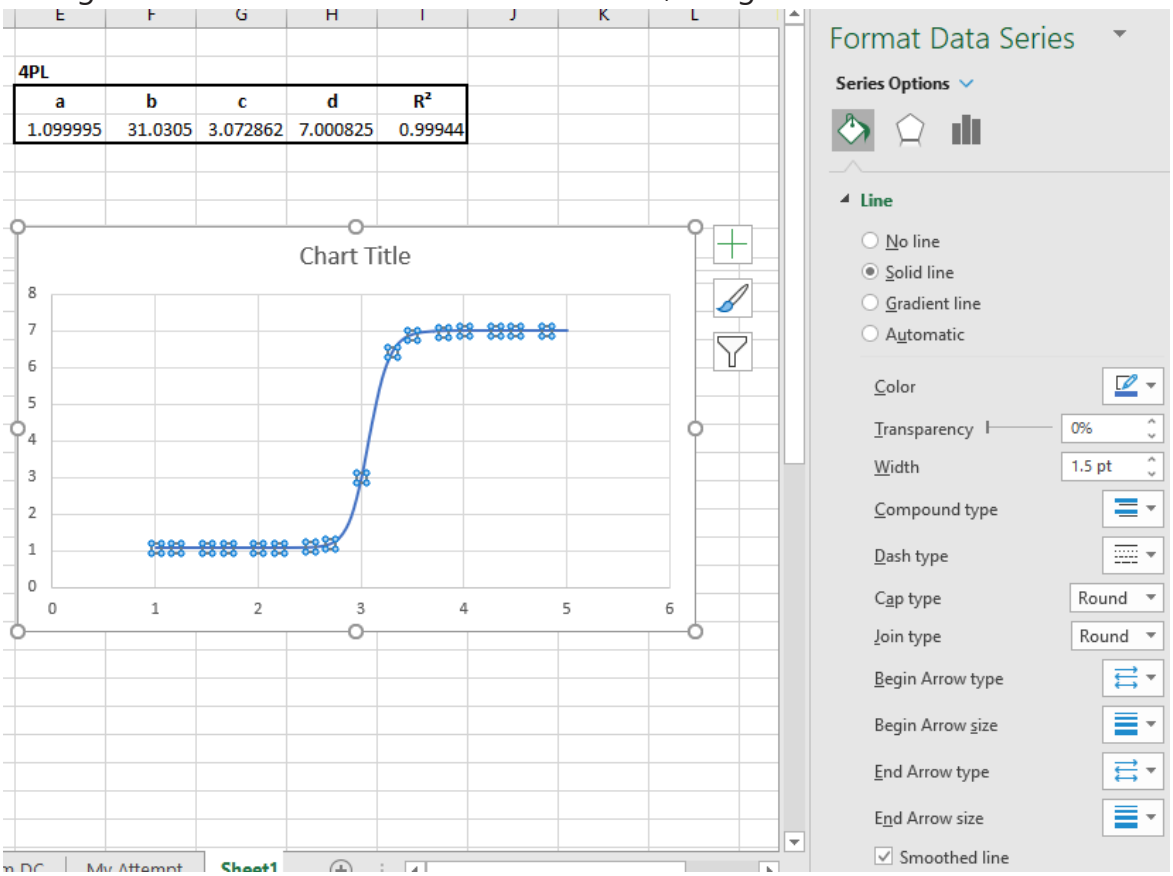
4PL				
a	b	c	d	R^2
1.099995	31.0305	3.072862	7.000825	0.99944

Plot Data Table	
X	Y
1	1.099995
1.1	1.099995
1.2	1.099995
1.3	1.099995
1.4	1.099995
1.5	1.099995
1.6	1.099995
1.7	1.099995
1.8	1.099995
1.9	1.099997
2	1.100004
2.1	1.100038
2.2	1.10018
2.3	1.10073
2.4	1.10275
2.5	1.109762
2.6	1.132851
2.7	1.204676
2.8	1.411993
2.9	1.939461
3	3.000002
3.1	4.45043
3.2	5.694884

