

Plotting a function

Created using Maple 14.01

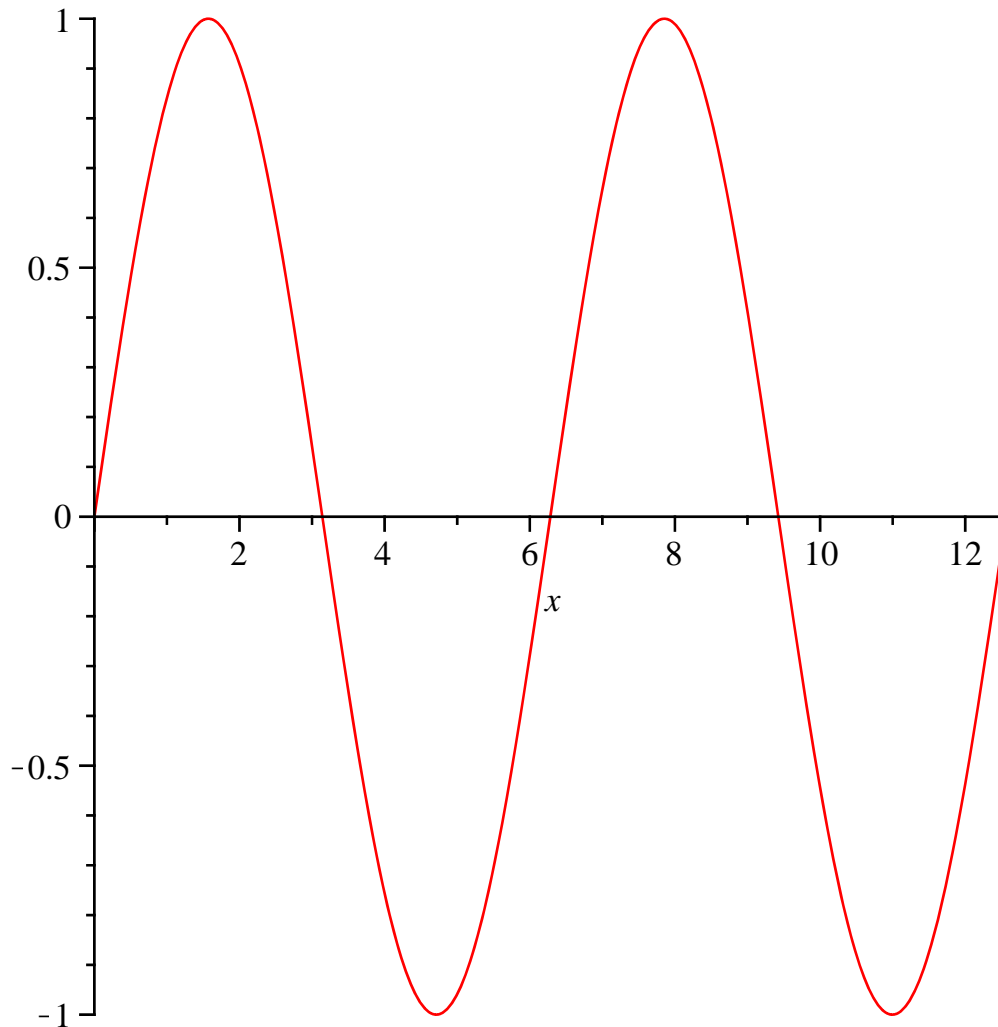
Jake Bobowski

```
> restart;  
with(StringTools) :  
FormatTime("%m-%d-%Y, %H:%M");  
"08-04-2012, 19:07"
```

(1)

