

# The unicode-math test suite

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## 1 Preamble

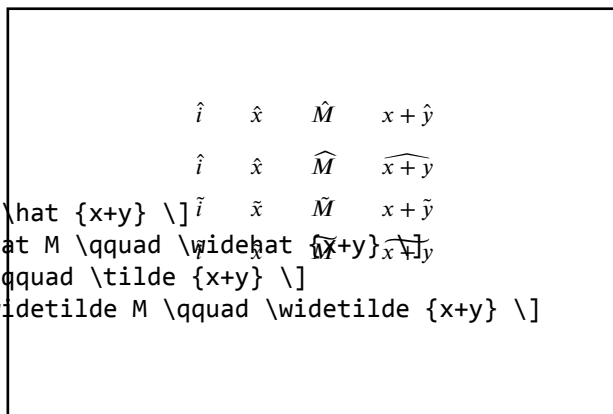
The following pieces of output are generated from the code shown. As well as being good minimal examples, these tests are useful to ensure that new bugs don't affect old behaviour. When the test suite is run, the new output is compared pixel by pixel with that shown here and warnings produced if the outputs are not identical.

## 2 Test files for both engines

Only the Lua<sup>A</sup>T<sub>E</sub>X output is shown; there will be (usually only) negligible differences between the outout between the two engines.

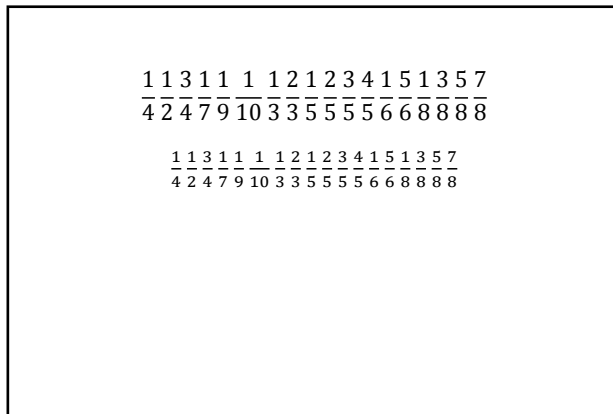
### 2.1 Test F-accents-L

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{xits-math.otf}
\begin{document}
\[ \hat{i} \quad \hat{x} \quad \hat{M} \quad \hat{x+y} \quad \tilde{i} \quad \tilde{x} \quad \tilde{M} \quad \tilde{x+y} \quad \]
\[ \widehat{i} \quad \widehat{x} \quad \widehat{M} \quad \widehat{x+y} \quad \widetilde{i} \quad \widetilde{x} \quad \widetilde{M} \quad \widetilde{x+y} \quad \]
\[ \text{\textasciitilde} i \quad \text{\textasciitilde} x \quad \text{\textasciitilde} M \quad \text{\textasciitilde} {x+y} \quad \]
\[ \text{\textasciitilde} i \quad \text{\textasciitilde} x \quad \text{\textasciitilde} M \quad \text{\textasciitilde} {x+y} \quad \]
\end{document}
```



### 2.2 Test F-active-frac-L

```
\input{umtest-preamble}
\usepackage{amsmath}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\unimathsetup{active-frac=normalsize}
\[ \frac{1}{2} \frac{3}{4} \frac{1}{7} \frac{1}{9} \frac{1}{10} \frac{1}{3} \frac{1}{3} \frac{1}{5} \frac{1}{5} \frac{1}{5} \frac{1}{5} \frac{1}{6} \frac{1}{6} \frac{1}{8} \frac{1}{8} \frac{1}{8} \frac{1}{8} \quad \]
\unimathsetup{active-frac=small}
\[ \frac{1}{2} \frac{3}{4} \frac{1}{7} \frac{1}{9} \frac{1}{10} \frac{1}{3} \frac{1}{3} \frac{1}{5} \frac{1}{5} \frac{1}{5} \frac{1}{5} \frac{1}{6} \frac{1}{6} \frac{1}{8} \frac{1}{8} \frac{1}{8} \frac{1}{8} \quad \]
\end{document}
```



## 2.3 Test F-active-sscripts-L

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\setlength\parskip{12pt}
\begin{document}
 $x_{012}$   $x_{123}$   $x_{234}$   $x_{345}$   $x_{456}$   $x_{567}$   $x_{678}$   $x_{789}$   $x_{89+}$ 
 $x_{9+-}$   $x_{+-(}$   $x_{- (=}$   $x_{(=)}$   $x_{=)}$   $x_{)}}$   $x_{\substack{2i+n \\ 2}}$   $x_{\substack{2i+n \\ 2}}$   $x_{\substack{2i+n \\ 2}}$   $x_{\substack{2i+n \\ 2}}$   $x_{\substack{2i+n \\ 2}}$   $x_{\substack{2i+n \\ 2}}$   $x_{\substack{2i+n \\ 2}}$   $x_{\substack{2i+n \\ 2}}$ 
 $x^{0\substack{2i+n \\ 2}}$   $x^{\substack{2i+n \\ 2}}$   $x^{\substack{2i+n \\ 2}}$   $x^{2\substack{2i+n \\ 2}}$ 
 $x_{34}^{2\substack{2i+n \\ 2}}$ 
\end{document}
```

$x_{012}$   $x_{123}$   $x_{234}$   $x_{345}$   $x_{456}$   $x_{567}$   $x_{678}$   $x_{789}$   $x_{89+}$

$x_{9+-}$   $x_{+-(}$   $x_{- (=}$   $x_{(=)}$   $x_{=)}$   $x_{)}}$   $x_{ae}$   $x_{a eo}$   $x_{eo x}$   $x_{o x 0}$   $x_{x 0 1}$

$x_{\substack{0i+n \\ 2}}$   $x_{\substack{i+n \\ 2}}$   $x_{\substack{i+n \\ 2}}$   $x_{\substack{i+n \\ 2}}$   $x_{\substack{i+n \\ 2}}$   $x_{\substack{i+n \\ 2}}$   $x_{\substack{i+n \\ 2}}$   $x_{\substack{i+n \\ 2}}$

$x_{\substack{2i+n \\ 2}}$   $x_{\substack{2i+n \\ 2}}$   $x_{\substack{2i+n \\ 2}}$   $x_{\substack{2i+n \\ 2}}$   $x_{\substack{2i+n \\ 2}}$   $x_{\substack{2i+n \\ 2}}$   $x_{\substack{2i+n \\ 2}}$   $x_{\substack{2i+n \\ 2}}$

$x^{0\substack{2i+n \\ 2}}$   $x^{\substack{2i+n \\ 2}}$   $x^{\substack{2i+n \\ 2}}$   $x^{2\substack{2i+n \\ 2}}$

$x_{34}^{2\substack{2i+n \\ 2}}$

## 2.4 Test F-alph-spaces-L

```
\input{umtest-preamble}
\usepackage{amsmath}
\usepackage[math-style=ISO]{unicode-math}
\setmathfont{xits-math.otf}
\setmathfont[range=\mathit/{latin, greek, Greek}]{Asana-Math.otf}
\begin{document}
 $abc$   $ABC$   $\alpha\beta\gamma$   $AB\Gamma$ 
 $\alpha\beta\gamma$   $\alpha\beta\gamma$   $\alpha\beta\gamma$ 
 $\alpha\beta\gamma$   $\alpha\beta\gamma$   $\alpha\beta\gamma$ 
 $\alpha\beta\gamma$   $\alpha\beta\gamma$   $\alpha\beta\gamma$ 
\end{document}
```

$abc$   $ABC$   $\alpha\beta\gamma$   $AB\Gamma$

## 2.5 Test F-amsmath-subarray-1-L

```
\input{umtest-preamble}
\usepackage{amsmath}
\begin{document}
\[
\sum_{\substack{a \\ bbb}} \frac{1}{2} \sum_{\substack{a \\ bbb}} \sum_{\substack{a \\ bbb}} \sum_{\substack{a \\ bbb}}
\sum_{\substack{\dfrac{1}{2} \\ \vec{A}'}} \sum_{\substack{\dfrac{1}{2} \\ \vec{A}'}} \sum_{\substack{\dfrac{1}{2} \\ \vec{A}'}} \sum_{\substack{\dfrac{1}{2} \\ \vec{A}'}}
\sum_{\begin{subarray}{l} 1 \\ a \end{subarray}} \sum_{\begin{subarray}{l} 1 \\ a \end{subarray}} \sum_{\begin{subarray}{l} 1 \\ a \end{subarray}} \sum_{\begin{subarray}{l} 1 \\ a \end{subarray}}
\]
\end{document}
```

$\sum_{\substack{a \\ bbb}} \sum_{\substack{a \\ bbb}} \sum_{\substack{a \\ bbb}} \sum_{\substack{a \\ bbb}}$

$\sum_{\substack{\dfrac{1}{2} \\ \vec{A}'}} \sum_{\substack{\dfrac{1}{2} \\ \vec{A}'}} \sum_{\substack{\dfrac{1}{2} \\ \vec{A}'}} \sum_{\substack{\dfrac{1}{2} \\ \vec{A}'}}$

$\sum_{\substack{a \\ bbb}} \sum_{\substack{a \\ bbb}} \sum_{\substack{a \\ bbb}} \sum_{\substack{a \\ bbb}}$

$\sum_{\substack{\dfrac{1}{2} \\ \vec{A}'}} \sum_{\substack{\dfrac{1}{2} \\ \vec{A}'}} \sum_{\substack{\dfrac{1}{2} \\ \vec{A}'}} \sum_{\substack{\dfrac{1}{2} \\ \vec{A}'}}$

$\sum_{\begin{subarray}{l} 1 \\ a \end{subarray}} \sum_{\begin{subarray}{l} 1 \\ a \end{subarray}} \sum_{\begin{subarray}{l} 1 \\ a \end{subarray}} \sum_{\begin{subarray}{l} 1 \\ a \end{subarray}}$

## 2.6 Test F-amsmath-subarray-2-L

```
\input{umtest-preamble}
\usepackage{amsmath}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[\sum_{bbb}^a\sum_{bbb}^1\sum_{bbb}^a\frac{1}{2}\vec{A'}\]
```

$$\sum_{bbb}^a\sum_{bbb}^1\sum_{bbb}^a\frac{1}{2}\vec{A'}$$

## 2.7 Test F-amsmath-subarray-3-L

```
\input{umtest-preamble}
\usepackage{amsmath}
\usepackage{unicode-math}
\setmathfont{Asana Math}
\begin{document}
\[\sum_{bbb}^a\sum_{bbb}^1\sum_{bbb}^a\frac{1}{2}\vec{A'}\]
```

$$\sum_{bbb}^a\sum_{bbb}^1\sum_{bbb}^a\frac{1}{2}\vec{A'}$$

## 2.8 Test F-amsmath-subarray-4-L

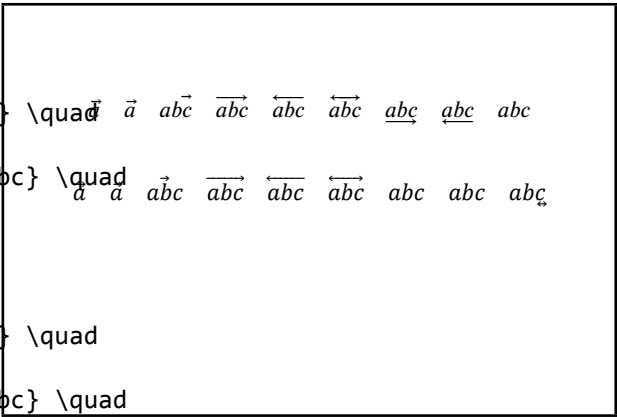
```
\input{umtest-preamble}
\usepackage{amsmath}
\usepackage{unicode-math}
\setmathfont{XITS Math}
\begin{document}
\[\sum_{bbb}^a\sum_{bbb}^1\sum_{bbb}^a\frac{1}{2}\vec{A'}\]
```