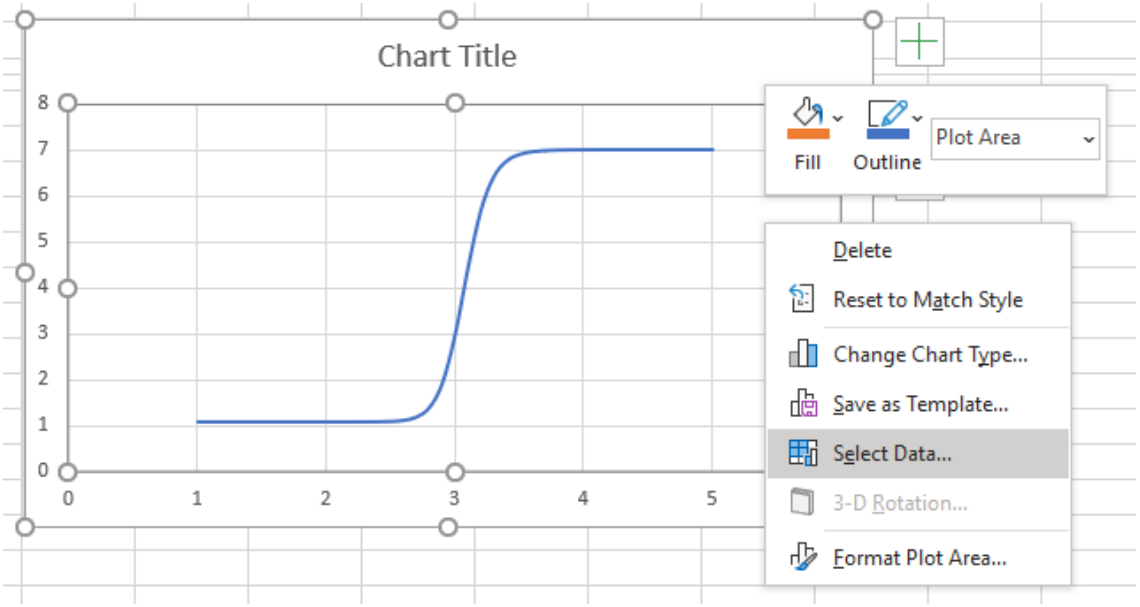
3. Select the **Plot Data Table** and add a **Scatter Plot**.



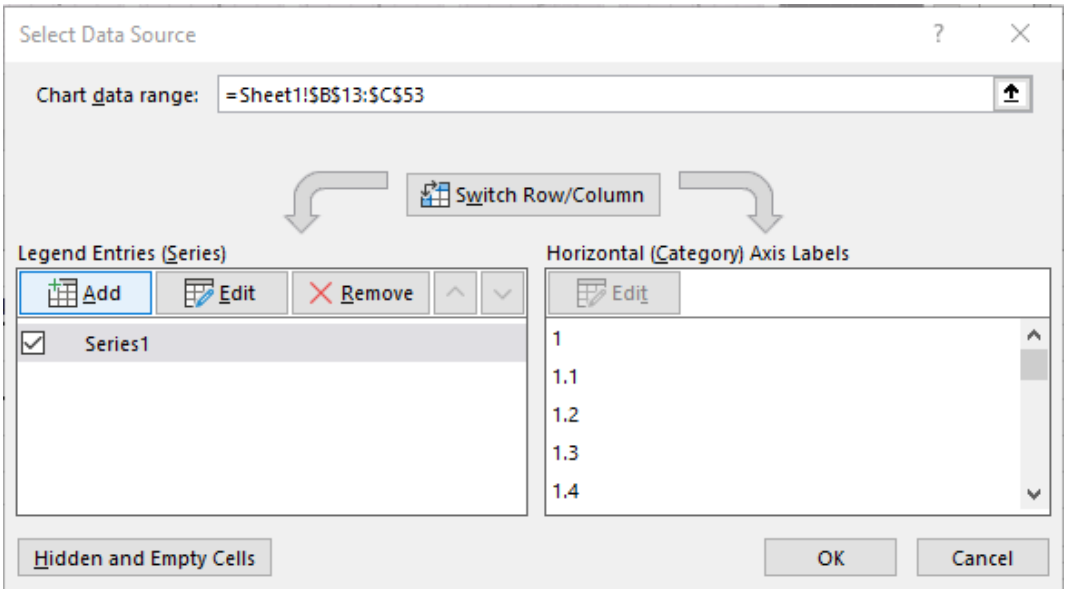
4. Configure the **Plot Data Line** with no markers, using a **Smoothed Line**.