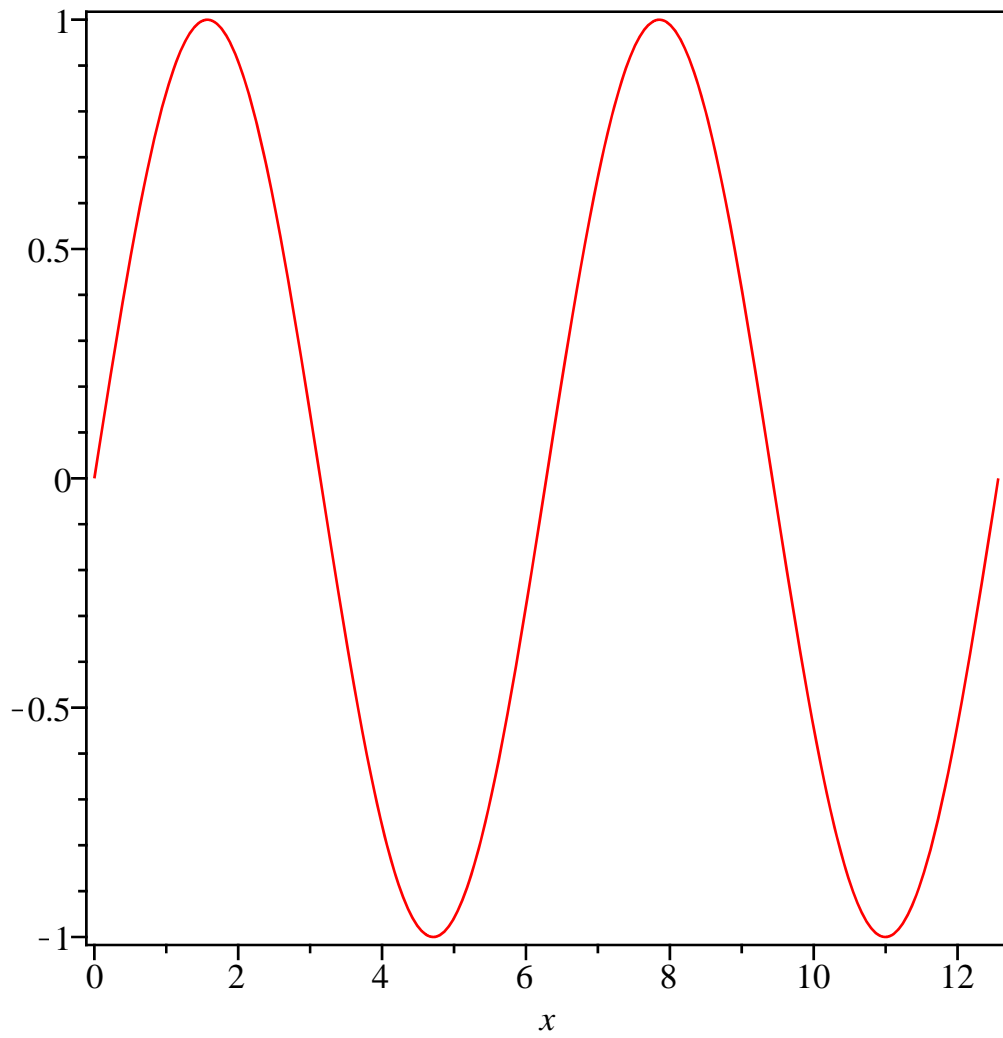
Plotting a function is easy using the **plot** command. The first argument is the function (sin(x) in this example) and the second argument is the range.

```
> plot(sin(x), x = 0 .. 4·Pi);
```