$$\sum_{bbb}^a\sum_{bbb}^1\sum_{bbb}^a\frac{1}{2}\vec{A'}$$

2.9 Test F-arrow-accents-L

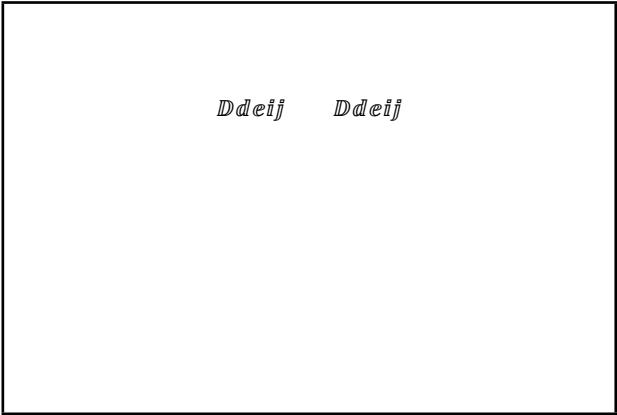
```
\input{umtest-preamble}
\usepackage{unicode-math}
\begin{document}
\setmathfont{XITS Math}
\[ \vec a \quad \vec{a} \quad \vec{abc} \quad \quad
\overrightarrow{abc} \quad \overleftarrow{abc} \quad \quad
\overleftrightharpoonup{abc} \quad \quad
\underrightarrow{abc} \quad \underleftarrow{abc} \quad \quad
\underleftrightharpoonup{abc} \quad \backslash]

\setmathfont{Cambria Math}
\[ \vec a \quad \vec{a} \quad \vec{abc} \quad \quad
\overrightarrow{abc} \quad \overleftarrow{abc} \quad \quad
\overleftrightharpoonup{abc} \quad \quad
\underrightarrow{abc} \quad \underleftarrow{abc} \quad \quad
\underleftrightharpoonup{abc} \quad \backslash]
\end{document}
```



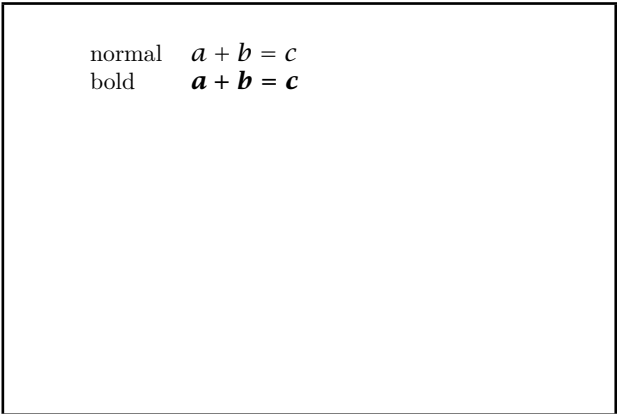
2.10 Test F-bb-chars-L

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[ \mathbb{Ddei} \quad \mathbb{Ddei} \backslash]
\end{document}
```



2.11 Test F-boldmath-L

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{Lucida Bright Math OT}
\begin{document}
\begin{tabular}{lr}
\begin{tabular}{l}
normal & $a+b=c$ \\
bold & \boldmath $a+b=c$
\end{tabular}
\end{tabular}
\end{document}
```



## 2.12 Test F-leftright-brace-L

<pre>\input{umtest-preamble} \usepackage{unicode-math} \setmathfont{Cambria Math} \begin{document} \[ \left\{ \left\{ \left\{ \left\{ \left\{ x^2 \right\}^2 \right\}^2 \right\}^2 \right\}^2 \right\}^2 \right\}^2 \end{document}</pre>	$\left(\left(\left(\left(\left(x^2\right)^2\right)^2\right)^2\right)^2\right)^2$
--	--

$$\left\{ \left\{ \left\{ \left\{ \left\{ \left\{ x^2 \right\}^2 \right\}^2 \right\}^2 \right\}^2 \right\}^2 \right\}$$

### 2.13 Test F-leftright-bracket-L

<pre> \input{umtest-preamble} \usepackage{unicode-math} \setmathfont{Cambria Math} \begin{document} \[ \left[ \left[ \left[ \left[ \left[ \left[ x^2       \right]^2 \right]^2 \right]^2 \right]^2 \right]^2 \right]^2 \right] \] \end{document} </pre>	
---	--

$$\left[\left[\left[\left[\left[x^2\right]^2\right]^2\right]^2\right]^2\right]^2$$

## 2.14 Test F-leftright-moustache-L

<pre> \input{umtest-preamble} \usepackage{unicode-math} \setmathfont{xits-math.otf} \begin{document} \[ \left\l\left\l\left\l\left\l\left\l\left\l\left\l x^2\right\r\right\r\right\r\right\r\right\r\right\r \right\r\right\r\right\r^2 \right\r\right\r\right\r^2 \right\r\right\r\right\r^2 \right\r\right\r\right\r^2 \right\r\right\r\right\r^2 \end{document} </pre>	$\left(\left(\left(\left(\left(\left(\left(\left(x^2\right)^2\right)^2\right)^2\right)^2\right)^2\right)^2\right)^2\right)^2$
--	---

$$\left[ \left( \left( \left( \left( \left( \left( x^2 \right)^2 \right)^2 \right)^2 \right)^2 \right)^2 \right)^2 \right]$$

## 2.15 Test F-leftright-paren-L

[illegible]

$$\left( \left( \left( \left( \left( x^2 \right)^2 \right)^2 \right)^2 \right)^2 \right)$$

## 2.16 Test F-leftright-vert-L

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[ \left| \left| \left| \left| \right|^2 \right|^2 \right|^2 \right|^2
\left| \left| \left| \left| \right|^2 \right|^2 \right|^2 \right|^2
\end{document}
```

The diagram illustrates the decomposition of a 2D tensor (represented by a grid of 16 elements) into a product of a 1D tensor (represented by a vector of 4 elements) and a 3D tensor (represented by a cube of 16 elements). The 1D tensor is labeled  $x^2$  and the 3D tensor is labeled  $vert$ . The decomposition is shown as  $x^2 \cdot vert$ .

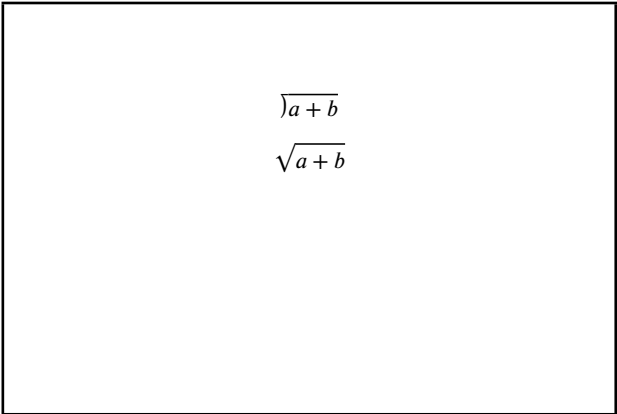
## 2.17 Test F-leftright-vvert-L

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[ \left[ \left[ \left[ \left[ \right] \right]^2 \right] \right]^2 \right] \right]^2
\left[ \left[ \left[ \left[ \right] \right]^2 \right] \right]^2 \right] \right]^2
\end{document}
```

$$\left| \begin{array}{ccccccc} x^2 & x^2 & x^2 & x^2 & x^2 \\ \vdots & \vdots & \vdots & \vdots & \vdots \\ \vdots & \vdots & \vdots & \vdots & \vdots \end{array} \right|$$

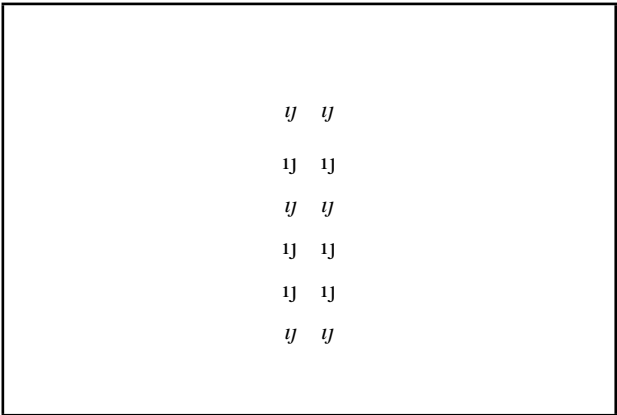
2.18 Test F-longdivision-L

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{xits-math.otf}
\begin{document}
\[
\longdivision{a+b}
\]
\[
\sqrt{a+b}
\]
\end{document}
```



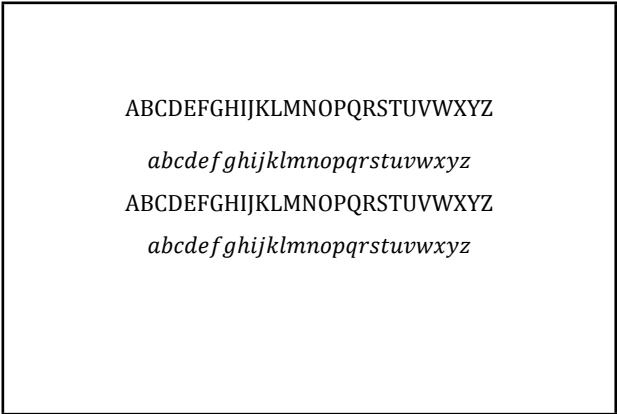
2.19 Test F-lrangle-chars-L

```
\input{umtest-preamble}
\usepackage{unicode-math}
\begin{document}
\setmathfont[math-style=TeX]{Free Serif}
\[1\quad 2\]
```



2.20 Test F-mathstyle-french-L

```
\input{umtest-preamble}
\usepackage[math-style=french]{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[\text{LATINtext}\]
```



## 2.21 Test F-mathstyle-iso-L

```
\input{umtest-preamble}  
\usepackage[math-style=ISO]{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\LATINText\  
\[\latintext\  
\[\LATINmath\  
\[\latinmath\  
\end{document}
```

*ABCDEFGHIJKLMNOPQRSTUVWXYZ*  
*abcdefghijklmnopqrstuvwxyz*  
*ABCDEFGHIJKLMNOPQRSTUVWXYZ*  
*abcdefghijklmnopqrstuvwxyz*

## 2.22 Test F-mathstyle-literal-L

```
\input{umtest-preamble}  
\usepackage[math-style=literal]{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\LATINText\  
\[\latintext\  
\[\LATINmath\  
\[\latinmath\  
\end{document}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz

## 2.23 Test F-mathstyle-tex-L

```
\input{umtest-preamble}  
\usepackage[math-style=TeX]{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\LATINText\  
\[\latintext\  
\[\LATINmath\  
\[\latinmath\  
\end{document}
```

*ABCDEFGHIJKLMNOPQRSTUVWXYZ*  
*abcdefghijklmnopqrstuvwxyz*  
*ABCDEFGHIJKLMNOPQRSTUVWXYZ*  
*abcdefghijklmnopqrstuvwxyz*



## 2.24 Test F-mathstyle-upright-L

```
\input{umtest-preamble}
\usepackage[math-style=upright]{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[\backslash\text{LATINtext}\backslash]
\[\backslash\text{latinintext}\backslash]
\[\backslash\text{LATINmath}\backslash]
\[\backslash\text{latinmath}\backslash]
\end{document}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz

## 2.25 Test F-mathtools-overbracket-L

```
\input{umtest-preamble}
\usepackage{mathtools}
\usepackage{unicode-math}
\setmathfont{xits-math.otf}
\begin{document}
\[\underbracket{abc}\qquad\Uunderbracket{abc}\backslash]
\[\overbracket{abc}\qquad\Uoverbracket{abc}\backslash]
\[\underbracket[2pt]{abc}\backslash]
\end{document}
```

$\underbracket{abc}$      $\underbracket{abc}$   
 $\overbracket{abc}$      $\overbracket{abc}$   
 $\underbracket[2pt]{abc}$

## 2.26 Test F-mathversion-L

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{xits-math.otf}
\setmathfont[version=bold,Colour=009900]{xits-math.otf}
\begin{document}
\[(x+y)^{z+c^{a+b}}\]
\]
\mathversion{bold}
\[(x+y)^{z+c^{a+b}}\]
\]
\end{document}
```

