Data and function visualization
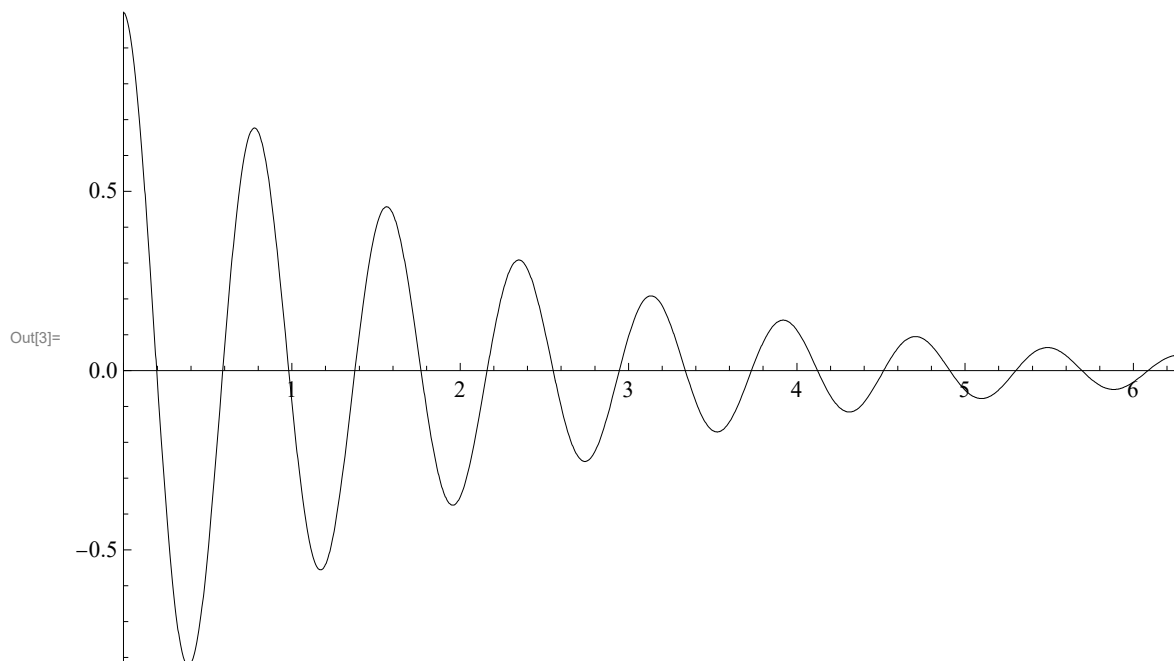
Basic setup

First, import the latest version from GitHub.
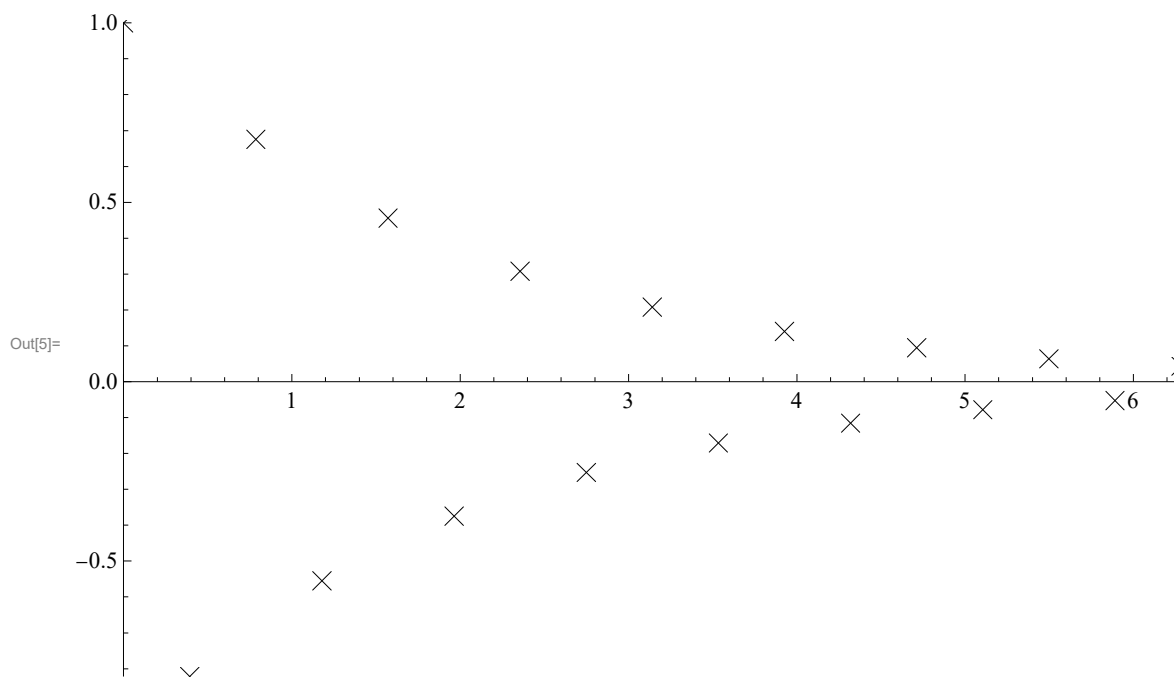
In[1]:= `Import["https://raw.githubusercontent.com/jonasmusall/sciplot/main/SciPlot.m"]`