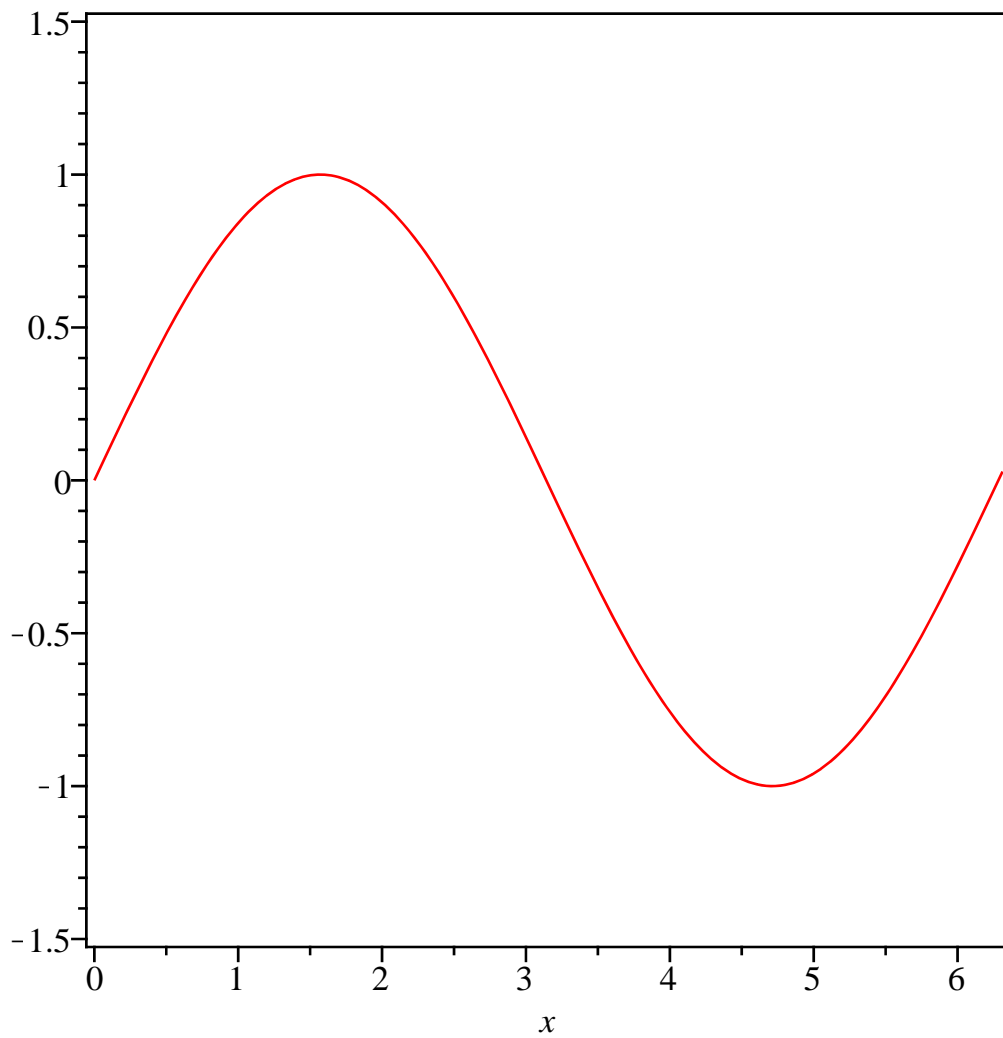
The plot was successful, but it is not formatted nicely. First, let's add top and right axes.

```
> plot(sin(x), x = 0 .. 4·Pi, axes = boxed);
```