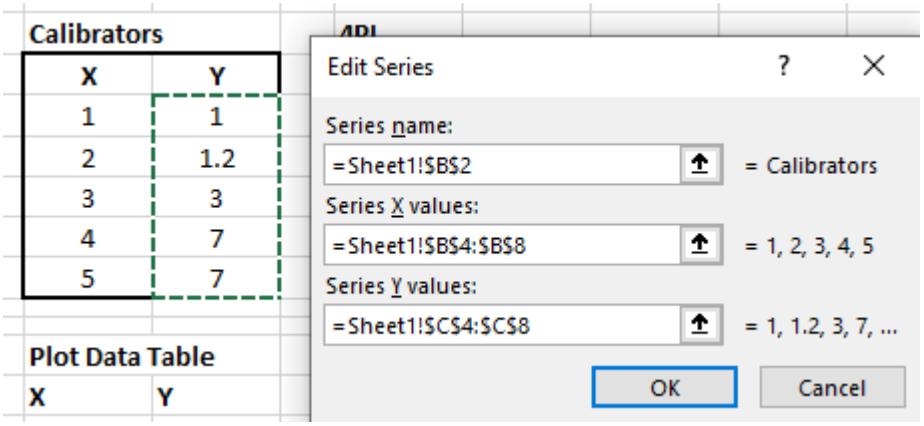
5. **Right-click** on the chart, and select **Select Data**.



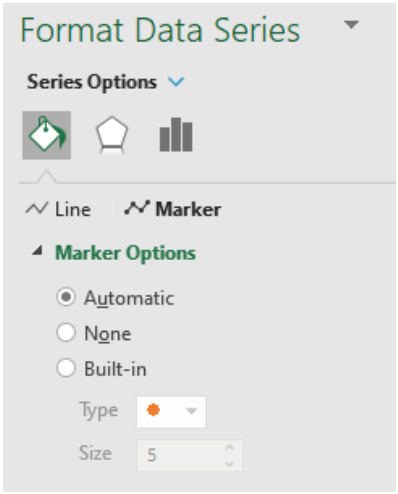
6. Click **Add** to add a new series.



7. Select the calibrator x and y values.



8. **Right-click** on the data series and format with **No Line** and **Automatic Markers**



9. Update the marker color and chart/axes titles as desired for the final chart.

Calibrators

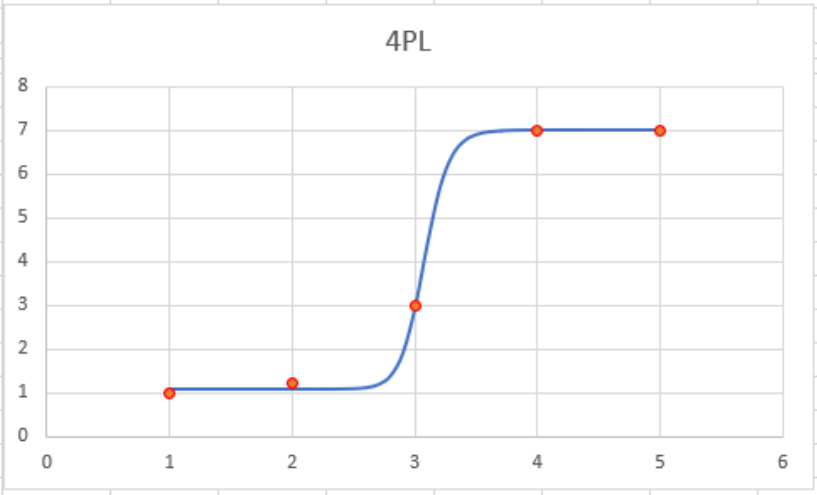
X	Y
1	1
2	1.2
3	3
4	7
5	7

4PL

a	b	c	d	R^2
1.099995	31.0305	3.072862	7.000825	0.99944

Plot Data Table

X	Y
1	1.099995
1.1	1.099995
1.2	1.099995
1.3	1.099995
1.4	1.099995
1.5	1.099995
1.6	1.099995
1.7	1.099995
1.8	1.099995
1.9	1.099997
2	1.100004



Reference

Functions

Four Parameter Logistic Curve

Calculates the 4PL fit parameters using specified x and y calibrator values.

Syntax:

MyCurveFit.4PL(calibrator_x_values,calibrator_y_values)

Where:

- *calibrator_x_values* is the range of calibrators to be used in the curve fit. A minimum of 4 calibrator_x_values is required, the number of calibrator_x_values should be equal to the number of calibrator_y_values.
- *calibrator_y_values* is the range of calibrators to be used in the curve fit. A minimum of 4 calibrator_y_values is required, the number of calibrator_y_values should be equal to the number of calibrator_x_values.

Notes:

- The number of cells to be selected to house the results should equal at least 4 (the number of parameters calculated by the curve fit).

Five Parameter Logistic Curve

Calculates the 5PL fit parameters using specified x and y calibrator values.

Syntax:

MyCurveFit.5PL(calibrator_x_values,calibrator_y_values)

Where:

- *calibrator_x_values* is the range of calibrators to be used in the curve fit. A minimum of 5 calibrator_x_values is required, the number of calibrator_x_values should be equal to the number of calibrator_y_values.
- *calibrator_y_values* is the range of calibrators to be used in the curve fit. A minimum of 5 calibrator_y_values is required, the number of calibrator_y_values should be equal to the number of calibrator_x_values.