SciPlot can be used to create plots of functions and of lists of points. Note that the function and the specification for its argument are enclosed in a list together.

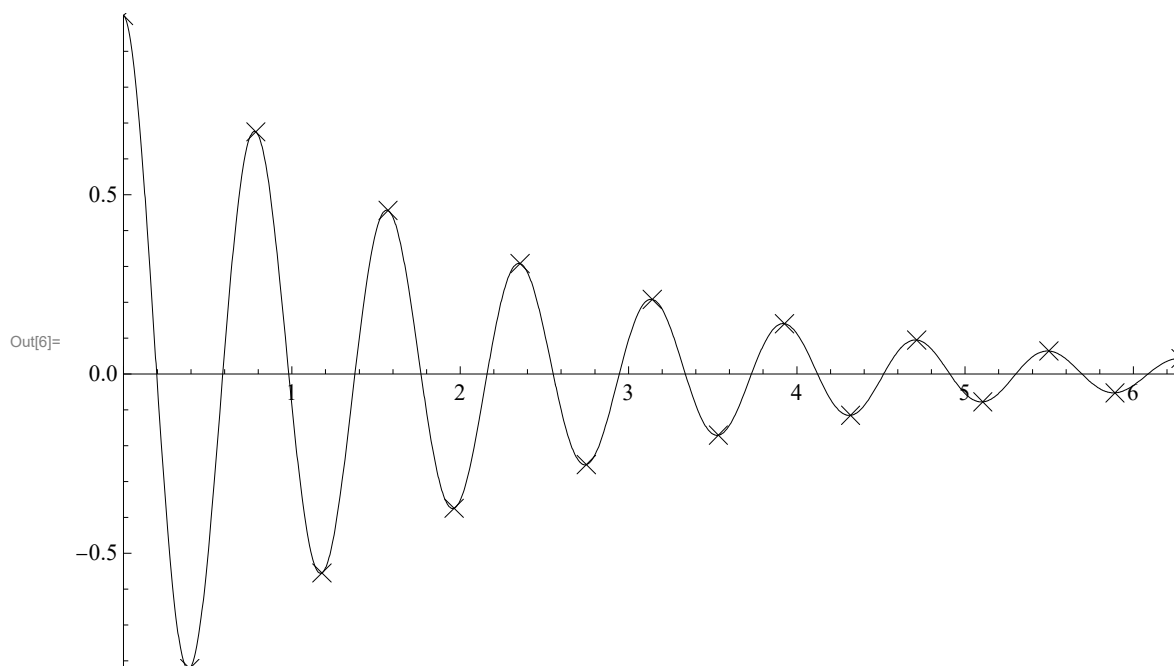In[2]:= `f[x_] := Cos[8 x] Exp[-x / 2]`
`SciPlot[{f[x], {x, 0, 2 Pi}}]`

Out[3]=

In[4]:= **data1 = Table[{x, f[x]}, {x, 0, 2 Pi, Pi / 8}];**
SciPlot[data1]

Out[5]=

Supply a sequence of datasets and functions to plot them together.