$(x+y)^{z+c^{a+b}}$   
 $(x+y)^{z+c^{a+b}}$

## 2.27 Test F-nolimits-spec-L

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{xits-math.otf}
\begin{document}
\[\iiint_V\]
\removenolimits\iiint
\[\iiint_V\]
\addnolimits\iiint
\[\iiint_V\]
\end{document}
```

## 2.28 Test F-over-under-2-L

% see <http://github.com/wspr/unicode-math/issues/212>

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont[Colour=FF0000]{xits-math.otf}
\setmathfont
  [range={\mathop},Colour=0000FF]
  {xits-math.otf}

\begin{document}

\[\underbrace{\int x\,dx}_{xyz}\]
\qquad
\[\overbrace{\int x\,dx}^{xyz}\]

\end{document}
```

## 2.29 Test F-over-under-L

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{xits-math.otf}
\begin{document}
\[\overbrace{a+b+c+d}^{e/f/g/h}\]
\overbracket{a+b+c+d}^{e/f/g/h}
\overparen{a+b+c+d}^{e/f/g/h}
\]
\[\underbrace{a+b+c+d}_{e/f/g/h}\]
\underbracket{a+b+c+d}_{e/f/g/h}
\underparen{a+b+c+d}_{e/f/g/h}
\]
\end{document}
```

## 2.30 Test F-pkg-url-L

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmainfont{TeX Gyre Pagella}
\setsansfont{TeX Gyre Adventor}
\setmonofont{TeX Gyre Cursor}
\setmathfont{Cambria Math}
\usepackage{url}
\begin{document}
\centering\obeylines
\url{http://www.lmgtfy.com/}
\url{?q="~!@#$$%^&*()<>`'}
\urlstyle{rm}
\url{http://www.lmgtfy.com/}
\url{?q="~!@#$$%^&*()<>`'}
\urlstyle{sf}
\url{http://www.lmgtfy.com/}
\url{?q="~!@#$$%^&*()<>`'}
\end{document}
```

```
http://www.lmgtfy.com/
?q="~!@#$$%^&*()<>`'
http://www.lmgtfy.com/
?q="~!@#$$%^&*()<>`'
http://www.lmgtfy.com/
?q="~!@#$$%^&*()<>`'
```

## 2.31 Test F-primes-1-L

```
\input{umtest-preamble}
\usepackage{amsmath,unicode-math}
\setmathfont{Cambria Math}
\begin{document}
  [${x\prime\prime\prime}$]
  [${x\prime\prime\prime\prime\prime\prime\prime\prime}$]
  [${x'}$]
  [${x'''}$]
  [${x'''''''}$]
  [${x_{\mathbb{Q}}}$]
  [${x_{\mathbb{Q}\mathbb{Q}\mathbb{Q}}}$]
  [${x_{\mathbb{Q}\mathbb{Q}}'\mathbb{Q}\prime_{\mathbb{Q}}}$]

  $x_{\mathbb{Q}\mathbb{Q}\mathbb{Q}\mathbb{Q}}$
  $x_{\mathbb{Q}\mathbb{Q}\mathbb{Q}\mathbb{Q}}$
  $x_{\mathbb{Q}\mathbb{Q}}$
  $x_{\mathbb{Q}}$
\end{document}
```

```
[x'''] [x'''''''] [x'] [x'''] [x'''''''] [x'] [x'''] [x''''''']
x'''''''' x'''''''' x''' x'''
```

### 2.32 Test F-primes-2-L

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{Asana Math}
\begin{document}
 $[x_x]'$ 
 $[x_x]''$ 
 $[x_x]\prime$ 
 $[x_x]`$ 
 $[x_x]\backprime$ 

```

```
[$x'_x$]  
[$x\prime_x$]  
[$x\backprime_x$]  
[$x\_x$]  
[$x\backprime_x$]
```

```
[$x_{x'}$]  
[$x_{x\boxplus}$]  
[$x_{x\backslash\prime}$$]  
[$x_{x`}$]  
[$x_{x\backslash\backprime}$$]
```

\end{document}

$$\begin{array}{ccccc} [x'_x] & [x'_x] & [x_{x'}] & [x'_x] & [x_{x'}] \\ [x'_x] & [x'_x] & [x'_{x'}] & [x'_x] & [x'_{x'}] \\ [x_{x'}] & [x_{x'}] & [x_{x'}] & [x_{x'}] & [x_{x'}] \end{array}$$

### 2.33 Test F-primes-back-L

```
\input{umtest-preamble}
\usepackage{amsmath,unicode-math}
\setmathfont{Asana Math}
\begin{document}
```

$$[x \backslash \backslash x \backslash \backslash x]$$
$$[\{x\backslash\backprime\backprime\backprime\backprime\backprime\backprime\backprime\}]$$
$$[\$ \{x'\} \$]$$
$$[\$ \{x \text{ ' ' ' } \} \$]$$
$$[\$ \{ x \, \cdot \cdot \cdot \cdot \cdot \} \$]$$
$$[\$ \{ x_{\boxed{?}} \} \$]$$
$$[\$ \{ x_{???} \} \$]$$
$$[\$ \{x_{\backslash backprime}^{\backprime}\} \$]$$

\$x` ???\$

\$x??\$

$\$x \square \$$

\end{document}

$$[x^{(1)}] [x^{(2)}] [x^{(3)}] [x^{(4)}] [x^{(5)}] [x^{(6)}] [x^{(7)}] [x^{(8)}]$$

## 2.34 Test F-query-mathstyle-L

```
\input{umtest-preamble}

\usepackage{unicode-math}
\setmathfont[Colour=FF0000]{xits-math.otf}

\begin{document}

\ExplSyntaxOn
[$\l_um_mathstyle_tl$]\
[$\mathrm{\l_um_mathstyle_tl}$]\
[$\mathup{\l_um_mathstyle_tl}$]\
[$\mathit{\l_um_mathstyle_tl}$]\

[$\mathbf{\l_um_mathstyle_tl}$]\
[$\mathbfit{\l_um_mathstyle_tl}$]\
[$\mathbfup{\l_um_mathstyle_tl}$]\

[$\mathsf{\l_um_mathstyle_tl}$]\
[$\mathsfit{\l_um_mathstyle_tl}$]\
[$\mathsfup{\l_um_mathstyle_tl}$]\

[$\mathbfsf{\l_um_mathstyle_tl}$]\
[$\mathbfsfit{\l_um_mathstyle_tl}$]\
[$\mathbfsfup{\l_um_mathstyle_tl}$]\

\end{document}
```

$\l_um\_mathstyle\_tl$ 
 $\mathrm{\l_um\_mathstyle\_tl}$ 
 $\mathup{\l_um\_mathstyle\_tl}$ 
 $\mathit{\l_um\_mathstyle\_tl}$ 
 $\mathbf{\l_um\_mathstyle\_tl}$ 
 $\mathbfit{\l_um\_mathstyle\_tl}$ 
 $\mathbfup{\l_um\_mathstyle\_tl}$ 
 $\mathsf{\l_um\_mathstyle\_tl}$ 
 $\mathsfit{\l_um\_mathstyle\_tl}$ 
 $\mathsfup{\l_um\_mathstyle\_tl}$ 
 $\mathbfsf{\l_um\_mathstyle\_tl}$ 
 $\mathbfsfit{\l_um\_mathstyle\_tl}$ 
 $\mathbfsfup{\l_um\_mathstyle\_tl}$

## 2.35 Test F-range-L

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont[Colour=000000]{Cambria Math}
\setmathfont[range={\mathop}, Colour=FF0000]{Cambria Math}
\setmathfont[range={"3D}, Colour=009900]{Cambria Math}
\setmathfont[range={\mathopen,\mathclose},
  Colour=0000FF]{Cambria Math}
\setlength\parskip{12pt}
\begin{document}
\[
F(s)=\mathscr{L}\left\{f(t)\right\}=
\int_0^\infty e^{-st}f(t)\,dt
\]
```

$$F(s) = \mathcal{L}\{f(t)\} = \int_0^\infty e^{-st} f(t) dt$$

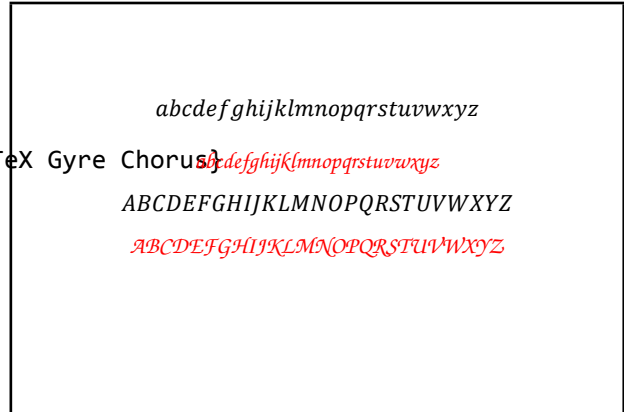
## 2.36 Test F-range-alpha-L

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont[Colour=330000]{Cambria Math}
\setmathfont[range=\mathit/{latin}, Colour=660000]{Cambria Math}
\setmathfont[range=\mathit/{greek}, Colour=990000]{Cambria Math}
\setmathfont[range=\mathit/{greek}, Colour=BB0000]{Cambria Math}
\setmathfont[range=\mathup/{num}, Colour=EE0000]{Cambria Math}
\begin{document}
\[\mathit{\LATINText}\]
\[\mathit{\latintext}\]
\[\mathit{\GREEKtext}\]
\[\mathit{\greektext}\]
\[\mathup{0123456789}\]
\end{document}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
 abcdefghijklmnopqrstuvwxyz  
 ΑΒΓΔΕΖΗΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ  
 αβγδεζηθικλμνξοπρρςστυφχψω  
 0123456789

