2.9.15 Fonts for Text in Graphics

`$DefaultFont`	the default font to use in graphics
`{"`*name*`", `*size*`}`	a font with specified name and size

Font specifications in *Mathematica*.

All text that is included in *Mathematica* graphics must be in a definite *font*. The default font to use is typically specified by the value of the global variable `$DefaultFont`.

Every font in *Mathematica* has a *name*, and a *size*. The size gives the basic height of characters in the font. It is specified in absolute units of printer's points, with one point being $\frac{1}{72}$ inches. (The main text of this book, for example, is set in 10-point type.)

Since font sizes are specified in absolute units, the size of pieces of text in *Mathematica* plots always remain fixed whatever size the whole plots are. The only way to change the size of the text is explicitly to change the font size.

Here is the default font used in producing graphics in this book.

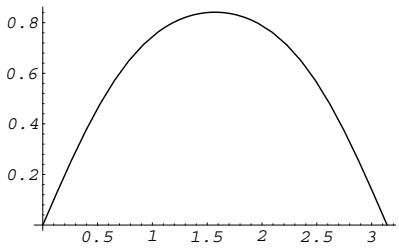
```
In[1]:= $DefaultFont
Out[1]= {Courier, 5.5}
```

This changes the default font to use in graphics.

```
In[2]:= $DefaultFont = {"Courier-Oblique", 7}
Out[2]= {Courier-Oblique, 7}
```

Now all text in the plot is slightly larger than normal, and italic.

```
In[3]:= Plot[Sin[Sin[x]], {x, 0, Pi}]
```



If you reset the global variable `$DefaultFont`, you change the default font to use in all graphics. Often you may want to specify a different default font only for a particular *Mathematica* plot. You can do this using the `DefaultFont` option that exists for `Show`, `Plot` and other *Mathematica* graphics functions.

In other cases, you may want to specify a font only for a specific piece of text. In such cases, you can wrap the text with a `FontForm` directive.

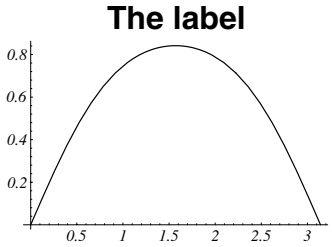
Web sample page from The *Mathematica* Book, Second Edition, by Stephen Wolfram, published by Addison-Wesley Publishing Company (hardcover ISBN 0-201-51502-4; softcover ISBN 0-201-51507-5). To order *Mathematica* or this book contact Wolfram Research: info@wolfram.com; http://www.wolfram.com/; 1-800-441-6284.

`DefaultFont -> `*font*	an option to change the default font in a particular plot
`FontForm["`*text*`", `*font*`]`	a piece of text in a specific font

More local ways to specify fonts.

This uses an italic font for labeling the axes, and a larger bold font for the overall plot label.

```
In[4]:= Show[%, DefaultFont -> {"Times-Italic", 6},
            PlotLabel ->
               FontForm["The label", {"Helvetica-Bold", 12}]]
```



The most complicated aspect of using fonts in *Mathematica* graphics is their naming. When you tell *Mathematica* to use a font with a particular name, all that *Mathematica* actually does is to pass that request through to your final rendering device. It is then up to this device to find the appropriate font, and render it.

The problem is that not all devices support the same set of fonts. In all cases, *Mathematica* specifies fonts by inserting their names in the PostScript code it sends to your rendering device. Rendering devices that have built-in PostScript interpreters typically support at least some minimal set of standard fonts. Usually these fonts include `"Courier"`, `"Helvetica"` and `"Times"`, and their "*Name*`-Bold"`, "*Name*`-Oblique"` and "*Name*`-BoldOblique"` variants. (`"Times"` has `Italic` in place of `Oblique`.) If you ask for a font that your rendering device does not have, it will typically substitute another font.

Although *Mathematica* can in principle produce text in any font that your rendering device supports, you should realize that with some fonts, the text you get may not be properly aligned when it occurs on several lines. Only with fonts such as Courier that are monospaced so that every character is given the same horizontal space can you be sure that text will always be aligned correctly.

`Display[`*stream*`, `*graphics*`, StringConversion -> `*f*`]`	specify a function to convert strings containing special characters

Special character conversion.

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A final complication associated with rendering text in graphics concerns the treatment of special characters in text strings. Just as discussed in Section 2.8.2 for standard text output, *Mathematica* allows you to give a function to replace special characters that appear in strings used in graphics. You can specify this function by setting the option `StringConversion` when you call `Display` for final output of your graphics.

You should realize that when you use international character sets, you will almost always find that the way the characters are encoded for graphics output needs to be different from the way they are usually entered in *Mathematica*. In addition, the appropriate encoding may even differ from one font to another.

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