In[6]:= **plot = SciPlot[{f[x], {x, 0, 2 Pi}}, data1]**

Out[6]=

Use Export to save the plot to a file.

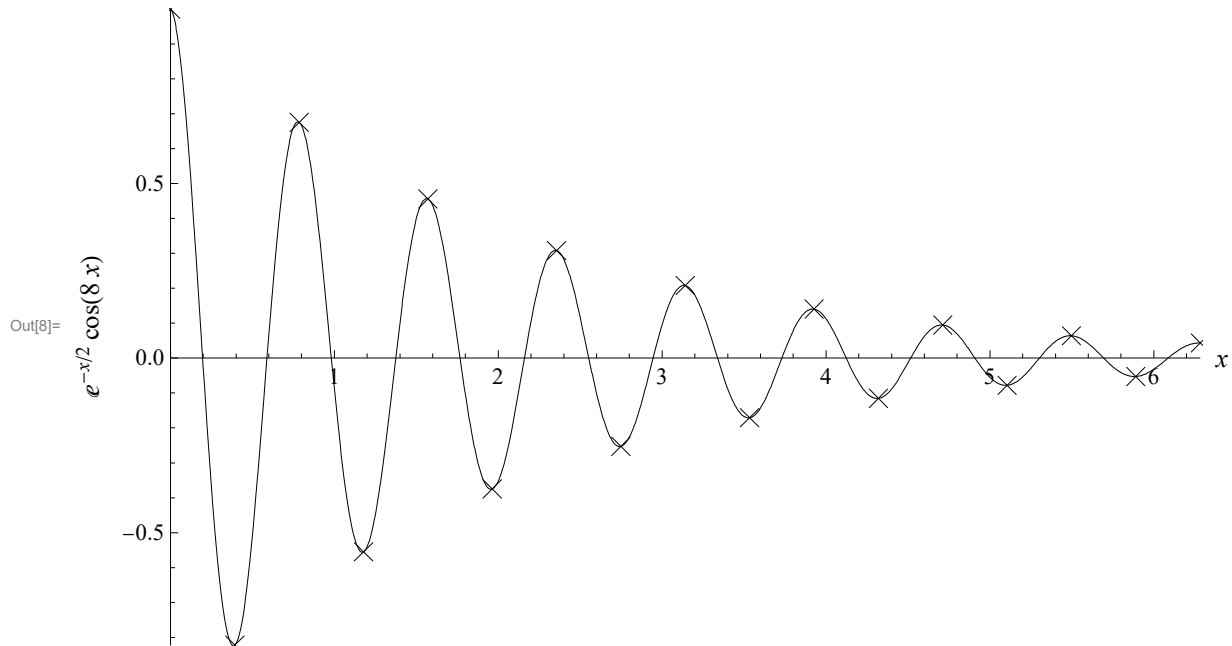In[7]:= **Export[NotebookDirectory[] <> "Plot.pdf", plot]**