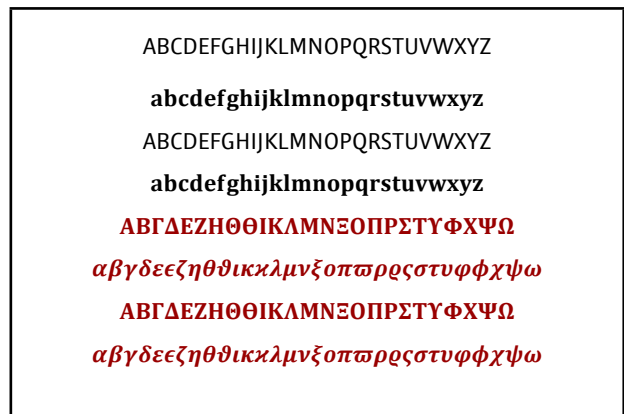
## 2.37 Test F-range-fallback-L

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont[Colour=000000]{Cambria Math}
\setmathfont[range=\mathscr, Colour=FF0000]{TeX Gyre Chorus}
\begin{document}
\[\backslash\text{latintext}\]
\[\backslash\mathscr{\backslash\text{latintext}}\]
\[\backslash\text{LATINmath}\]
\[\backslash\mathscr{\backslash\text{LATINmath}}\]
\end{document}
```



## 2.38 Test F-range-mapping-L

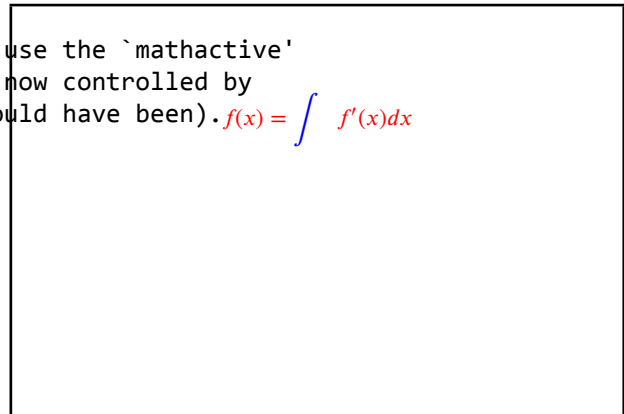
```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont[
  range={
    \mathit/{\latin}->\mathbfup ,
    \mathit/{\Latin}->\mathsfup
  }
]{Cambria Math}
\setmathfont[
  range={
    \mathup/{\Greek}->\mathbfup ,
    \mathit/{\greek}->\mathbfit
  },
  Colour=990000
]{Cambria Math}
\begin{document}
\vspace*{-1cm}
\[\backslash\text{LATINtext}\]
\[\backslash\text{latintext}\]
\[\backslash\mathit{\backslash\text{LATINtext}}\]
\[\backslash\mathit{\backslash\text{latintext}}\]
\[\backslash\{\backslash\text{GREEKtext}\}\]
\[\backslash\{\backslash\text{greektext}\}\]
\[\backslash\mathup{\backslash\text{GREEKtext}}\]
\[\backslash\mathit{\backslash\text{greektext}}\]
\end{document}
```



### 2.39 Test F-range-prime-check-L

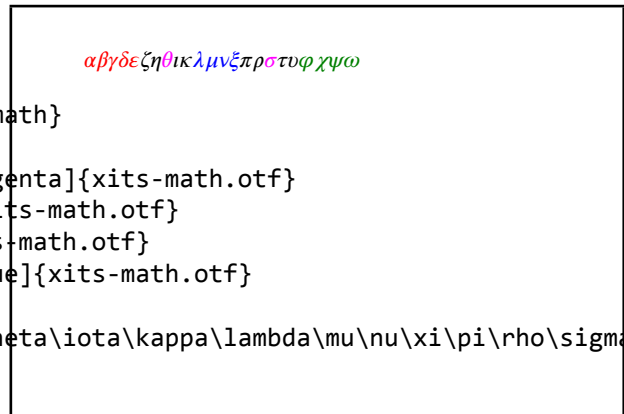
```
%
% See http://github.com/wspr/unicode-math/issues/171
%
% The fix is related to the fact that primes use the `mathactive'
% section of the unicode-math code, which is now controlled by
% the parsing range feature (as it always should have been).


```



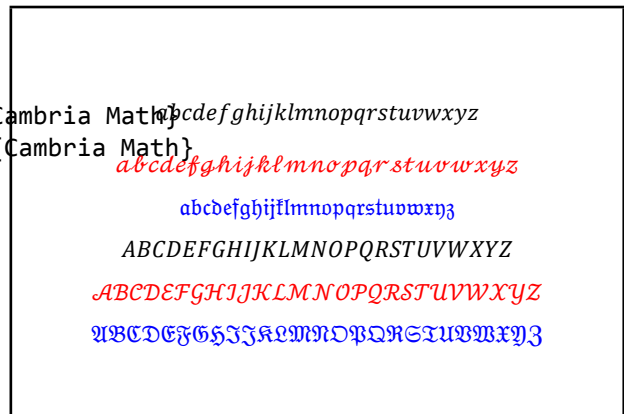
### 2.40 Test F-range-slots-L

```
\input{umtest-preamble}
\usepackage[svgnames]{xcolor}
\usepackage[vargreek-shape=unicode]{unicode-math}
\setmathfont{xits-math.otf}
\setmathfont[range={"1D703","1D70E"},Colour=Magenta]{xits-math.otf}
\setmathfont[range={"1D711-"},Colour=Green]{xits-math.otf}
\setmathfont[range={"-1D700"},Colour=Red]{xits-math.otf}
\setmathfont[range={"1D706-"1D709"},Colour=Blue]{xits-math.otf}
\begin{document}
\[ \alpha\beta\gamma\delta\epsilon\zeta\eta\theta\iota\kappa\lambda\mu\nu\xi\pi\rho\sigma\tau\upsilon\phi\chi\psi\omega \]
\end{document}
```



### 2.41 Test F-range-style-L

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont[Colour=000000]{Cambria Math}
\setmathfont[range=\mathscr, Colour=FF0000]{Cambria Math}
\setmathfont[range=\mathfrak, Colour=0000FF]{Cambria Math}
\begin{document}
\[ \text{abcdefghijklmnopqrstuvwxyz} \]
\[ \mathscr{abcdefghijklmnopqrstuvwxyz} \]
\[ \mathfrak{abcdefghijklmnopqrstuvwxyz} \]
\[ \text{ABCDEFGHIJKLMNOPQRSTUVWXYZ} \]
\[ \mathscr{ABCDEFGHIJKLMNOPQRSTUVWXYZ} \]
\[ \mathfrak{ABCDEFGHIJKLMNOPQRSTUVWXYZ} \]
\end{document}
```



## 2.42 Test F-slash-delim-2-L

```
\input{umtest-preamble}
\usepackage{unicode-math}
\begin{document}
\newcommand\ARRAY[4]{%
  \begin{array}{cc}
    #1 & #2 \\
    #3 & #4
  \end{array}}
\def\test{\[
  \left.\left[\ARRAY{a}{b}{c}{d}\right]
  \middle\slash
  \left[\ARRAY{1}{1}{1}{\mathsf{0}}\right]
  \right.\]}
\setmathfont
  [slash-delimiter=frac]{Cambria Math}
\setmathfont
  [range={\mathsfup},
   Color=0000FF]
  {STIXGeneral}
\test
\setmathfont
  [slash-delimiter=frac,
   range="2044,
   Color=FF0000]
  {Cambria Math}
\test
\end{document}
```

$$\left[\begin{array}{cc} a & b \\ c & d \end{array}\right] \middle/ \left[\begin{array}{cc} 1 & 1 \\ 1 & 0 \end{array}\right]$$

$$\left[\begin{array}{cc} a & b \\ c & d \end{array}\right] \middle/ \left[\begin{array}{cc} 1 & 1 \\ 1 & 0 \end{array}\right]$$

## 2.43 Test F-sqrt-L

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[ \sqrt{\sin^2 x + \cos^2 x} = 1 \quad \backslash
\backslash \sqrt{1 + \sqrt{1 + \sqrt{1 + \sqrt{1 + x}}}} \backslash
\end{document}
```

$$\sqrt{\sin^2 x + \cos^2 x} = 1$$

$$\sqrt{1 + \sqrt{1 + \sqrt{1 + \sqrt{1 + x}}}}$$


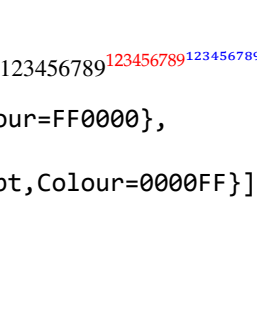
## 2.44 Test F-sqrt-n-L

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[ \sqrt[n]{1 + \sqrt[n]{1 + \sqrt[n]{1 + \sqrt[n]{1 + \sqrt[n]{1 + x}}}}} \backslash
\end{document}
```

$$\sqrt[n]{1 + \sqrt[n]{1 + \sqrt[n]{1 + \sqrt[n]{1 + \sqrt[n]{1 + x}}}}}$$



## 2.45 Test F-sscript-features-L

<pre> \input{umtest-preamble} \usepackage{unicode-math} \setmathfont[script-font      = {Asana Math},                script-features = {Style=MathScript,Colour=FF0000},                sscript-font    = {Cambria Math},                sscript-features= {Style=MathScriptScript,Colour=0000FF}]                {XITS Math}  \begin{document} \[123456789^{\{123456789^{\{123456789\}}}\}] \end{document} </pre>		
--	---	--

## 2.46 Test F-stacked-accent-L

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{xits-math.otf}
\begin{document}
\[
\hat{\hat{H}}\quad\check{\check{C}}\quad\quad
\tilde{\tilde{T}}\quad\acute{\acute{A}}\quad\quad
\grave{\grave{G}}\quad\dot{\dot{D}}\quad\quad
\ddot{\ddot{D}}\quad\breve{\breve{B}}\quad\quad
\bar{\bar{B}}\quad\vec{\vec{V}}
\]
\end{document}
```

### 3 Lua<sup>A</sup>T<sub>E</sub>X test files

### 3.1 Test L-sscale-dimen

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{XITS Math}
\begin{document}
$ $ \\
\number \fontdimen 10 \textfont 0 \\
\number \fontdimen 11 \textfont 0 \\
\number \fontdimen 10 \scriptfont 0 \\
\number \fontdimen 11 \scriptfont 0 \\
\number \fontdimen 10 \scriptscriptfont 0 \\
\number \fontdimen 11 \scriptscriptfont 0
\end{document}
```

75  
60  
75  
60  
75  
60

### 3.2 Test L600a

```
\input{umtest-preamble}
\usepackage{amsmath}
\begin{document}
\[
\sum_{\substack{a \\ bbb}} \sum_{\substack{1 \\ \frac{2}{A'}}} \sum_{\substack{a \\ bbb}}
\sum_{\substack{\dfrac{12}{\vec{A'}} \\ \vec{A'}}}
\sum_{\begin{subarray}{l} 1 \\ a \\ bbb \end{subarray}}
\]
\end{document}
```

$$\sum_{\substack{a \\ bbb}} \sum_{\substack{1 \\ \frac{2}{A'}}} \sum_{\substack{a \\ bbb}}$$

$$\sum_{\substack{\dfrac{12}{\vec{A'}} \\ \vec{A'}}}$$

$$\sum_{\begin{subarray}{l} 1 \\ a \\ bbb \end{subarray}}$$

### 3.3 Test L600b

```
\input{umtest-preamble}
\usepackage{amsmath}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[
\sum_{\substack{a \\ bbb}} \sum_{\substack{1 \\ \frac{2}{A'}}} \sum_{\substack{a \\ bbb}}
\sum_{\substack{\dfrac{12}{\vec{A'}} \\ \vec{A'}}}
\sum_{\begin{subarray}{l} 1 \\ a \\ bbb \end{subarray}}
\]
\end{document}
```

$$\sum_{\substack{a \\ bbb}} \sum_{\substack{1 \\ \frac{2}{A'}}} \sum_{\substack{a \\ bbb}}$$

$$\sum_{\substack{\dfrac{12}{\vec{A'}} \\ \vec{A'}}}$$

$$\sum_{\begin{subarray}{l} 1 \\ a \\ bbb \end{subarray}}$$

### 3.4 Test L601a

```
\input{umtest-preamble}
\usepackage{mathtools}
\begin{document}
\[
\frac{a^2 + b^2}{a^2 + b^2}
\frac{\cramped{a^2 + b^2}}{a^2 + b^2}
\frac{a^2 + b^2}{\cramped{a^2 + b^2}}
\]
\left(
\frac{a^2 + b^2}{a^2 + b^2}
\frac{\cramped{a^2 + b^2}}{a^2 + b^2}
\frac{a^2 + b^2}{\cramped{a^2 + b^2}}
a^{\left(
\frac{a^2 + b^2}{a^2 + b^2}
\frac{\cramped{a^2 + b^2}}{a^2 + b^2}
\frac{a^2 + b^2}{\cramped{a^2 + b^2}}
\right)}
a^{\left(
a^{\left(
\frac{a^2 + b^2}{a^2 + b^2}
\frac{\cramped{a^2 + b^2}}{a^2 + b^2}
\frac{a^2 + b^2}{\cramped{a^2 + b^2}}
\right)}
\right)}
\]
\end{document}
```

$$\frac{a^2 + b^2}{a^2 + b^2} \frac{a^2 + b^2}{a^2 + b^2} \frac{a^2 + b^2}{a^2 + b^2}$$

$$\frac{\cramped{a^2 + b^2}}{a^2 + b^2} \frac{a^2 + b^2}{\cramped{a^2 + b^2}}$$

$$a^{\left( \frac{a^2 + b^2}{a^2 + b^2} \frac{\cramped{a^2 + b^2}}{a^2 + b^2} \frac{a^2 + b^2}{\cramped{a^2 + b^2}} \right)}$$

$$a^{\left( a^{\left( \frac{a^2 + b^2}{a^2 + b^2} \frac{\cramped{a^2 + b^2}}{a^2 + b^2} \frac{a^2 + b^2}{\cramped{a^2 + b^2}} \right)} \right)}$$

```

\input{umtest-preamble}
\usepackage{mathtools}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[
\frac{a^2 + b^2}{a^2 + b^2}
\frac{\cramped{a^2 + b^2}}{a^2 + b^2}
\frac{a^2 + b^2}{\cramped{a^2 + b^2}}
\]
\(\frac{a^2 + b^2}{a^2 + b^2}\)
\(\frac{\cramped{a^2 + b^2}}{a^2 + b^2}\)
\(\frac{a^2 + b^2}{\cramped{a^2 + b^2}}\)
a^{
  \frac{a^2 + b^2}{a^2 + b^2}
  \frac{\cramped{a^2 + b^2}}{a^2 + b^2}
  \frac{a^2 + b^2}{\cramped{a^2 + b^2}}
}
a^{
  a^{
    \frac{a^2 + b^2}{a^2 + b^2}
    \frac{\cramped{a^2 + b^2}}{a^2 + b^2}
    \frac{a^2 + b^2}{\cramped{a^2 + b^2}}
  }
}
\end{document}