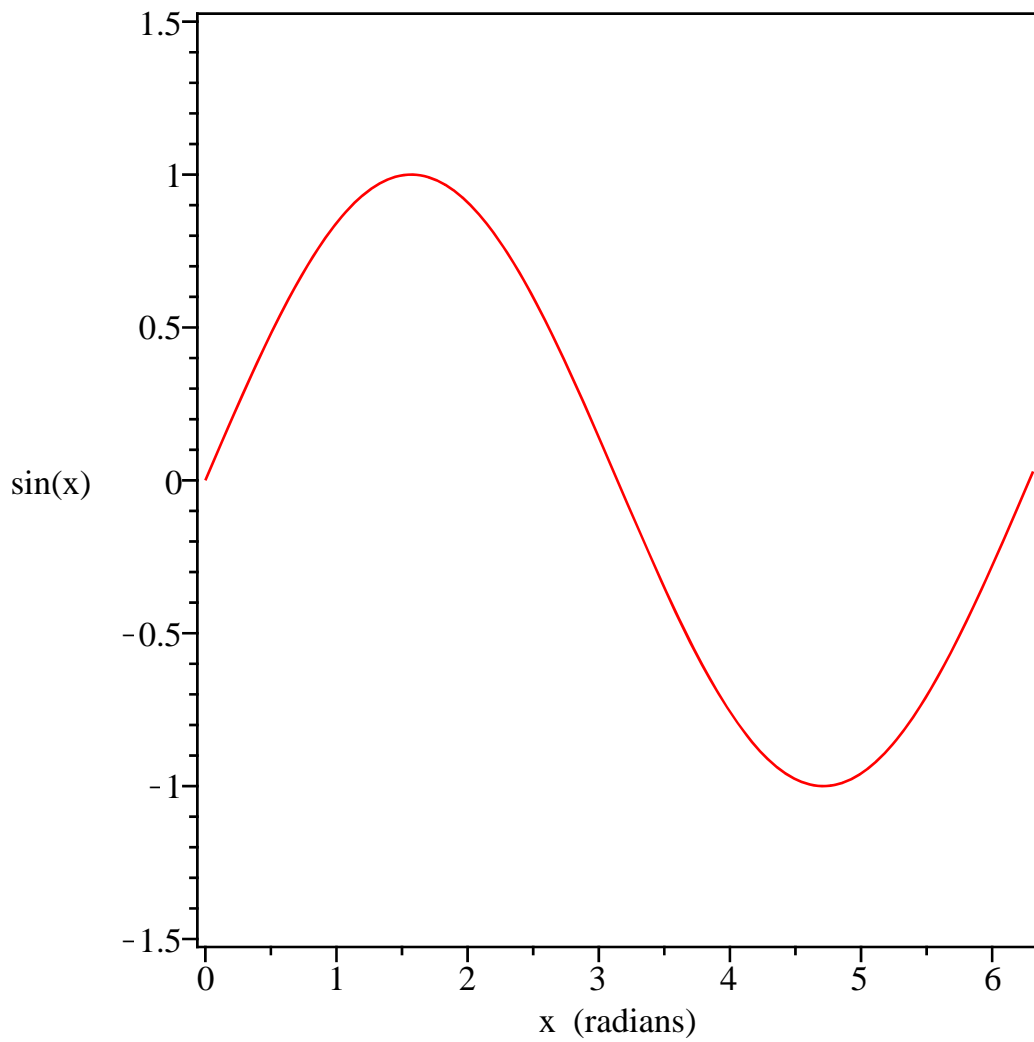
If we like, we can change the range of the x - and y -axes

```
> plot(sin(x), x=0..4*Pi, axes = boxed, view = [0 .. 2* Pi , -1.5 .. 1.5]);
```



