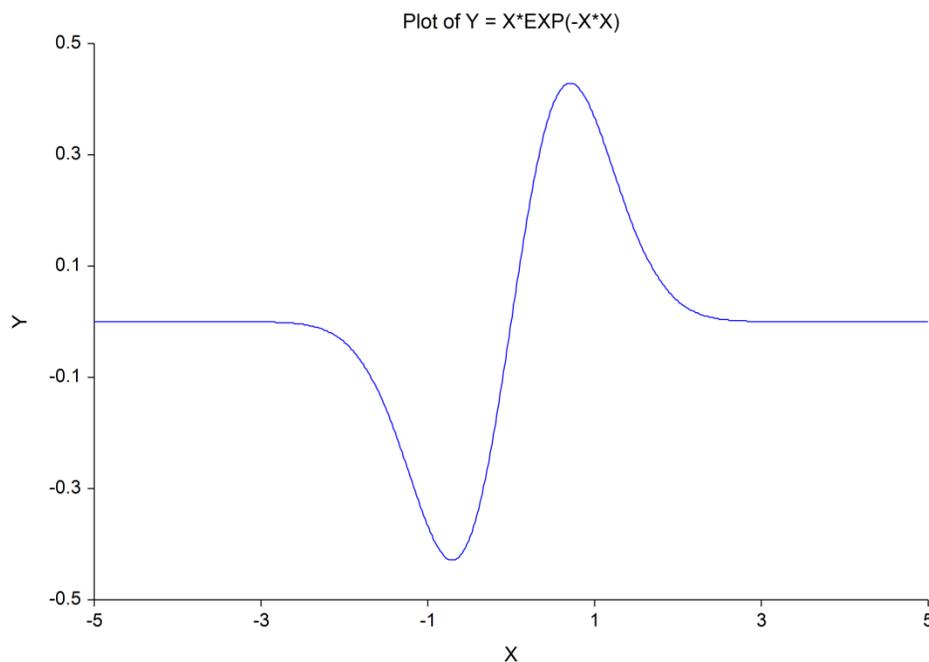


Chapter 160

Function Plots

Introduction

This program draws graphs of user specified functions. You define the function using standard mathematical syntax and set the range over which the function should be drawn. It is one of the few procedures that does not accept (or use) data.



Procedure Options

This section describes the options available in this procedure.

Model Tab

This panel specifies function that is to be plotted.

Function

Formula

This option contains the equation to be plotted. Note that you do not enter the “Y=” portion of the expression.

Function Plots

The expression is made up of

1. Symbols: +, -, *, /, ^, <, >, =, (, and).
2. Functions:

ABS(X)	Absolute value of X
ASN(X)	Arc sine of X
ATN (X)	Arc tangent of X
COS(X)	Cosine of X
EXP(X)	Exponential of X
INT(X)	Integer part of X
LN(X)	Log base e of X
LOG(X)	Log base 10 of X
SGN(X)	Signature of X
SIN(X)	Sine of X
SQRT(X)	Square root of X
TAN(X)	Tangent of X
TNH(X)	Hyperbolic Tangent of X
3. The horizontal variable labeled X.
4. Constants.

The syntax of the model expression follows that of the variable transformations, so we will not go into syntax here, but refer you to the Transformations chapter. Note that only a subset of the functions available as transformations are also available here.

Examples of valid models are

$$2+3*X^4$$

$$1+2*EXP(-3*X)$$

$$(5 + 3*X + 2*X) / (1 + 2*X + 2*X)$$

Function Evaluations

This option specifies at how many points the function is calculated to create the line that is displayed. A value between 100 and 200 is usually sufficient.

Function Plot Format

This chart is controlled by two form objects:

1. A format button used to call up the plot format window (see Function Plot Format Window Options below for more chart formatting details).
2. A second checkbox used to indicate whether the chart can be edited during the run.

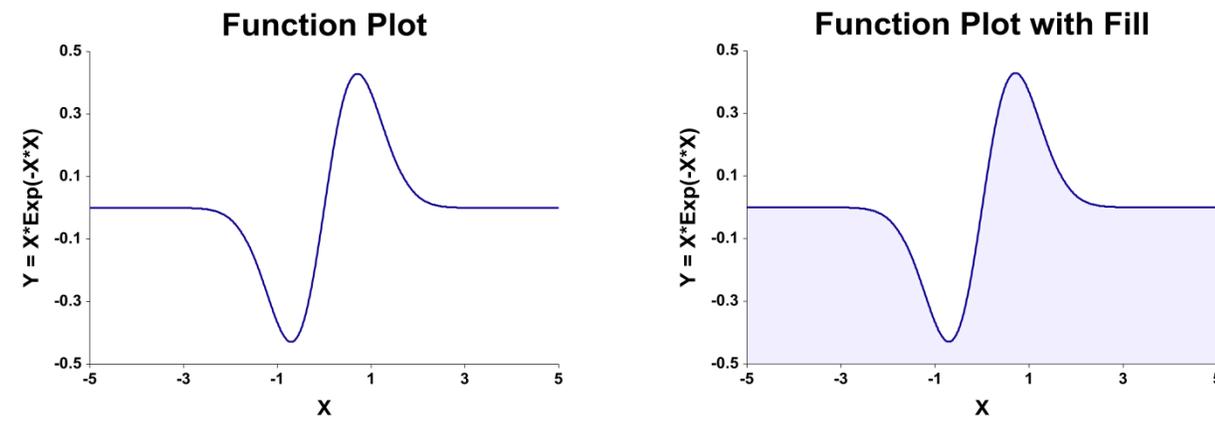
Function Plot Format Window Options

This section describes the specific options available on the Function Plot Format window, which is displayed when the Function Plot Format button is clicked. Common options, such as axes, labels, legends, and titles are documented in the Graphics Components chapter.

Function Plot Tab

Function Line Section

You can modify the attributes of the function line using the options in this section.



Titles, Legend, Numeric Axis, Group Axis, Grid Lines, and Background Tabs

Details on setting the options in these tabs are given in the Graphics Components chapter.

Example 1 – Creating a Function Plot

This section presents an example of how to generate a function plot. In this example, we will plot the function $Y=X*EXP(-X*X)$.

You may follow along here by making the appropriate entries or load the completed template **Example 1** by clicking on Open Example Template from the File menu of the Function Plots window.

1 Open the Function Plots window.

- Using the Graphics menu or the Procedure Navigator, find and select the **Function Plots** procedure.
- On the menus, select **File**, then **New Template**. This will fill the procedure with the default template.

2 Specify the model.

- On the Function Plots window, select the **Model tab**.
- In the **Formula** text box, enter the function $X*Exp(-X*X)$

3 Run the procedure.

- From the Run menu, select **Run Procedure**. Alternatively, just click the green Run button.

Function Plot Output