Out[7]= C:\Users\Jonas\git\sciplot\Plot.pdf

Options

AxesLabel

Labels which are automatically placed according to the position of the axes. Use a pair of labels to put one on each axis.
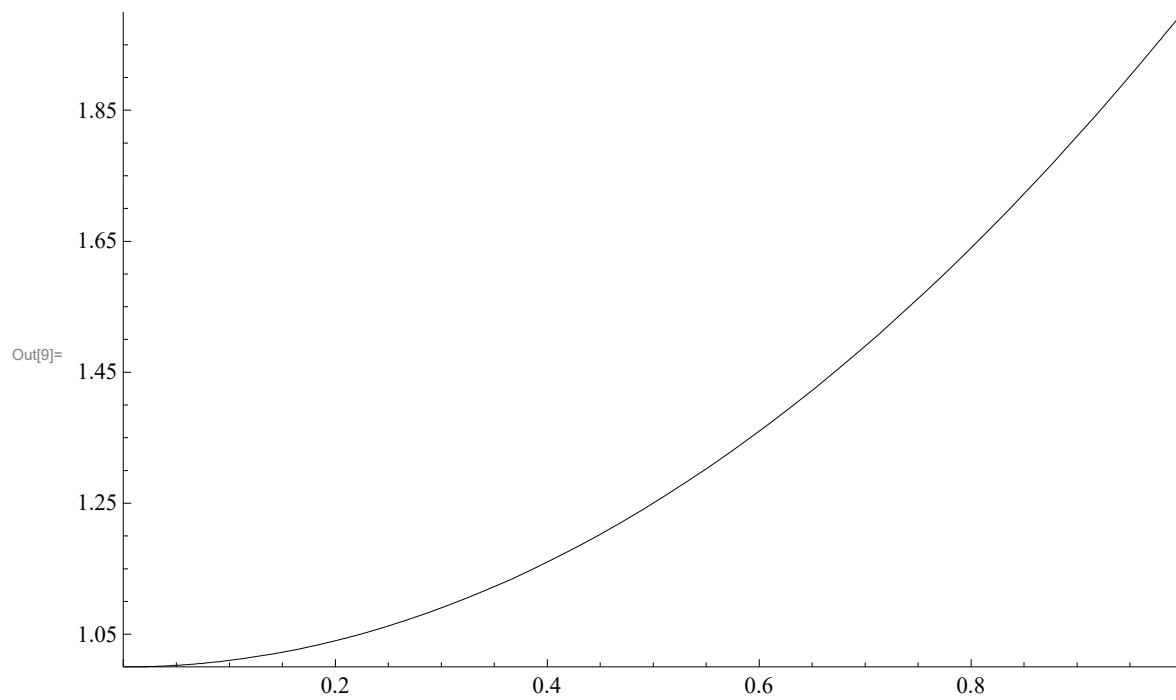
In[8]:= `SciPlot[{f[x], {x, 0, 2 Pi}}, data1, AxesLabel → {x, f[x] // TraditionalForm}]`
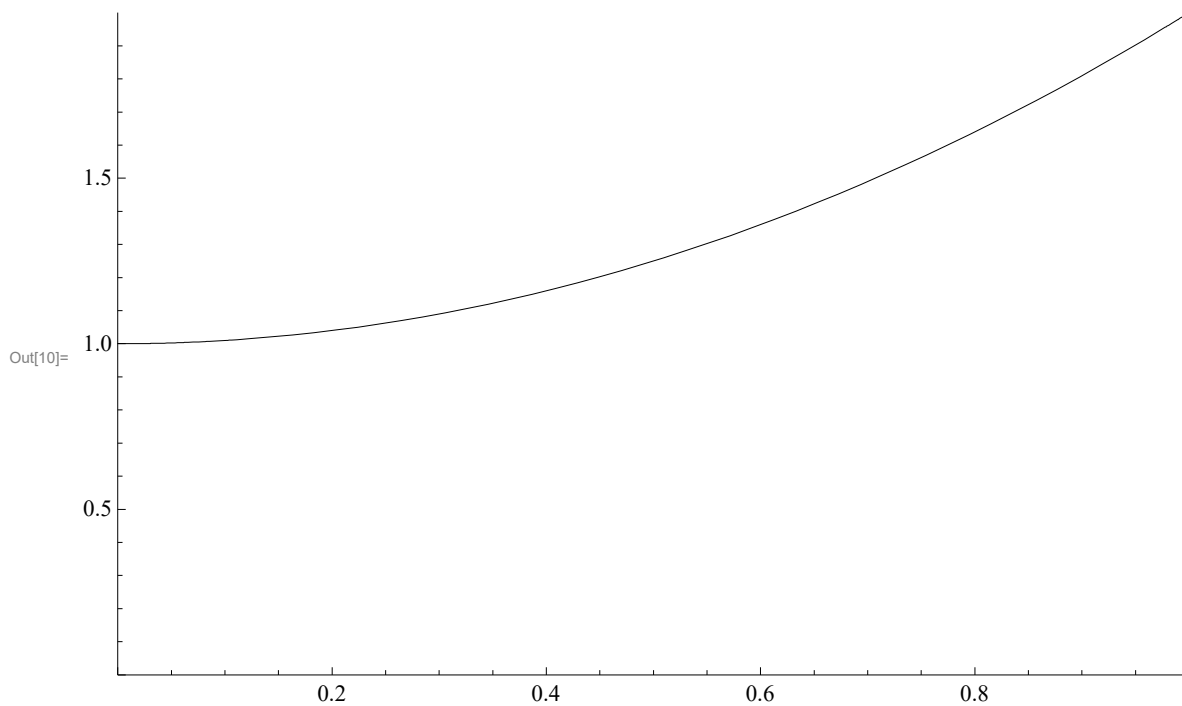
Out[8]=