```

$$\frac{a^2 + b^2}{a^2 + b^2} \frac{a^2 + b^2}{a^2 + b^2} \frac{a^2 + b^2}{a^2 + b^2} a^{\frac{a^2 + b^2}{a^2 + b^2} \frac{a^2 + b^2}{a^2 + b^2} \frac{a^2 + b^2}{a^2 + b^2}}$$

```
\input{umtest-preamble}
\usepackage{mathtools}
\usepackage{unicode-math}
\setmathfont{XITS Math}
\begin{document}
\[
\frac{a^2 + b^2}{a^2 + b^2}
\frac{\cramped{a^2 + b^2}}{a^2 + b^2}
\frac{a^2 + b^2}{\cramped{a^2 + b^2}}
\]
\\
\frac{a^2 + b^2}{a^2 + b^2}
\frac{\cramped{a^2 + b^2}}{a^2 + b^2}
\frac{a^2 + b^2}{\cramped{a^2 + b^2}}
a^{
\frac{a^2 + b^2}{a^2 + b^2}
\frac{\cramped{a^2 + b^2}}{a^2 + b^2}
\frac{a^2 + b^2}{\cramped{a^2 + b^2}}}
}
a^{
a^{
\frac{a^2 + b^2}{a^2 + b^2}
\frac{\cramped{a^2 + b^2}}{a^2 + b^2}
\frac{a^2 + b^2}{\cramped{a^2 + b^2}}}
}
}
\\
\end{document}
```

$$\frac{a^2 + b^2}{a^2 + b^2} \frac{a^2 + b^2}{a^2 + b^2} \frac{a^2 + b^2}{a^2 + b^2}$$

### 3.7 Test L602b

```
\input{umtest-preamble}

\usepackage{unicode-math}

\setmathfont{xits-math.otf}

\ExplSyntaxOn

\NewDocumentCommand \mathstylename { } {
  \mathtt {
    \prg_case_int:nnn { \luatexmathstyle } {
      { \displaystyle } { \token_to_str:N \displaystyle }
      { \luatexcrampeddisplaystyle } { \token_to_str:N \crampeddisplaystyle }
      { \textstyle } { \token_to_str:N \textstyle }
      { \luatexcrampedtextstyle } { \token_to_str:N \crampedtextstyle }
      { \scriptstyle } { \token_to_str:N \scriptstyle }
      { \luatexcrampedscriptstyle } { \token_to_str:N \crampedscriptstyle }
      { \scriptscriptstyle } { \token_to_str:N \scriptscriptstyle }
      { \luatexcrampedscriptscriptstyle } { \token_to_str:N \crampedscriptscriptstyle }
    } {
      outside math
    }
  }
}

\ExplSyntaxOff

\begin{document}

 $\mathstylename \over \mathstylename$ 

 $\luatexUstack{\mathstylename \over \mathstylename}$ 

 $\frac{\mathstylename}{\mathstylename}$ 

\end{document}
```

### 3.8 Test L603b

```

\input{umtest-preamble}

\usepackage{amsmath}
\usepackage{unicode-math}

\setmathfont{xits-math.otf}

\ExplSyntaxOn

\NewDocumentCommand \mathstylename { } {
  \mathtt {
    \prg_case_int:nnn { \luatexmathstyle } {
      { \displaystyle } { \token_to_str:N \displaystyle }
      { \luatexcrampeddisplaystyle } { \token_to_str:N \crampeddisplaystyle }
      { \textstyle } { \token_to_str:N \textstyle }
      { \luatexcrampedtextstyle } { \token_to_str:N \crampedtextstyle }
      { \scriptstyle } { \token_to_str:N \scriptstyle }
      { \luatexcrampedscriptstyle } { \token_to_str:N \crampedscriptstyle }
      { \scriptscriptstyle } { \token_to_str:N \scriptscriptstyle }
      { \luatexcrampedscriptscriptstyle } { \token_to_str:N \crampedscriptscriptstyle }
    } {
      outside math
    }
  }
}

\ExplSyntaxOff

\begin{document}

$\mathstylename \over \mathstylename$

$\luatexUstack{\mathstylename \over \mathstylename}$

$\frac{\mathstylename}{\mathstylename}$

$\dfrac{\mathstylename}{\mathstylename}$

$\tfrac{\mathstylename}{\mathstylename}$

$\binom{\mathstylename}{\mathstylename}$

$\genfrac{/}{}){}{}{\mathstylename}{\mathstylename}$

\end{document}

```

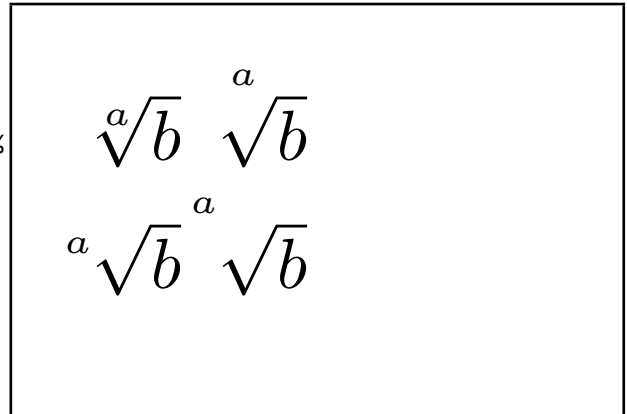
Diagram illustrating the mapping of LaTeX math styles to their corresponding LaTeX commands:

- $\displaystyle$  maps to `\displaystyle`
- $\crampeddisplaystyle$  maps to `\crampeddisplaystyle`
- $\textstyle$  maps to `\textstyle`
- $\crampedtextstyle$  maps to `\crampedtextstyle`
- $\scriptstyle$  maps to `\scriptstyle`
- $\crampedscriptstyle$  maps to `\crampedscriptstyle`
- $\scriptscriptstyle$  maps to `\scriptscriptstyle`
- $\crampedscriptscriptstyle$  maps to `\crampedscriptscriptstyle`

### 3.9 Test L604a

```
\input{umtest-preamble}
\usepackage{amsmath}
\usepackage{graphicx}
\newcommand*{\test}[1]{%
  \parbox[b][50pt][50pt]{\scalebox{3}{\$#1\$}}%
}
\begin{document}
\test{\sqrt[a]{b}}
\test{\sqrt[\uproot{10}a]{b}}

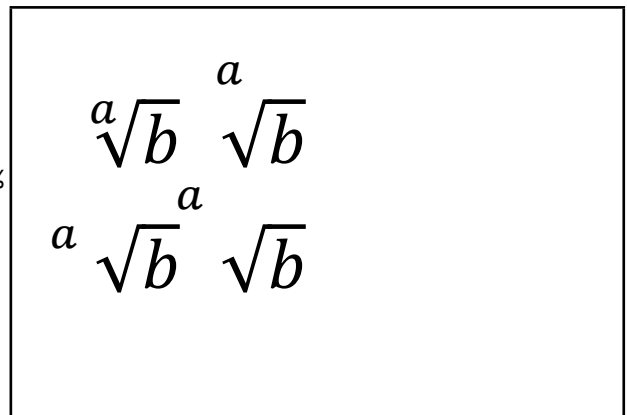
\test{\sqrt[\leftroot{10}a]{b}}
\test{\sqrt[\leftroot{10}\uproot{10}a]{b}}
\end{document}
```



### 3.10 Test L604b

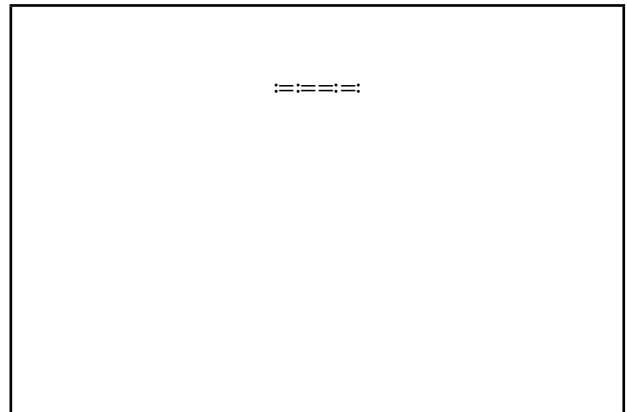
```
\input{umtest-preamble}
\usepackage{unicode-math}
\usepackage{amsmath}
\usepackage{graphicx}
\setmathfont{Cambria Math}
\newcommand*{\test}[1]{%
  \parbox[b][50pt][50pt]{\scalebox{3}{\$#1\$}}%
}
\begin{document}
\test{\sqrt[a]{b}}
\test{\sqrt[\uproot{10}a]{b}}

\test{\sqrt[\leftroot{10}a]{b}}
\test{\sqrt[\leftroot{10}\uproot{10}a]{b}}
\end{document}
```



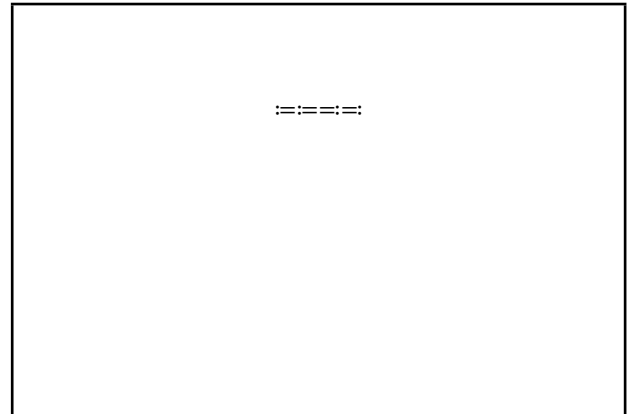
### 3.11 Test L650a

```
\input{umtest-preamble}
\usepackage{unicode-math}
\usepackage{mathtools}
\setmathfont{Cambria Math}
\begin{document}
\[
\coloneq
\coloneqq
\eqcolon
\eqqcolon
\]
\end{document}
```



### 3.12 Test L650b

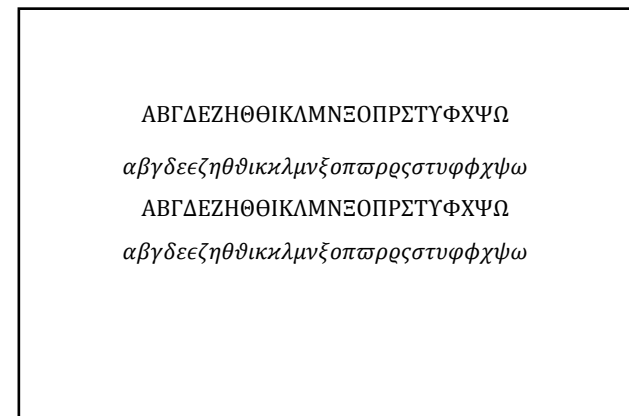
```
\input{umtest-preamble}
\usepackage{unicode-math}
\usepackage{colonequals}
\setmathfont{Cambria Math}
\begin{document}
\[
\coloneq
\colonequals
\eqcolon
\equalscolon
\]
\end{document}
```