Notes:

- The number of cells to be selected to house the results should equal at least 5 (the number of parameters calculated by the curve fit).

User Defined Curve Fit

Calculates the fit parameters for a User Defined method using specified x and y calibrator values, and fit method expression.

Syntax:

MyCurveFit.UserDefined(calibrator_x_values,calibrator_y_values,fit_equation)

Where:

- *calibrator_x_values* is the range of calibrator x-values to be used in the curve fit. The number of calibrator_x_values should be equal to the number of calibrator_y_values.
- *calibrator_y_values* is the range of calibrator x-values to be used in the curve fit. The number of calibrator_x_values should be equal to the number of calibrator_y_values.
- *fit_equation* is the user-defined fit method equation.

Notes:

- The number of cells to be selected to house the results should equal to at least the number of parameters calculated by the curve fit.

User Defined Advanced Fit

Calculates the fit parameters for a User Defined method using specified x and y calibrator values, fit method expression, starting estimates, and constraints.

Syntax:

MyCurveFit.UserDefinedAdvanced(calibrator_x_values,calibrator_y_values,fit_equation,estimate_constraints)

Where:

- *calibrator_x_values* is the range of calibrator x-values to be used in the curve fit. The number of calibrator_x_values should be equal to the number of calibrator_y_values.
- *calibrator_y_values* is the range of calibrator x-values to be used in the curve fit. The number of calibrator_x_values should be equal to the number of calibrator_y_values.
- *fit_equation* is the user-defined fit method equation.

- *estimate_constraints* is a reference to a 2D cell selection containing numeric values or be empty. If a cell is left empty, no value is applied for that estimate or constraint. The number of rows equals the number of coefficients in the user-defined equation, three columns must be selected representing Initial Estimate, Constraint Min, and Constraint Max. **MyCurveFit.UserDefined.Coeffs** function can be used to report the coefficient order.

Notes:

- The number of cells to be selected to house the results should equal to at least the number of parameters calculated by the curve fit.

Exponential Basic

Calculates the Exponential Basic fit parameters using specified x and y calibrator values.

Syntax:

MyCurveFit.ExponentialBasic(calibrator_x_values,calibrator_y_values)

Where:

- *calibrator_x_values* is the range of calibrators to be used in the curve fit. The number of calibrator_x_values should be equal to the number of calibrator_y_values.
- *calibrator_y_values* is the range of calibrators to be used in the curve fit. The number of calibrator_y_values should be equal to the number of calibrator_x_values.

Notes:

- The number of cells to be selected to house the results should equal at least 3 (the number of parameters calculated by the curve fit).

Exponential Half Life

Calculates the Exponential Half Life fit parameters using specified x and y calibrator values.

Syntax:

MyCurveFit.ExponentialHalfLife(calibrator_x_values,calibrator_y_values)

Where:

- *calibrator_x_values* is the range of calibrators to be used in the curve fit. The number of calibrator_x_values should be equal to the number of calibrator_y_values.

- *calibrator_y_values* is the range of calibrators to be used in the curve fit. The number of calibrator_y_values should be equal to the number of calibrator_x_values.

Notes:

- The number of cells to be selected to house the results should equal at least 3 (the number of parameters calculated by the curve fit).

Exponential Decay

Calculates the Exponential Decay fit parameters using specified x and y calibrator values.

Syntax:

MyCurveFit.ExponentialProportional(calibrator_x_values,calibrator_y_values)

Where:

- *calibrator_x_values* is the range of calibrators to be used in the curve fit. The number of calibrator_x_values should be equal to the number of calibrator_y_values.
- *calibrator_y_values* is the range of calibrators to be used in the curve fit. The number of calibrator_y_values should be equal to the number of calibrator_x_values.

Notes:

- The number of cells to be selected to house the results should equal at least 3 (the number of parameters calculated by the curve fit).

Gaussian

Calculates the Gaussian (Bell Curve) fit parameters using specified x and y calibrator values.

Syntax:

MyCurveFit.Gaussian(calibrator_x_values,calibrator_y_values)

Where:

- *calibrator_x_values* is the range of calibrators to be used in the curve fit. The number of calibrator_x_values should be equal to the number of calibrator_y_values.
- *calibrator_y_values* is the range of calibrators to be used in the curve fit. The number of calibrator_y_values should be equal to the number of calibrator_x_values.

Notes:

- The number of cells to be selected to house the results should equal at least 3 (the number of parameters calculated by the curve fit).

