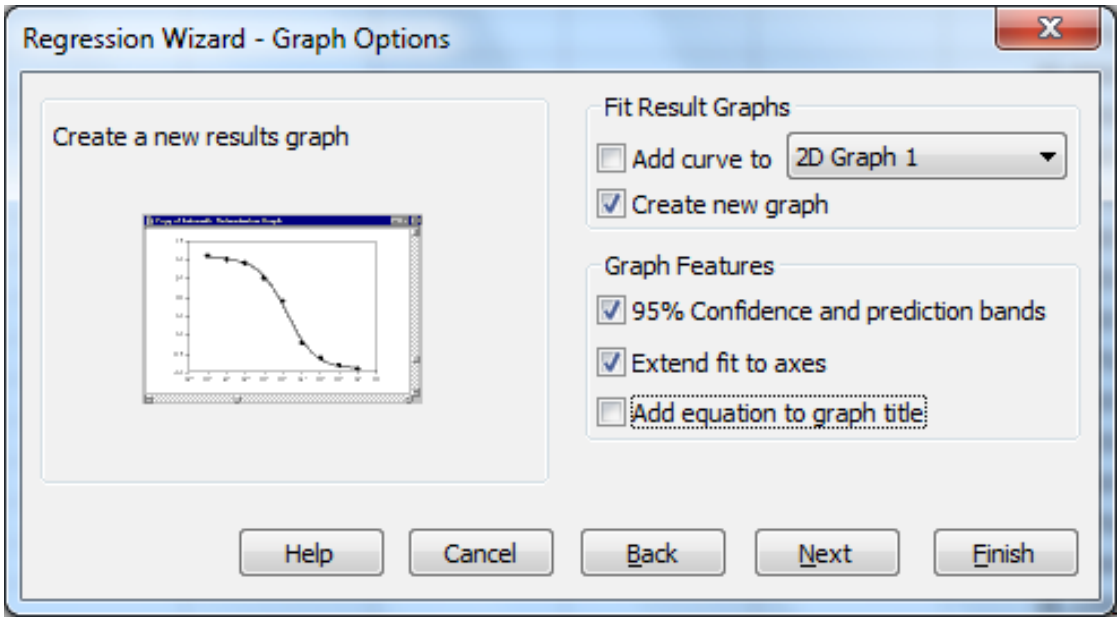
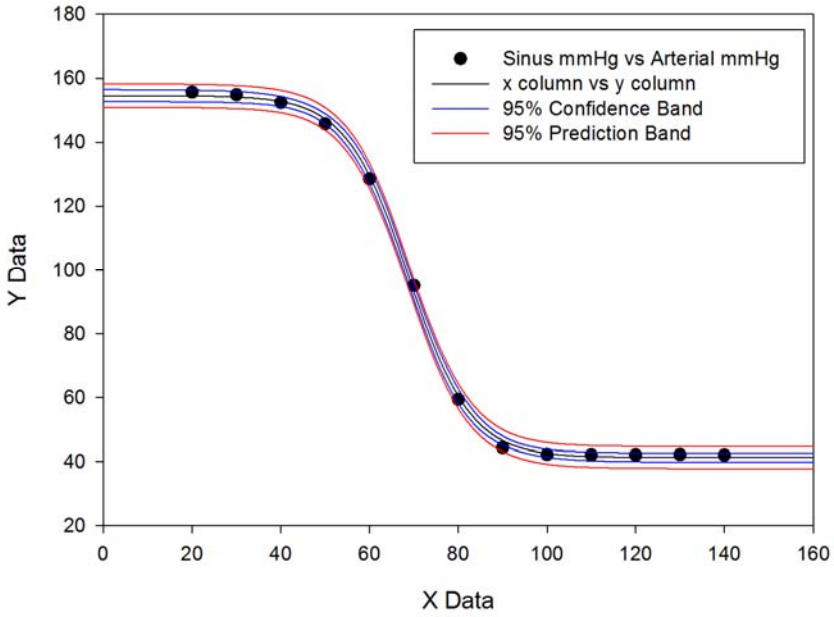
X Direction Confidence Intervals – Interpolation

When you fit a data set in SigmaPlot's Regression Wizard, you can display confidence and prediction bands intervals for the fitted curve (Y) and add the values to the worksheet.