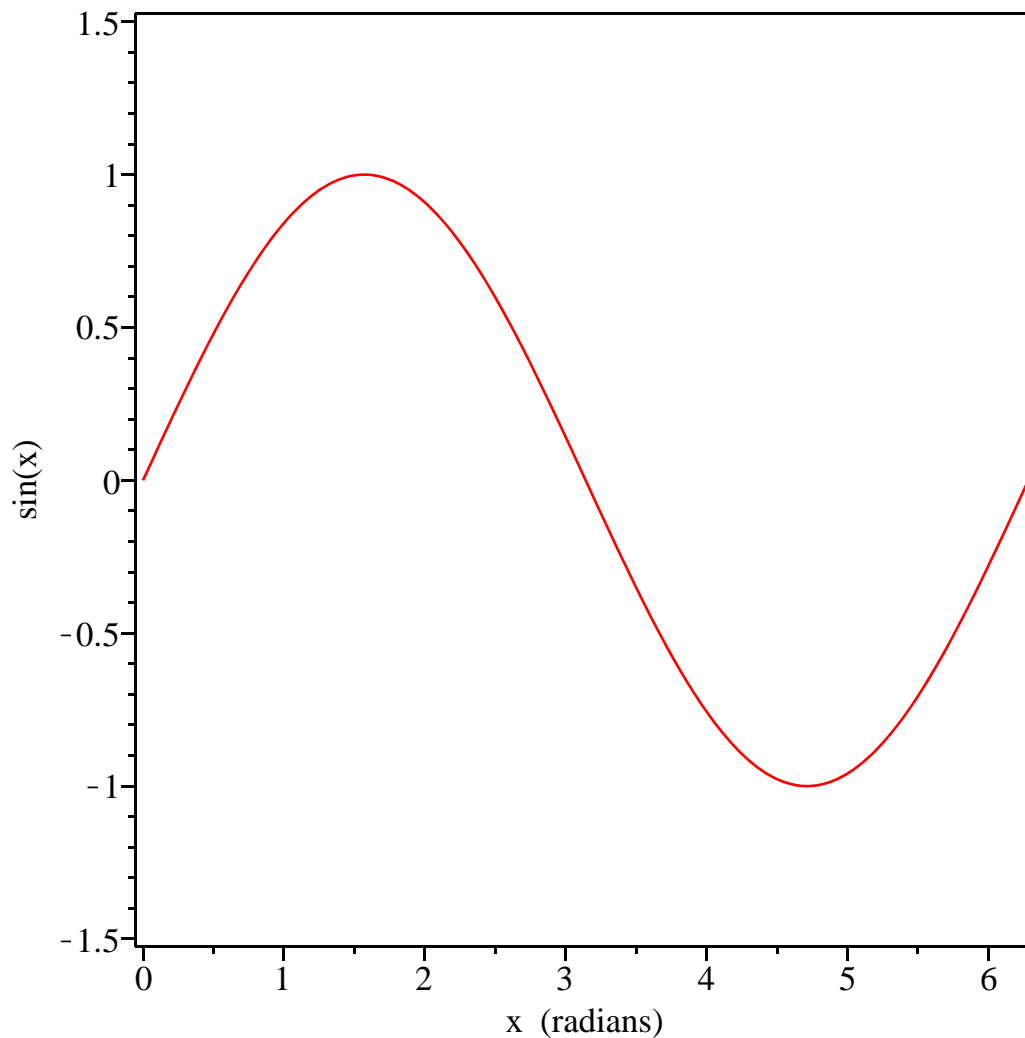
The axes can be given labels

```
> plot(sin(x), x=0..4*Pi, axes = boxed, view = [0 .. 2* Pi , -1.5 .. 1.5], labels = ["  
x (radians)", "sin(x)"]);
```



By default the y-axis label is horizontal. It can be made to be vertical

```
> plot(sin(x), x=0..4*Pi, axes = boxed, view = [0 .. 2* Pi , -1.5 .. 1.5], labels = ["  
x (radians)", "sin(x)"], labeldirections = ["horizontal", "vertical"]);
```



Below some more *plot* options are demonstrated. Note that many of these options can be selected by right clicking on the plot and choosing options from the menu. *HOWEVER*, proceed with caution. If you use the options in the menu, then much of the formatting will be lost when the Maple input is re-evaluated. I recommend typing your formatting options directly into the *plot* command.

```
> plot(sin(x), x = 0 .. 4·Pi, axes = boxed, view = [0 .. 2·Pi, -1.5 .. 1.5], labels = [typeset(x,
    " (radians)"), typeset(sin(x))], labeldirections = ["horizontal", "vertical"], title
    = typeset("Plot of ", sin(x), " vs ", sqrt(x^2)), linestyle = dashdot, thickness = 4, tickmarks
    = [spacing(π), default], colour = green, font = [Times, Italics, 14], axesfont = [Helvetica,
    10], labelfont = [Courier, 14], axis = [gridlines = [thickness = 2]]);
```

Plot of $\sin(x)$ vs $\sqrt{x^2}$