## 4 X<sub>Y</sub>L<sup>A</sup>T<sub>E</sub>X test files

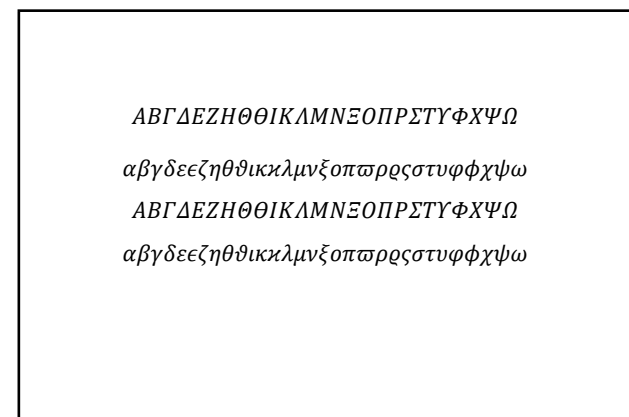
### 4.1 Test X002a

```
\input{umtest-preamble}
\usepackage[math-style=TeX]{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[\GREEKtext\]
\[\greektext\]
\[\GREEKmath\]
\[\greekmath\]
\end{document}
```



### 4.2 Test X002b

```
\input{umtest-preamble}
\usepackage[math-style=ISO]{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[\GREEKtext\]
\[\greektext\]
\[\GREEKmath\]
\[\greekmath\]
\end{document}
```



### 4.3 Test X002c

```
\input{umtest-preamble}  
\usepackage[math-style=literal]{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\GREEKtext\  
\[\greektext\  
\[\GREEKmath\  
\[\greekmath\  
\end{document}
```

ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ  
αβγδεεζηθθικλμνξοπωρρςστυφφχψω  
*ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ*  
*αβγδεεζηθθικλμνξοπωρρςστυφφχψω*

### 4.4 Test X002d

```
\input{umtest-preamble}  
\usepackage[math-style=french]{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\GREEKtext\  
\[\greektext\  
\[\GREEKmath\  
\[\greekmath\  
\end{document}
```

ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ  
αβγδεεζηθθικλμνξοπωρρςστυφφχψω  
ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ  
αβγδεεζηθθικλμνξοπωρρςστυφφχψω

### 4.5 Test X002e

```
\input{umtest-preamble}  
\usepackage[math-style=upright]{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\GREEKtext\  
\[\greektext\  
\[\GREEKmath\  
\[\greekmath\  
\end{document}
```

ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ  
αβγδεεζηθθικλμνξοπωρρςστυφφχψω  
ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ  
αβγδεεζηθθικλμνξοπωρρςστυφφχψω



#### 4.6 Test X003a

```
\input{umtest-preamble}
\usepackage[bold-style=TeX]{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[\backslash\mathrm{LATINmathbfup}\]
\[\backslash\mathrm{LATINmathbfit}\]
\[\backslash\mathrm{latinmathbfup}\]
\[\backslash\mathrm{latinmathbfit}\]
\[\backslash\mathrm{numbersmathbfup}\]
\end{document}
```

ABCDEFGHIJKLMN**OP**QRSTUVWXY**Z**

ABCDEFGHIJKLMN**OP**QRSTUVWXY**Z**

**abcdefghijklmnopqrstuv****wxyz**

**abcdefghijklmnopqrstuv****wxyz**

**0123456789**

#### 4.7 Test X003b

```
\input{umtest-preamble}
\usepackage[bold-style=TeX]{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[\backslash\mathrm{GREEKmathbfup}\]
\[\backslash\mathrm{GREEKmathbfit}\]
\[\backslash\mathrm{greekmathbfup}\]
\[\backslash\mathrm{greekmathbfit}\]
\end{document}
```

ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΕΟΠΡΣΤΥΦΧΨΩ

ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΕΟΠΡΣΤΥΦΧΨΩ

*αβγδεεζηθθικλμνξοπωρρςστυφφχψω*

*αβγδεεζηθθικλμνξοπωρρςστυφφχψω*

#### 4.8 Test X003c

```
\input{umtest-preamble}
\usepackage[bold-style=TeX]{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[\backslash\mathrm{mathbf}\backslash\mathrm{LATINmath}\backslash\]
\[\backslash\mathrm{mathbf}\backslash\mathrm{LATINtext}\backslash\]
\[\backslash\mathrm{mathbf}\backslash\mathrm{latinmath}\backslash\]
\[\backslash\mathrm{mathbf}\backslash\mathrm{latintext}\backslash\]
\[\backslash\mathrm{mathbf}\{0123456789\}\backslash\]
\end{document}
```

ABCDEFGHIJKLMN**OP**QRSTUVWXY**Z**

ABCDEFGHIJKLMN**OP**QRSTUVWXY**Z**

**abcdefghijklmnopqrstuv****wxyz**

**abcdefghijklmnopqrstuv****wxyz**

**0123456789**

#### 4.9 Test X003d

```
\input{umtest-preamble}  
\usepackage[bold-style=TeX]{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\mathbf{\GREEKmath\}  
\[\mathbf{\GREEKtext\}  
\[\mathbf{\greekmath\}  
\[\mathbf{\greektext\}  
\end{document}
```

**ΑΒΓΔΕΖΗΘΘΙΚΑΜΝΞΟΠΡΣΤΥΦΧΨΩ**  
**ΑΒΓΔΕΖΗΘΘΙΚΑΜΝΞΟΠΡΣΤΥΦΧΨΩ**  
*αβγδεεζηθθικκλμνξοπωρρςστυφφχψω*  
*αβγδεεζηθθικκλμνξοπωρρςστυφφχψω*

#### 4.10 Test X003e

```
\input{umtest-preamble}  
\usepackage[bold-style=ISO]{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\LATINmathbfup\  
\[\LATINmathbfit\  
\[\latinmathbfup\  
\[\latinmathbfit\  
\[\numbersmathbfup\  
\end{document}
```

**ΑΒΓΔΕΖΗΘΙΚΛΜΝΟΠΡΣΤΥVWXYZ**  
**ΑΒΓΔΕΖΗΘΙΚΛΜΝΟΠΡΣΤΥVWXYZ**  
*αβcdefghijklmnopqrstuvwxz*  
*αβcdefghijklmnopqrstuvwxz*  
**0123456789**

#### 4.11 Test X003f

```
\input{umtest-preamble}  
\usepackage[bold-style=ISO]{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\GREEKmathbfup\  
\[\GREEKmathbfit\  
\[\greekmathbfup\  
\[\greekmathbfit\  
\end{document}
```

**ΑΒΓΔΕΖΗΘΘΙΚΑΜΝΞΟΠΡΣΤΥΦΧΨΩ**  
**ΑΒΓΔΕΖΗΘΘΙΚΑΜΝΞΟΠΡΣΤΥΦΧΨΩ**  
*αβγδεεζηθθικκλμνξοπωρρςστυφφχψω*  
*αβγδεεζηθθικκλμνξοπωρρςστυφφχψω*

#### 4.12 Test X003g

```
\input{umtest-preamble}  
\usepackage[bold-style=ISO]{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\mathbf{LATINmath}\]  
\[\mathbf{LATINtext}\]  
\[\mathbf{latinmath}\]  
\[\mathbf{latintext}\]  
\[\mathbf{0123456789}\]  
\end{document}
```

**ABCDEFGHIJKLMNOPQRSTUVWXYZ**  
**ABCDEFGHIJKLMNOPQRSTUVWXYZ**  
**abcdefghijklmnopqrstuvwxy**  
**abcdefghijklmnopqrstuvwxy**  
**0123456789**

#### 4.13 Test X003h

```
\input{umtest-preamble}  
\usepackage[bold-style=ISO]{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\mathbf{GREEKmath}\]  
\[\mathbf{GREEKtext}\]  
\[\mathbf{greekmath}\]  
\[\mathbf{greektext}\]  
\end{document}
```

**ΑΒΓΔΕΖΗΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ**  
**ΑΒΓΔΕΖΗΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ**  
**αβγδεζηθικλμνξοπρρςστυφχψω**  
**αβγδεζηθικλμνξοπρρςστυφχψω**

#### 4.14 Test X003i

```
\input{umtest-preamble}  
\usepackage[bold-style=upright]{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\LATINmathbfup\]  
\[\LATINmathbfup\]  
\[\latinmathbfup\]  
\[\latinmathbfup\]  
\[\numbersmathbfup\]  
\end{document}
```

**ABCDEFGHIJKLMNOPQRSTUVWXYZ**  
**ABCDEFGHIJKLMNOPQRSTUVWXYZ**  
**abcdefghijklmnopqrstuvwxy**  
**abcdefghijklmnopqrstuvwxy**  
**0123456789**

#### 4.15 Test X003j

```
\input{umtest-preamble}  
\usepackage[bold-style=upright]{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\GREEKmathbfup\  
\[\GREEKmathbfit\  
\[\greekmathbfup\  
\[\greekmathbfit\  
\end{document}
```

ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ  
ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ  
αβγδεζηθθικλμνξοπρρςστυφφχψω  
αβγδεζηθθικλμνξοπρρςστυφφχψω

#### 4.16 Test X003k

```
\input{umtest-preamble}  
\usepackage[bold-style=upright]{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\mathbf\{LATINmath\  
\[\mathbf\{LATINtext\  
\[\mathbf\{latinmath\  
\[\mathbf\{latinintext\  
\[\mathbf\{0123456789\  
\end{document}
```

ΑΒΓΔΕΖΗΘΙΚΛΜΝΟΠΡΣΤΥΦΧΨΩ  
ΑΒΓΔΕΖΗΘΙΚΛΜΝΟΠΡΣΤΥΦΧΨΩ  
αβcdefghijklmnopqrstuvwxyz  
αβcdefghijklmnopqrstuvwxyz  
0123456789

#### 4.17 Test X003l

```
\input{umtest-preamble}  
\usepackage[bold-style=upright]{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\mathbf\{GREEKmath\  
\[\mathbf\{GREEKtext\  
\[\mathbf\{greekmath\  
\[\mathbf\{greektext\  
\end{document}
```

ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ  
ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ  
αβγδεζηθθικλμνξοπρρςστυφφχψω  
αβγδεζηθθικλμνξοπρρςστυφφχψω

#### 4.18 Test X003m

```
\input{umtest-preamble}  
\usepackage[bold-style=literal]{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\mathbf{A}\]  
\[\mathbf{B}\]  
\[\mathbf{a}\]  
\[\mathbf{b}\]  
\[\mathbf{0}\]  
\end{document}
```

**ABCDEFGHIJKLMNOPQRSTUVWXYZ**  
***ABCDEFGHIJKLMNOPQRSTUVWXYZ***  
***abcdefghijklmnopqrstuvwxyz***  
***abcdefghijklmnopqrstuvwxyz***  
**0123456789**

#### 4.19 Test X003n

```
\input{umtest-preamble}  
\usepackage[bold-style=literal]{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\mathbf{A}\]  
\[\mathbf{B}\]  
\[\mathbf{a}\]  
\[\mathbf{b}\]  
\end{document}
```

**ΑΒΓΔΕΖΗΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ**  
***ΑΒΓΔΕΖΗΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ***  
***αβγδεζηθικλμνξοπρρςστυφφχψω***  
***αβγδεζηθικλμνξοπρρςστυφφχψω***

#### 4.20 Test X003o

```
\input{umtest-preamble}  
\usepackage[bold-style=literal]{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\mathbf{A}\]  
\[\mathbf{B}\]  
\[\mathbf{a}\]  
\[\mathbf{b}\]  
\end{document}
```

**ABCDEFGHIJKLMNOPQRSTUVWXYZ**  
**ABCDEFGHIJKLMNOPQRSTUVWXYZ**  
***abcdefghijklmnopqrstuvwxyz***  
***abcdefghijklmnopqrstuvwxyz***  
**0123456789**