Power Curve

Calculates the Power Curve fit parameters using specified x and y calibrator values.

Syntax:

MyCurveFit.PowerCurve(calibrator_x_values,calibrator_y_values)

Where:

- *calibrator_x_values* is the range of calibrators to be used in the curve fit. The number of calibrator_x_values should be equal to the number of calibrator_y_values.
- *calibrator_y_values* is the range of calibrators to be used in the curve fit. The number of calibrator_y_values should be equal to the number of calibrator_x_values.

Notes:

- The number of cells to be selected to house the results should equal at least 2 (the number of parameters calculated by the curve fit).

Michaelis-Menten

Calculates the Michaelis-Menten fit parameters using specified x and y calibrator values.

Syntax:

MyCurveFit.MichaelisMenten(calibrator_x_values,calibrator_y_values)

Where:

- *calibrator_x_values* is the range of calibrators to be used in the curve fit. The number of calibrator_x_values should be equal to the number of calibrator_y_values.
- *calibrator_y_values* is the range of calibrators to be used in the curve fit. The number of calibrator_y_values should be equal to the number of calibrator_x_values.

Notes:

- The number of cells to be selected to house the results should equal at least 2 (the number of parameters calculated by the curve fit).

Weighted Four Parameter Logistic Curve

Calculates the weighted 4PL fit parameters using specified x and y calibrator values.

Syntax:

MyCurveFit.4PL.Weighted(calibrator_x_values,calibrator_y_values,weight_values)

Where:

- *calibrator_x_values* is the range of calibrators to be used in the curve fit. A minimum of 4 calibrator_x_values is required, the number of calibrator_x_values should be equal to the number of calibrator_y_values.
- *calibrator_y_values* is the range of calibrators to be used in the curve fit. A minimum of 4 calibrator_y_values is required, the number of calibrator_y_values should be equal to the number of calibrator_x_values.
- *weight_values* is the range of weighting values to be applied to the curve fit. The number of weight_values should equal the number of calibrator_x_values and calibrator_y_values.

Notes:

- The number of cells to be selected to house the results should equal at least 4 (the number of parameters calculated by the curve fit).

Weighted Five Parameter Logistic Curve

Calculates the weighted 5PL fit parameters using specified x and y calibrator values.

Syntax:

MyCurveFit.5PL.Weighted(calibrator_x_values,calibrator_y_values,weight_values)

Where:

- *calibrator_x_values* is the range of calibrators to be used in the curve fit. A minimum of 5 calibrator_x_values is required, the number of calibrator_x_values should be equal to the number of calibrator_y_values.
- *calibrator_y_values* is the range of calibrators to be used in the curve fit. A minimum of 5 calibrator_y_values is required, the number of calibrator_y_values should be equal to the number of calibrator_x_values.
- *weight_values* is the range of weighting values to be applied to the curve fit. The number of weight_values should equal the number of calibrator_x_values and calibrator_y_values.

Notes:

- The number of cells to be selected to house the results should equal at least 5 (the number of parameters calculated by the curve fit).

Weighted User Defined Curve Fit

Calculates the fit parameters for a weighted User Defined method using specified x and y calibrator values, and fit method expression.

Syntax:

MyCurveFit.UserDefined.Weighted(calibrator_x_values,calibrator_y_values,weight_values,fit_equation)

Where:

- *calibrator_x_values* is the range of calibrator x-values to be used in the curve fit. The number of calibrator_x_values should be equal to the number of calibrator_y_values.
- *calibrator_y_values* is the range of calibrator x-values to be used in the curve fit. The number of calibrator_x_values should be equal to the number of calibrator_y_values.
- *weight_values* is the range of weighting values to be applied to the curve fit. The number of weight_values should equal the number of calibrator_x_values and calibrator_y_values.
- *fit_equation* is the user-defined fit method equation.

Notes:

- The number of cells to be selected to house the results should equal to at least the number of parameters calculated by the curve fit.

Weighted User Defined Advanced Fit

Calculates the fit parameters for a User Defined method using specified x and y calibrator values, fit method expression, starting estimates, and constraints.

Syntax:

MyCurveFit.UserDefinedAdvanced(calibrator_x_values,calibrator_y_values,fit_equation,weight_values,estimate_constraints)

Where:

- *calibrator_x_values* is the range of calibrator x-values to be used in the curve fit. The number of calibrator_x_values should be equal to the number of calibrator_y_values.
- *calibrator_y_values* is the range of calibrator x-values to be used in the curve fit. The number of calibrator_x_values should be equal to the number of calibrator_y_values.
- *fit_equation* is the user-defined fit method equation.