AxesOrigin

Point where the axes cross. Default value is `Automatic`, which may place the origin at a different point than `{0,0}` depending on the plot contents.
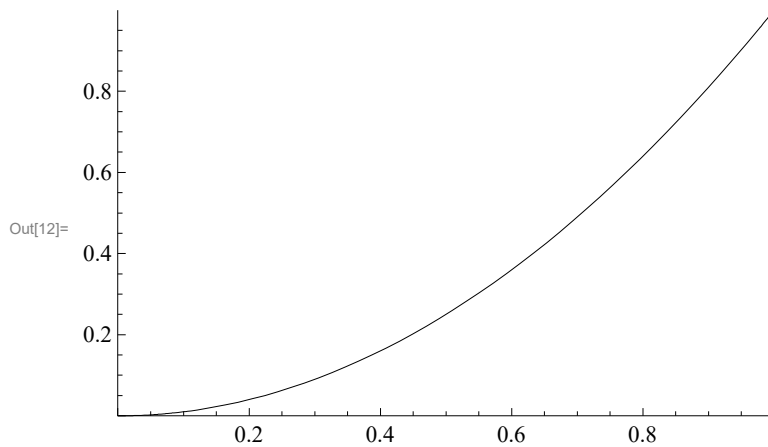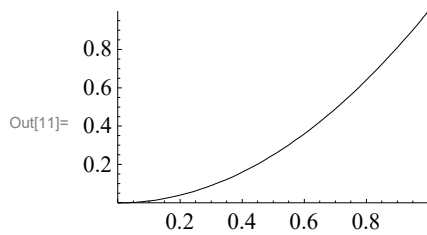
In[9]:= **SciPlot$\left[\left\{x^2 + 1, \{x, 0, 1\}\right\}\right]$**

Out[9]=

In[10]:= **SciPlot$\left[\left\{x^2 + 1, \{x, 0, 1\}\right\}, \text{AxesOrigin} \to \{0, 0\}\right]$**