#### 4.21 Test X003p

```
\input{umtest-preamble}  
\usepackage[bold-style=literal]{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\mathbf{\GREEKmath\}]  
\[\mathbf{\GREEKtext\}]  
\[\mathbf{\greekmath\}]  
\[\mathbf{\greektext\}]  
\end{document}
```

**ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ**  
**ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ**  
*αβγδεεζηθθικκλμνξοπωρρςστυφφχψω*  
*αβγδεεζηθθικκλμνξοπωρρςστυφφχψω*

#### 4.22 Test X004a

```
\input{umtest-preamble}  
\usepackage[sans-style=upright]{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\LATINmathsfup\]  
\[\LATINmathsfitt\]  
\[\latinmathsfup\]  
\[\latinmathsfitt\]  
\[\numbersmathsfup\]  
\end{document}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz  
abcdefghijklmnopqrstuvwxyz  
0123456789

#### 4.23 Test X004b

```
\input{umtest-preamble}  
\usepackage[sans-style=upright]{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\mathsf{\LATINtext}\]  
\[\mathsf{\LATINmath}\]  
\[\mathsf{\latinintext}\]  
\[\mathsf{\latinmath}\]  
\[\mathsf{0123456789}\]  
\end{document}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz  
abcdefghijklmnopqrstuvwxyz  
0123456789

#### 4.24 Test X004c

```
\input{umtest-preamble}  
\usepackage[sans-style=italic]{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\backslash\mathrm{LATINmathsfup}\]  
\[\backslash\mathrm{LATINmathsfit}\]  
\[\backslash\mathrm{latinmathsfup}\]  
\[\backslash\mathrm{latinmathsfit}\]  
\[\backslash\mathrm{numbersmathsfup}\]  
\end{document}
```

*ABCDEFGHIJKLMNOPQRSTUVWXYZ*  
*ABCDEFGHIJKLMNOPQRSTUVWXYZ*  
*abcdefghijklmnopqrstuvwxyz*  
*abcdefghijklmnopqrstuvwxyz*  
0123456789

#### 4.25 Test X004d

```
\input{umtest-preamble}  
\usepackage[sans-style=italic]{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\mathsf{\backslash\mathrm{LATINtext}}\]  
\[\mathsf{\backslash\mathrm{LATINmath}}\]  
\[\mathsf{\backslash\mathrm{latintext}}\]  
\[\mathsf{\backslash\mathrm{latinmath}}\]  
\[\mathsf{\backslash\mathrm{0123456789}}\]  
\end{document}
```

*ABCDEFGHIJKLMNOPQRSTUVWXYZ*  
*ABCDEFGHIJKLMNOPQRSTUVWXYZ*  
*abcdefghijklmnopqrstuvwxyz*  
*abcdefghijklmnopqrstuvwxyz*  
0123456789

#### 4.26 Test X004e

```
\input{umtest-preamble}  
\usepackage[sans-style=literal]{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\backslash\mathrm{LATINmathsfup}\]  
\[\backslash\mathrm{LATINmathsfit}\]  
\[\backslash\mathrm{latinmathsfup}\]  
\[\backslash\mathrm{latinmathsfit}\]  
\[\backslash\mathrm{numbersmathsfup}\]  
\end{document}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz  
abcdefghijklmnopqrstuvwxyz  
0123456789

#### 4.27 Test X004f

```
\input{umtest-preamble}
\usepackage[sans-style=literal]{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[\mathsf{\backslash LATINtext}\]
\[\mathsf{\backslash LATINmath}\]
\[\mathsf{\backslash latintext}\]
\[\mathsf{\backslash latinmath}\]
\[\mathsf{0123456789}\]
\end{document}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz  
abcdefghijklmnopqrstuvwxyz  
0123456789

#### 4.28 Test X005a

```
\input{umtest-preamble}
\usepackage[sans-style=upright]{unicode-math}
\setmathfont{Code2001}
\begin{document}
\[\backslash LATINmathbbsfup\]
\[\backslash LATINmathbbsffit\]
\[\backslash latinmathbbsfup\]
\[\backslash latinmathbbsffit\]
\[\backslash numbersmathbbsfup\]
\end{document}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz  
abcdefghijklmnopqrstuvwxyz  
0123456789

#### 4.29 Test X005b

```
\input{umtest-preamble}
\usepackage[sans-style=upright]{unicode-math}
\setmathfont{Code2001}
\begin{document}
\[\backslash GREEKmathbbsfup\]
\[\backslash GREEKmathbbsffit\]
\[\backslash greekmathbbsfup\]
\[\backslash greekmathbbsffit\]
\end{document}
```

ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ  
ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ  
αβγδεεζηθθικκλμνξοπαρρρςστυφθχψω  
αβγδεεζηθθικκλμνξοπαρρρςστυφθχψω



#### 4.30 Test X005c

```
\input{umtest-preamble}  
\usepackage[sans-style=upright]{unicode-math}  
\setmathfont{Code2001}  
\begin{document}  
\[\mathbfsf\LATINmath\  
\[\mathbfsf\LATINtext\  
\[\mathbfsf\latinmath\  
\[\mathbfsf\latintext\  
\[\mathbfsf{0123456789}\]  
\end{document}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz  
abcdefghijklmnopqrstuvwxyz  
0123456789

#### 4.31 Test X005d

```
\input{umtest-preamble}  
\usepackage[sans-style=upright]{unicode-math}  
\setmathfont{Code2001}  
\begin{document}  
\[\mathbfsf\GREEKmath\  
\[\mathbfsf\GREEKtext\  
\[\mathbfsf\greekmath\  
\[\mathbfsf\greektext\  
\end{document}
```

ΑΒΓΔΕΖΗΘΙΚΑΜΝΞΟΠΡΣΤΥΦΧΨΩ  
ΑΒΓΔΕΖΗΘΙΚΑΜΝΞΟΠΡΣΤΥΦΧΨΩ  
αβγδεζηθικιλμνξοπρρςστυφφχψω  
αβγδεζηθικιλμνξοπρρςστυφφχψω

#### 4.32 Test X005e

```
\input{umtest-preamble}  
\usepackage[sans-style=italic]{unicode-math}  
\setmathfont{Code2001}  
\begin{document}  
\[\LATINmathbfsfup\  
\[\LATINmathbfsfit\  
\[\latinmathbfsfup\  
\[\latinmathbfsfit\  
\[\numbersmathbfsfup\  
\end{document}
```

*ABCDEFGHIJKLMNOPQRSTUVWXYZ*  
*ABCDEFGHIJKLMNOPQRSTUVWXYZ*  
*abcdefghijklmnopqrstuvwxyz*  
*abcdefghijklmnopqrstuvwxyz*  
0123456789

#### 4.33 Test X005f

```
\input{umtest-preamble}  
\usepackage[sans-style=italic]{unicode-math}  
\setmathfont{Code2001}  
\begin{document}  
\[\GREEKmathbbsfup\  
\[\GREEKmathbbsffit\  
\[\greekmathbbsfup\  
\[\greekmathbbsffit\  
\end{document}
```

*ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ*  
*ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ*  
*αβγδεεζηθθικιμνξοπαρρςστυφθχψω*  
*αβγδεεζηθθικιμνξοπαρρςστυφθχψω*

#### 4.34 Test X005g

```
\input{umtest-preamble}  
\usepackage[sans-style=italic]{unicode-math}  
\setmathfont{Code2001}  
\begin{document}  
\[\mathbbsf\LATINmath\  
\[\mathbbsf\LATINtext\  
\[\mathbbsf\latinmath\  
\[\mathbbsf\latintext\  
\[\mathbbsf{0123456789}\]  
\end{document}
```

*ABCDEFGHIJKLMNOPQRSTUVWXYZ*  
*ABCDEFGHIJKLMNOPQRSTUVWXYZ*  
*abcdefghijklmnopqrstuvwxyz*  
*abcdefghijklmnopqrstuvwxyz*  
*0123456789*

#### 4.35 Test X005h

```
\input{umtest-preamble}  
\usepackage[sans-style=italic]{unicode-math}  
\setmathfont{Code2001}  
\begin{document}  
\[\mathbbsf\GREEKmath\  
\[\mathbbsf\GREEKtext\  
\[\mathbbsf\greekmath\  
\[\mathbbsf\greektext\  
\end{document}
```

*ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ*  
*ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ*  
*αβγδεεζηθθικιμνξοπαρρςστυφφχψω*  
*αβγδεεζηθθικιμνξοπαρρςστυφφχψω*

#### 4.36 Test X005i

```
\input{umtest-preamble}  
\usepackage[sans-style=literal]{unicode-math}  
\setmathfont{Code2001}  
\begin{document}  
\[ \mathbf{fup} \]  
\[ \mathbf{fit} \]  
\[ \mathbf{fup} \]  
\[ \mathbf{fit} \]  
\[ \mathbf{fup} \]  
\[ \mathbf{fit} \]  
\end{document}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
*ABCDEFGHIJKLMNOPQRSTUVWXYZ*  
abcdefghijklmnopqrstuvwxyz  
*abcdefghijklmnopqrstuvwxyz*  
0123456789

#### 4.37 Test X005j

```
\input{umtest-preamble}  
\usepackage[sans-style=literal]{unicode-math}  
\setmathfont{Code2001}  
\begin{document}  
\[ \mathbf{fup} \]  
\[ \mathbf{fit} \]  
\[ \mathbf{fup} \]  
\[ \mathbf{fit} \]  
\end{document}
```

ΑΒΓΔΕΖΗΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ  
*ΑΒΓΔΕΖΗΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ*  
αβγδεζηθικλμνξοπρρςστυφθχψω  
*αβγδεζηθικλμνξοπρρςστυφθχψω*

#### 4.38 Test X005k

```
\input{umtest-preamble}  
\usepackage[sans-style=literal]{unicode-math}  
\setmathfont{Code2001}  
\begin{document}  
\[ \mathbf{fup} \]  
\[ \mathbf{fit} \]  
\[ \mathbf{fup} \]  
\[ \mathbf{fit} \]  
\[ \mathbf{fup} \]  
\[ \mathbf{fit} \]  
\end{document}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
*abcdefghijklmnopqrstuvwxyz*  
*abcdefghijklmnopqrstuvwxyz*  
0123456789

#### 4.39 Test X005l

```
\input{umtest-preamble}
\usepackage[sans-style=literal]{unicode-math}
\setmathfont{Code2001}
\begin{document}
\[\mathbfsf\GREEKmath\]
\[\mathbfsf\GREEKtext\]
\[\mathbfsf\greekmath\]
\[\mathbfsf\greektext\]
\end{document}
```

*ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ*  
*ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ*  
*αβγδεεζηθθικιλμνξοπαρρςστυφφχψω*  
*αβγδεεζηθθικιλμνξοπαρρςστυφφχψω*

#### 4.40 Test X010a

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[\mathscr{LATINtext}\]
\[\mathscr{latintext}\]
\[\mathscr{LATInmath}\]
\[\mathscr{latinmath}\]
\end{document}
```

*ΑΒCDEFGHIJJKLMNOPQRSTUvwxyz*  
*αbcdefghijklmnopqrstuvwxyz*  
*ΑΒCDEFGHIJJKLMNOPQRSTUvwxyz*  
*αbcdefghijklmnopqrstuvwxyz*

#### 4.41 Test X010b

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[\LATINmathscr\]
\[\latinmathscr\]
\[\reservedmathscr\]
\end{document}
```

*ΑΒCDEFGHIJJKLMNOPQRSTUvwxyz*  
*αbcdefghijklmnopqrstuvwxyz*  
*⸶⸷⸸⸹⸺⸻⸼⸽⸾⸿ ⸰⸱⸲*

#### 4.42 Test X010c

```
\input{umtest-preamble}  
\usepackage{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\mathfrak{\LATINtext}\]  
\[\mathfrak{\latintext}\]  
\[\mathfrak{\LATINmath}\]  
\[\mathfrak{\latinmath}\]  
\end{document}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

#### 4.43 Test X010d

```
\input{umtest-preamble}  
\usepackage{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\LATINmathfrak\]  
\[\latinmathfrak\]  
\[\reservedmathfrak\]  
\end{document}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

???