- *weight_values* is the range of weighting values to be applied to the curve fit. The number of weight_values should equal the number of calibrator_x_values and calibrator_y_values.
- *estimate_constraints* is a reference to a 2D cell selection containing numeric values or be empty. If a cell is left empty, no value is applied for that estimate or constraint. The number of rows equals the number of coefficients in the user-defined equation, three columns must be selected representing Initial Estimate, Constraint Min, and Constraint Max. **MyCurveFit.UserDefined.Coeffs** function can be used to report the coefficient order.

Notes:

- The number of cells to be selected to house the results should equal to at least the number of parameters calculated by the curve fit.

Weighted Exponential Basic Curve

Calculates the weighted Exponential Basic fit parameters using specified x and y calibrator values.

Syntax:

MyCurveFit.ExponentialBasic.Weighted(calibrator_x_values,calibrator_y_values,weight_values)

Where:

- *calibrator_x_values* is the range of calibrators to be used in the curve fit. The number of calibrator_x_values should be equal to the number of calibrator_y_values.
- *calibrator_y_values* is the range of calibrators to be used in the curve fit. The number of calibrator_y_values should be equal to the number of calibrator_x_values.
- *weight_values* is the range of weighting values to be applied to the curve fit. The number of weight_values should equal the number of calibrator_x_values and calibrator_y_values.

Notes:

- The number of cells to be selected to house the results should equal at least 3 (the number of parameters calculated by the curve fit).

Weighted Exponential Half Life Curve

Calculates the weighted Exponential Half Life fit parameters using specified x and y calibrator values.

Syntax:

MyCurveFit.ExponentialHalfLife.Weighted(calibrator_x_values,calibrator_y_values,weight_values)

Where:

- *calibrator_x_values* is the range of calibrators to be used in the curve fit. The number of calibrator_x_values should be equal to the number of calibrator_y_values.
- *calibrator_y_values* is the range of calibrators to be used in the curve fit. The number of calibrator_y_values should be equal to the number of calibrator_x_values.
- *weight_values* is the range of weighting values to be applied to the curve fit. The number of weight_values should equal the number of calibrator_x_values and calibrator_y_values.

Notes:

- The number of cells to be selected to house the results should equal at least 3 (the number of parameters calculated by the curve fit).

Weighted Exponential Decay Curve

Calculates the weighted Exponential Half Life fit parameters using specified x and y calibrator values.

Syntax:

MyCurveFit.ExponentialProportional.Weighted(calibrator_x_values,calibrator_y_values,weight_values)

Where:

- *calibrator_x_values* is the range of calibrators to be used in the curve fit. The number of calibrator_x_values should be equal to the number of calibrator_y_values.
- *calibrator_y_values* is the range of calibrators to be used in the curve fit. The number of calibrator_y_values should be equal to the number of calibrator_x_values.
- *weight_values* is the range of weighting values to be applied to the curve fit. The number of weight_values should equal the number of calibrator_x_values and calibrator_y_values.

Notes:

- The number of cells to be selected to house the results should equal at least 3 (the number of parameters calculated by the curve fit).

Weighted Gaussian Curve

Calculates the weighted Gaussian fit parameters using specified x and y calibrator values.

Syntax:

MyCurveFit.Gaussian.Weighted(calibrator_x_values,calibrator_y_values,weight_values)

Where:

- *calibrator_x_values* is the range of calibrators to be used in the curve fit. The number of calibrator_x_values should be equal to the number of calibrator_y_values.
- *calibrator_y_values* is the range of calibrators to be used in the curve fit. The number of calibrator_y_values should be equal to the number of calibrator_x_values.
- *weight_values* is the range of weighting values to be applied to the curve fit. The number of weight_values should equal the number of calibrator_x_values and calibrator_y_values.

Notes:

- The number of cells to be selected to house the results should equal at least 3 (the number of parameters calculated by the curve fit).

Weighted Power Curve

Calculates the weighted Power Curve fit parameters using specified x and y calibrator values.

Syntax:

MyCurveFit.PowerCurve.Weighted(calibrator_x_values,calibrator_y_values,weight_values)

Where:

- *calibrator_x_values* is the range of calibrators to be used in the curve fit. The number of calibrator_x_values should be equal to the number of calibrator_y_values.
- *calibrator_y_values* is the range of calibrators to be used in the curve fit. The number of calibrator_y_values should be equal to the number of calibrator_x_values.
- *weight_values* is the range of weighting values to be applied to the curve fit. The number of weight_values should equal the number of calibrator_x_values and calibrator_y_values.

Notes:

- The number of cells to be selected to house the results should equal at least 2 (the number of parameters calculated by the curve fit).