Out[10]=

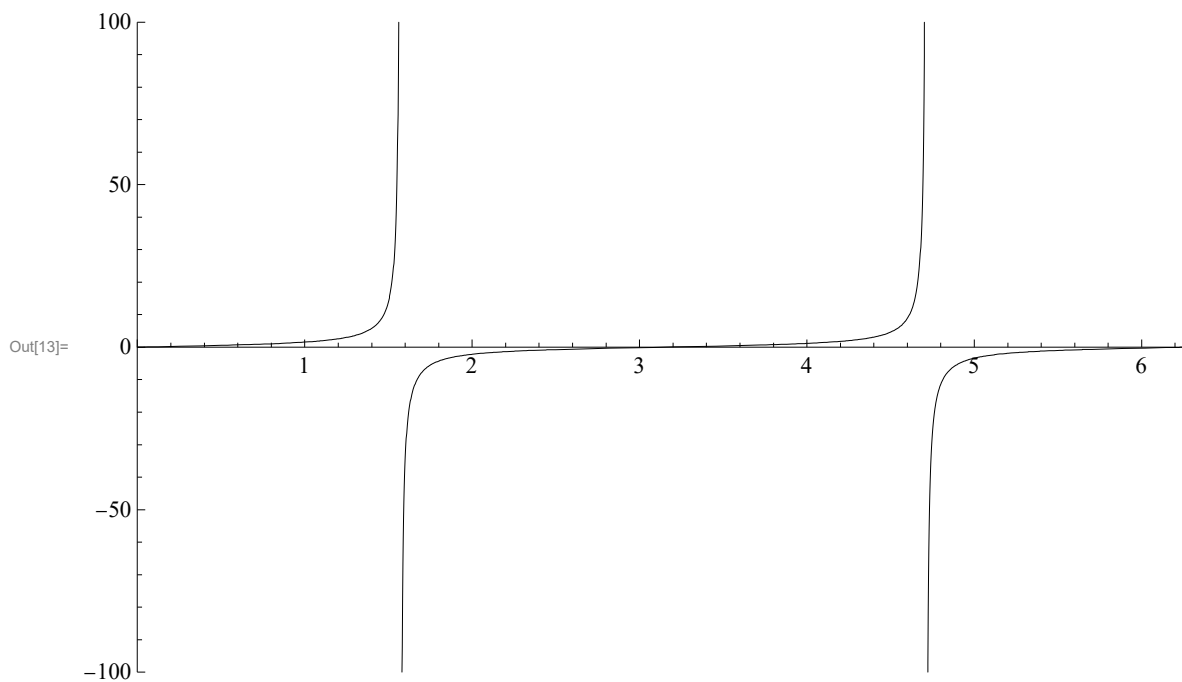## ImageSize

Size of the produced image.

