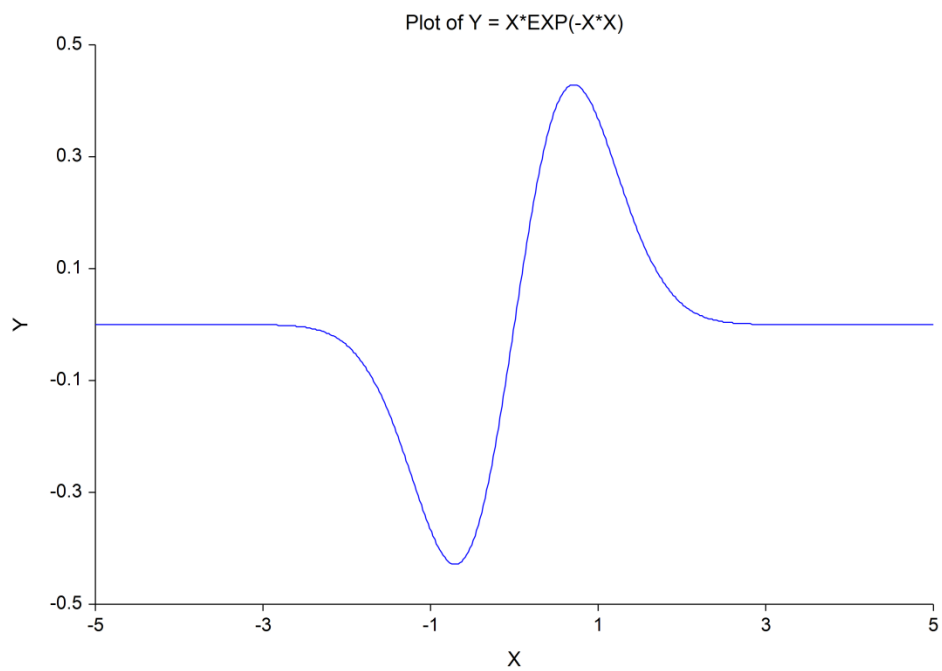


Chapter 160

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.



Formula

The user enters the equation to be plotted. Note that you do not enter the "Y =" portion of the expression.

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

$$2+3*X^4$$

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

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

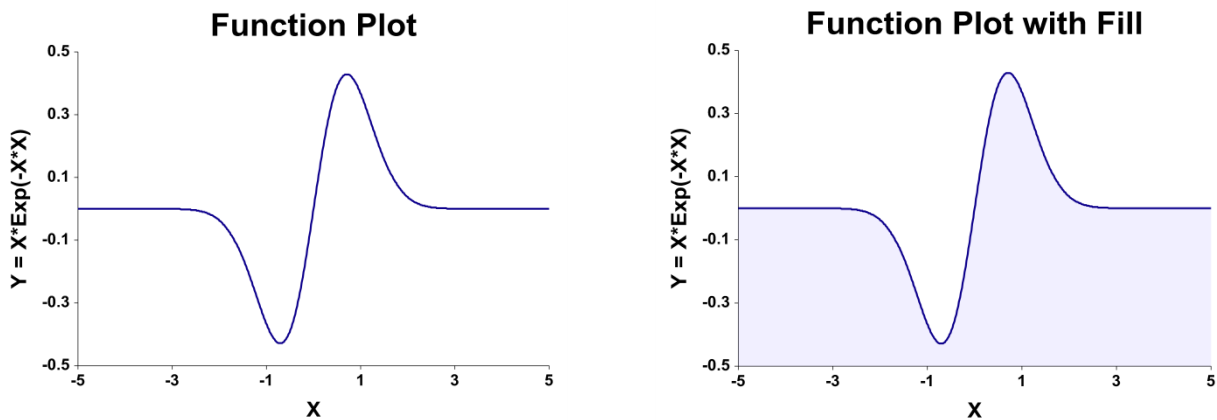
Function Plot Format Window Options

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 $Y=X*\text{EXP}(-X*X)$.

Setup

To run this example, complete the following steps:

1 Specify the Function Plots procedure options

- Find and open the **Function Plots** procedure using the menus or the Procedure Navigator.
- The settings for this example are listed below and are stored in the **Example 1** settings file. To load these settings to the procedure window, click **Open Example Settings File** in the Help Center or File menu.

Model Tab

Formula $X*\text{Exp}(-X*X)$

2 Run the procedure

- Click the **Run** button to perform the calculations and generate the output.

Function Plot Output

Function Plot