Weighted Michaelis-Menten

Calculates the weighted Michaelis-Menten fit parameters using specified x and y calibrator values.

Syntax:

MyCurveFit.MichaelisMenten.Weighted(calibrator_x_values,calibrator_y_values,weight_values)

Where:

- *calibrator_x_values* is the range of calibrators to be used in the curve fit. The number of calibrator_x_values should be equal to the number of calibrator_y_values.
- *calibrator_y_values* is the range of calibrators to be used in the curve fit. The number of calibrator_y_values should be equal to the number of calibrator_x_values.
- *weight_values* is the range of weighting values to be applied to the curve fit. The number of weight_values should equal the number of calibrator_x_values and calibrator_y_values.

Notes:

- The number of cells to be selected to house the results should equal at least 2 (the number of parameters calculated by the curve fit).

Four Parameter CalcX

Calculates the x value using calculated 4PL parameters and specified y value.

Syntax:

MyCurveFit.4PL.CalcX(fit_parameters,y_value)

Where:

- *fit_parameters* is the range containing the calculated fit parameters. Four parameters are required.
- *y_value* is the y-value to be used in calculating the x-value.

Four Parameter CalcY

Calculates the y value using calculated 4PL parameters and specified x value.

Syntax:

MyCurveFit.4PL.CalcY(fit_parameters,x_value)

Where:

- *fit_parameters* is the range containing the calculated fit parameters. Four parameters are required.
- *x_value* is the y-value to be used in calculating the y-value.

Five Parameter CalcX

Calculates the x value using calculated 5PL parameters and specified y value.

Syntax:

MyCurveFit.5PL.CalcX(fit_parameters,y_value)

Where:

- *fit_parameters* is the range containing the calculated fit parameters. Five parameters are required.
- *y_value* is the y-value to be used in calculating the x-value.

Five Parameter CalcY

Calculates the y value using calculated 5PL parameters and specified x value.

Syntax:

MyCurveFit.5PL.CalcY(fit_parameters,x_value)

Where:

- *fit_parameters* is the range containing the calculated fit parameters. Five parameters are required.
- *x_value* is the y-value to be used in calculating the y-value.

User Defined CalcY

Calculates the y value using calculated User Defined parameters, specified x value, and fit method expression.

Syntax:

MyCurveFit.UserDefined.CalcY(fit_parameters,x_value,fit_equation)

Where:

- *fit_parameters* is the range containing the calculated fit parameters.
- *x_value* is the y-value to be used in calculating the y-value.
- *fit_equation* is the user-defined fit method equation.

Exponential Basic CalcX

Calculates the x value using calculated Exponential Basic parameters and specified y value.

Syntax:

MyCurveFit.ExponentialBasic.CalcX(fit_parameters,y_value)

Where:

- *fit_parameters* is the range containing the calculated fit parameters. Three parameters are required.
- *y_value* is the y-value to be used in calculating the x-value.

Exponential Basic CalcY

Calculates the y value using calculated Exponential Basic parameters and specified x value.

Syntax:

MyCurveFit.ExponentialBasic.CalcY(fit_parameters,x_value)

Where:

- *fit_parameters* is the range containing the calculated fit parameters. Three parameters are required.
- *x_value* is the y-value to be used in calculating the y-value.

Exponential Half Life CalcX

Calculates the x value using calculated Exponential Half Life parameters and specified y value.

Syntax:

MyCurveFit.ExponentialHalfLife.CalcX(fit_parameters,y_value)

Where:

- *fit_parameters* is the range containing the calculated fit parameters. Three parameters are required.
- *y_value* is the y-value to be used in calculating the x-value.

Exponential Half Life CalcY

Calculates the y value using calculated Exponential Half Life parameters and specified x value.

Syntax:

MyCurveFit.ExponentialHalfLife.CalcY(fit_parameters,x_value)

Where:

- *fit_parameters* is the range containing the calculated fit parameters. Three parameters are required.

- *x_value* is the y-value to be used in calculating the y-value.

Exponential Decay CalcX

Calculates the x value using calculated Exponential Decay parameters and specified y value.

Syntax:

MyCurveFit.ExponentialProportional.CalcX(fit_parameters,y_value)

Where:

- *fit_parameters* is the range containing the calculated fit parameters. Three parameters are required.
- *y_value* is the y-value to be used in calculating the x-value.

Exponential Decay CalcY

Calculates the y value using calculated Exponential Half Life parameters and specified x value.

Syntax:

MyCurveFit.ExponentialProportional.CalcY(fit_parameters,x_value)

Where:

- *fit_parameters* is the range containing the calculated fit parameters. Three parameters are required.
- *x_value* is the y-value to be used in calculating the y-value.