To compute the confidence intervals for the parameters in X direction, use an interpolation created with the SigmaPlot Transforms language.

1.
Curve Fit Results





3-Parameters	4-Predicted	5-Residuals	6-x column	7-y column	-95% ConfBand-	-95% ConfBand-U	-95% PredBand-	-95% PredBand-
113,3035	154,4365	1,1635	0,0000	154,5378	152,6597	156,4159	150,8821	158,1935
-7,0132	154,0979	0,7021	0,6250	154,5372	152,6594	156,4151	150,8816	158,1928
68,8060	152,7103	-0,3103	1,2500	154,5366	152,6590	156,4142	150,8811	158,1920
41,2405	147,2843	-1,5843	1,8750	154,5359	152,6586	156,4132	150,8806	158,1912
	129,4216	-0,9216	2,5000	154,5351	152,6582	156,4121	150,8800	158,1903
	93,0815	2,0185	3,1250	154,5343	152,6577	156,4109	150,8794	158,1893
	60,3349	-1,0349	3,7500	154,5334	152,6571	156,4097	150,8786	158,1882
	46,5026	-2,2026	4,3750	154,5324	152,6566	156,4083	150,8779	158,1870
	42,5512	-0,4512	5,0000	154,5313	152,6559	156,4068	150,8770	158,1857
	41,5583	0,4417	5,6250	154,5302	152,6552	156,4051	150,8761	158,1842
	41,3171	0,6829	6,2500	154,5289	152,6544	156,4033	150,8750	158,1827
	41,2589	0,8411	6,8750	154,5275	152,6536	156,4013	150,8739	158,1810
	41,2450	0,6550	7,5000	154,5259	152,6526	156,3992	150,8727	158,1791
			8,1250	154,5242	152,6516	156,3969	150,8713	158,1771
			8,7500	154,5224	152,6504	156,3943	150,8698	158,1749
			9,3750	154,5204	152,6492	156,3916	150,8682	158,1725
			10,0000	154,5182	152,6478	156,3885	150,8664	158,1699
			10,6250	154,5157	152,6463	156,3852	150,8645	158,1670
			11,2500	154,5131	152,6446	156,3817	150,8623	158,1639
			11,8750	154,5102	152,6427	156,3777	150,8600	158,1605

2.
Interpolation Transform
Compute the confidence intervals for the parameters in X direction

You can use the "interpolate" transform to numerically determine these values from the confidence value columns 6...
Open and run the transform from the Analysis ribbon > User-Defined.

From the Transform/Interpolate Help:
The interpolate function performs linear interpolation on a set of X,Y pairs defined by an x range and a y range. The function returns a range of interpolated y values from a range of values between the minimum and maximum of the x range.

Syntax
```
interpolate(x range,y range,range)
```

interpolate_x.xfm file:
```
'Interpolate the lower confidence limit, Y value, and upper confidence limit

par_col = 3
x_col   = 6
res = x_col + 7

cell(res;1)=interpolate(col(x_col);col(x_col+2);cell(par_col;3))
cell(res;2)=interpolate(col(x_col);col(x_col+1);cell(par_col;3))
cell(res;3)=interpolate(col(x_col);col(x_col+3);cell(par_col;3))
cell(res+1;1)=interpolate(col(x_col+2);col(x_col);cell(res;2))
cell(res+1;2)=interpolate(col(x_col+1);col(x_col);cell(res;2))
cell(res+1;3)=interpolate(col(x_col+3);col(x_col);cell(res;2))
```

(Download the transform file from here: **http://www.systat.de/TT201405/interpolate_x.xfm**.)

12	13	14	
	95,5346	68,2199	
	97,8924	68,8060	
	100,2502	69,3895	