In[11]:= `SciPlot[{x², {x, 0, 1}}, ImageSize → Small]`

`SciPlot[{x², {x, 0, 1}}, ImageSize → Medium]`

Out[11]=

Out[12]=

PlotRange

Range to display in the plot. Valid values are ranges for both direction $\{\{x_{min}, x_{max}\}, \{y_{min}, y_{max}\}\}$ or **Automatic**.
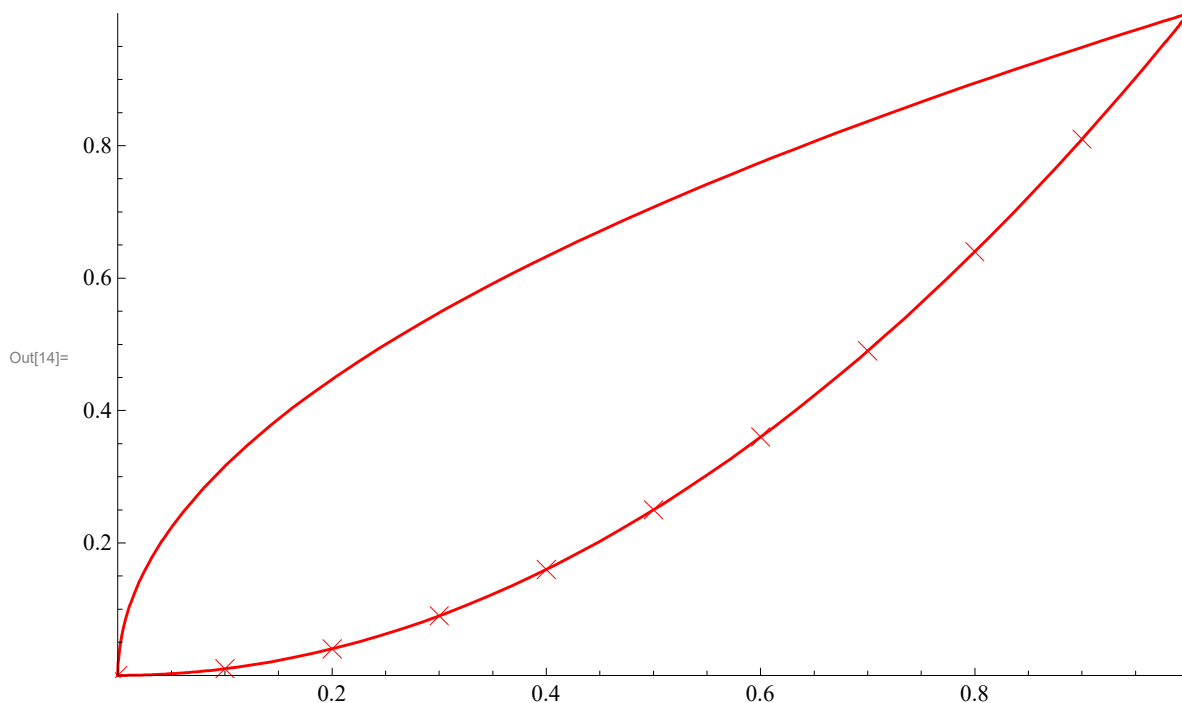
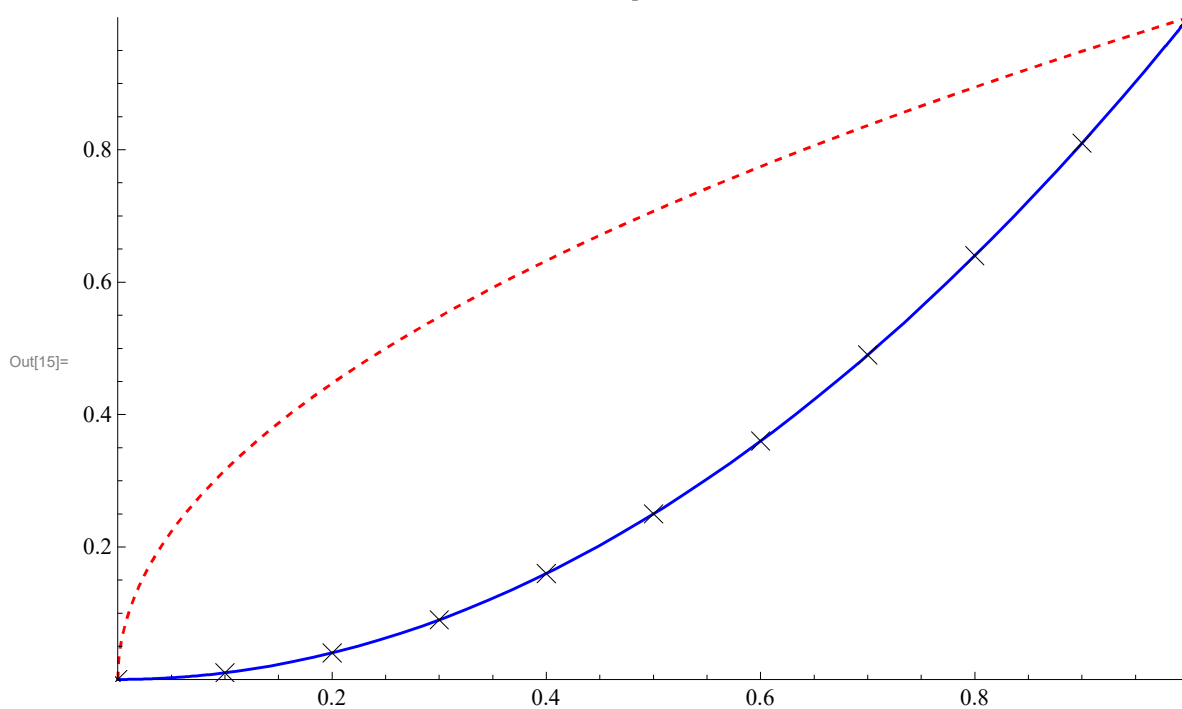In[13]:= `SciPlot[{Tan[x], {x, 0, 2 Pi}}, PlotRange → {{0, 2 Pi}, {-100, 100}}]`

Out[13]=

PlotStyle

Style for the plots to be drawn in. Specify a single style to be applied to all plots or a list of styles.

In[14]:= `SciPlot[{{x^{1/2}, x^2}, {x, 0, 1}}, Table[{x, x^2}, {x, 0, 1, 0.1}], PlotStyle → Red]`

Out[14]=

In[15]:= `SciPlot[{{x^{1/2}, x^2}, {x, 0, 1}}, Table[{x, x^2}, {x, 0, 1, 0.1}],`
   `PlotStyle → {{Red, Dashed}, Blue, Black}]`

Out[15]=

Ticks

Tick marks to be shown on each axes. A single tick mark is specified by either a single numerical value or a list `{value,name,size,style}` where the size is a numerical value or a pair of sizes $\{s_1, s_2\}$ for the tick on either side of the axis and the style or style and size may be left out.

In[16]:= `SciPlot[{Cos[x], {x, 0, 2 Pi}}, Ticks → {{0, Pi / 2, Pi, 3 Pi / 2}, Automatic}]`

Out[16]=