Gaussian CalcX

Calculates the x value using calculated Gaussian parameters and specified y value.

Syntax:

MyCurveFit.Gaussian.CalcX(fit_parameters,y_value)

Where:

- *fit_parameters* is the range containing the calculated fit parameters. Three parameters are required.
- *y_value* is the y-value to be used in calculating the x-value.

Gaussian CalcY

Calculates the y value using calculated Gaussian parameters and specified x value.

Syntax:

MyCurveFit.Gaussian.CalcY(fit_parameters,x_value)

Where:

- *fit_parameters* is the range containing the calculated fit parameters. Three parameters are required.
- *x_value* is the y-value to be used in calculating the y-value.

Power Curve CalcX

Calculates the x value using calculated Power Curve parameters and specified y value.

Syntax:

MyCurveFit.PowerCurve.CalcX(fit_parameters,y_value)

Where:

- *fit_parameters* is the range containing the calculated fit parameters. Two parameters are required.
- *y_value* is the y-value to be used in calculating the x-value.

Power Curve CalcY

Calculates the y value using calculated Power Curve parameters and specified x value.

Syntax:

MyCurveFit.PowerCurve.CalcY(fit_parameters,x_value)

Where:

- *fit_parameters* is the range containing the calculated fit parameters. Two parameters are required.
- *x_value* is the y-value to be used in calculating the y-value.

Michaelis-Menten CalcX

Calculates the x value using calculated Michaelis-Menten parameters and specified y value.

Syntax:

MyCurveFit.MichaelisMenten.CalcX(fit_parameters,y_value)

Where:

- *fit_parameters* is the range containing the calculated fit parameters. Two parameters are required.
- *y_value* is the y-value to be used in calculating the x-value.

Michaelis-Menten CalcY

Calculates the y value using calculated Michaelis-Menten parameters and specified x value.

Syntax:

MyCurveFit.MichaelisMenten.CalcY(fit_parameters,x_value)

Where:

- *fit_parameters* is the range containing the calculated fit parameters. Two parameters are required.
- *x_value* is the y-value to be used in calculating the y-value.

User Defined Coefficients

Returns the coefficient names from the provided fit equation in the order they will be reported by the **MyCurveFit.UserDefined** function.

Syntax:

MyCurveFit.UserDefined.Coeffs(fit_equation)

Where:

- *fit_equation* is the cell containing the user defined fit equation. A single cell is required.

User Defined Fit Configuration

How to Define my Fit?

The User-Defined feature allows you to define your own curve to fit to. The MyCurveFit Excel Add-In will calculate the best fit values of the coefficients in your equation for your data. For example, with the equation **y=m*x + c** the MyCurveFit Excel Add-In will calculate the best fit values for the coefficients **m** and **c** for the provided data.

Writing a User-Defined Equation

When writing a User-Defined fit equation:

- Write the equation in terms of **x** (i.e. there must be an x reference within the equation)
- User the standard mathematical operations +, -, *, and /

- Use ^ to raise a value to a power
- Use a single letter for each coefficient to calculate (excluding x or y)
- For longer coefficient names, enclose the name in square brackets, e.g. **[mycoeff]*x**
- Various mathematical functions are available - see the below table.

Functions

The below table lists the mathematical functions that can be used in the equation. Follow the function name with the parameter or parameters, surrounded by parentheses, e.g. exp(x)

Function Name	Description
abs	Absolute value
acos	Inverse cosine
acosh	Inverse hyperbolic cosine
acoth	Inverse hyperbolic cotangent
asin	Inverse sine
asinh	Inverse hyperbolic sine
atan	Inverse tangent
atanh	Inverse hyperbolic tangent
avg	Average of the listed values
cos	Cosine
cosh	Hyperbolic cosine
coth	Hyperbolic cotangent
degrees	Degrees represented by the given radians
erf	Error function (integrated between two specified limits)
exp	Value of e raised to the given argument
fact	Factorial of the given value
ln	Natural logarithm of the value
log	Logarithm to a given base
log10	Logarithm base 10
mod	Remainder after a division
pi	Value of π (pi)
pow	Value of one number raised to another number

product	Product of the listed values
radians	Radians from given degrees
sine	Sine
sinh	Hyperbolic sine
sqrt	Square root of a number
sum	Sum of the listed values
tan	Tangent
tanh	Hyperbolic tangent

Referencing MyCurveFit Excel Add-In

You can refer to the MyCurveFit Excel Add-In in your paper, thesis or publication.

To refer to the data analysis tool include the text:

“MyCurveFit Excel Add-In from MyAssays Ltd., https://www.myassays.com"

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