#### 4.44 Test X011a

```
\input{umtest-preamble}  
\usepackage{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\mathup{\LATINtext}\]  
\[\mathup{\latintext}\]  
\[\mathup{\LATINmath}\]  
\[\mathup{\latinmath}\]  
\end{document}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

#### 4.45 Test X011b

```
\input{umtest-preamble}  
\usepackage{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\mathup{\GREEKtext}\]  
\[\mathup{\greektext}\]  
\[\mathup{\GREEKmath}\]  
\[\mathup{\greekmath}\]  
\end{document}
```

ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ  
αβγδεεζηθθικλμνξοπρρςστυφφχψω  
ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ  
αβγδεεζηθθικλμνξοπρρςστυφφχψω

#### 4.46 Test X012a

```
\input{umtest-preamble}  
\usepackage{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\mathit{\LATINtext}\]  
\[\mathit{\latintext}\]  
\[\mathit{\LATINmath}\]  
\[\mathit{\latinmath}\]  
\end{document}
```

*ΑΒΓΔΕFGHIJKLMNOPQRSTUVWXYZ*  
*abcdefghijklmnopqrstuvwxyz*  
*ΑΒΓΔΕFGHIJKLMNOPQRSTUVWXYZ*  
*abcdefghijklmnopqrstuvwxyz*

#### 4.47 Test X012b

```
\input{umtest-preamble}  
\usepackage{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\mathit{\GREEKtext}\]  
\[\mathit{\greektext}\]  
\[\mathit{\GREEKmath}\]  
\[\mathit{\greekmath}\]  
\end{document}
```

*ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ*  
*αβγδεεζηθθικλμνξοπρρςστυφφχψω*  
*ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ*  
*αβγδεεζηθθικλμνξοπρρςστυφφχψω*

4.48 Test X013a

```
\input{umtest-preamble}  
\usepackage{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\mathbb{\text{LATINtext}}\]  
\[\mathbb{\text{latinintext}}\]  
\[\mathbb{\text{LATINmath}}\]  
\[\mathbb{\text{latinmath}}\]  
\end{document}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz

4.49 Test X013b

```
\input{umtest-preamble}  
\usepackage{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\mathbb{0123456789}\]  
\[\numbersmathbb{\}  
\end{document}
```

0123456789  
0123456789

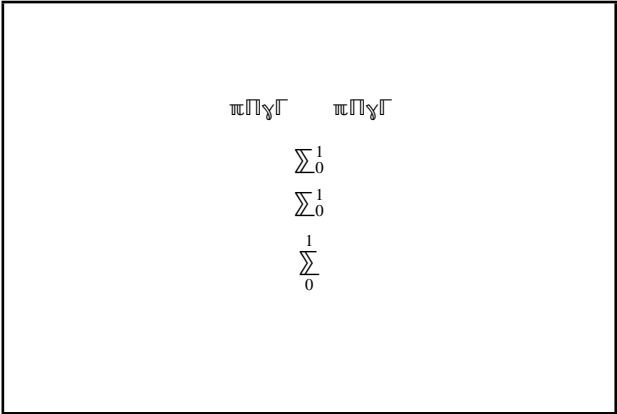
4.50 Test X013c

```
\input{umtest-preamble}  
\usepackage{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\text{LATINmathbb}\]  
\[\text{latinmathbb}\]  
\[\reservedmathbb\]  
\end{document}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz  
???????

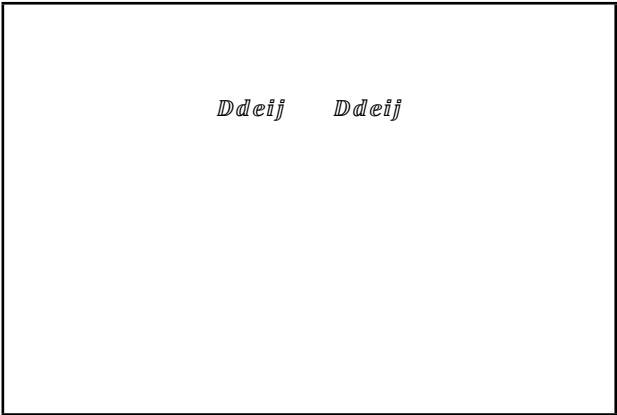
4.51 Test X013d

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{STIXGeneral}
\begin{document}
\[\mathbb{\pi\Gamma}\quad\mathbb{\sum}\quad\]
\[\mathbb{\sum}_0\quad\]
\[\mathbb{\sum}_0^1\quad\]
\[\mathbb{\sum}_0^1\quad\]
\[\mathbb{\sum}_0^1\quad\]
\end{document}
```



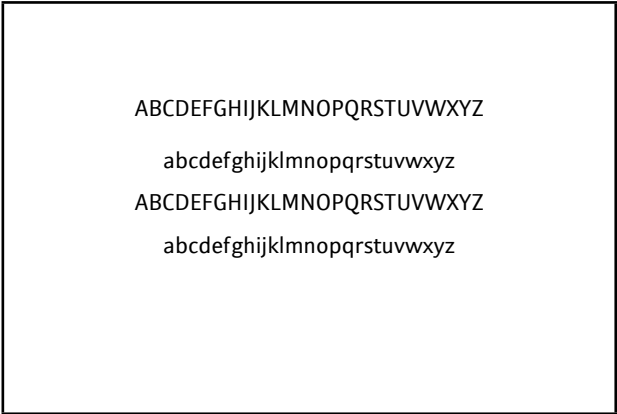
4.52 Test X013e

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[\mathbbit{Ddei}\quad\mathbbit{\sum}\quad\]
\end{document}
```



4.53 Test X014a

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[\mathsfup{LATINtext}\]
\[\mathsfup{latintext}\]
\[\mathsfup{LATINmath}\]
\[\mathsfup{latinmath}\]
\end{document}
```





4.54 Test X014b

```
\input{umtest-preamble}  
\usepackage{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\mathsfup{0123456789}\]  
\[\numbersmathsfup\]  
\end{document}
```

0123456789  
0123456789

4.55 Test X014c

```
\input{umtest-preamble}  
\usepackage{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\LATINmathsfup\]  
\[\latinmathsfup\]  
\end{document}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz

4.56 Test X015a

```
\input{umtest-preamble}  
\usepackage{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\mathsfit{LATINtext}\]  
\[\mathsfit{latintext}\]  
\[\mathsfit{LATINmath}\]  
\[\mathsfit{latinmath}\]  
\[\mathsfit{0123456789}\]  
\end{document}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
*abcdefghijklmnopqrstuvwxyz*  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
*abcdefghijklmnopqrstuvwxyz*  
0123456789

**4.57 Test X015b**

```
\input{umtest-preamble}  
\usepackage{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\LATINmathsfit\  
\[\latinmathsfit\  
\end{document}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz

**4.58 Test X016a**

```
\input{umtest-preamble}  
\usepackage{unicode-math}  
\setmathfont{Asana-Math.otf}  
\begin{document}  
\[\mathhtt{\LATINtext}\  
\[\mathhtt{\latintext}\  
\[\mathhtt{\LATINmath}\  
\[\mathhtt{\latinmath}\  
\end{document}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz

**4.59 Test X016b**

```
\input{umtest-preamble}  
\usepackage{unicode-math}  
\setmathfont{Asana-Math.otf}  
\begin{document}  
\[\mathhtt{0123456789}\  
\[\numbersmathtt\  
\end{document}
```

0123456789  
0123456789

#### 4.60 Test X016c

```
\input{umtest-preamble}  
\usepackage{unicode-math}  
\setmathfont{Asana-Math.otf}  
\begin{document}  
\[ \mathrm{ABCDEFGHIJKLMNOPQRSTUVWXYZ} \]  
\[ \mathrm{abcdefghijklmnopqrstuvwxyz} \]  
\end{document}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz

#### 4.61 Test X017a

```
\input{umtest-preamble}  
\usepackage{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[ \mathbf{ABCDEFGHIJKLMNOPQRSTUVWXYZ} \]  
\[ \mathbf{abcdefghijklmnopqrstuvwxyz} \]  
\[ \mathbf{ABCDEFGHIJKLMNOPQRSTUVWXYZ} \]  
\[ \mathbf{abcdefghijklmnopqrstuvwxyz} \]  
\end{document}
```

**ABCDEFGHIJKLMNOPQRSTUVWXYZ**  
**abcdefghijklmnopqrstuvwxyz**  
**ABCDEFGHIJKLMNOPQRSTUVWXYZ**  
**abcdefghijklmnopqrstuvwxyz**

#### 4.62 Test X017b

```
\input{umtest-preamble}  
\usepackage{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[ \mathrm{ABCDEFGHIJKLMNOPQRSTUVWXYZ} \]  
\[ \mathrm{abcdefghijklmnopqrstuvwxyz} \]  
\end{document}
```

**ABCDEFGHIJKLMNOPQRSTUVWXYZ**  
**abcdefghijklmnopqrstuvwxyz**

#### 4.63 Test X017c

```
\input{umtest-preamble}  
\usepackage{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\mathbf{\frac{\text{LATINtext}}{\text{LATINtext}}}\]  
\[\mathbf{\frac{\text{LATINtext}}{\text{LATINtext}}}\]  
\[\mathbf{\frac{\text{LATINmath}}{\text{LATINmath}}}\]  
\[\mathbf{\frac{\text{LATINmath}}{\text{LATINmath}}}\]  
\end{document}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz

#### 4.64 Test X017d

```
\input{umtest-preamble}  
\usepackage{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\mathbf{\frac{\text{LATINmath}}{\text{LATINmath}}}\]  
\[\mathbf{\frac{\text{LATINmath}}{\text{LATINmath}}}\]  
\end{document}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz

#### 4.65 Test X018a

```
\input{umtest-preamble}  
\usepackage{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\mathbf{\frac{\text{LATINtext}}{\text{LATINtext}}}\]  
\[\mathbf{\frac{\text{LATINtext}}{\text{LATINtext}}}\]  
\[\mathbf{\frac{\text{LATINmath}}{\text{LATINmath}}}\]  
\[\mathbf{\frac{\text{LATINmath}}{\text{LATINmath}}}\]  
\[\mathbf{\frac{0123456789}{0123456789}}\]  
\end{document}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz  
ABCDEFGHIJKLMNOPQRSTUVWXYZ  
abcdefghijklmnopqrstuvwxyz  
0123456789

#### 4.66 Test X018b

```
\input{umtest-preamble}  
\usepackage{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\mathbfup{\GREEKtext}\]  
\[\mathbfup{\greektext}\]  
\[\mathbfup{\GREEKmath}\]  
\[\mathbfup{\greekmath}\]  
\end{document}
```

**ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ**  
**αβγδεεζηθθικλμνξοπρρςστυφφχψω**  
**ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ**  
**αβγδεεζηθθικλμνξοπρρςστυφφχψω**

#### 4.67 Test X019a

```
\input{umtest-preamble}  
\usepackage{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\mathbfit{\LATINtext}\]  
\[\mathbfit{\latintext}\]  
\[\mathbfit{\LATINmath}\]  
\[\mathbfit{\latinmath}\]  
\[\mathbfit{0123456789}\]  
\end{document}
```

**ABCDEFGHIJKLMNOPQRSTUVWXYZ**  
***abcdefghijklmnopqrstuvwxyz***  
**ABCDEFGHIJKLMNOPQRSTUVWXYZ**  
***abcdefghijklmnopqrstuvwxyz***  
0123456789

#### 4.68 Test X019b

```
\input{umtest-preamble}  
\usepackage{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[\mathbfit{\GREEKtext}\]  
\[\mathbfit{\greektext}\]  
\[\mathbfit{\GREEKmath}\]  
\[\mathbfit{\greekmath}\]  
\end{document}
```

**ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ**  
**αβγδεεζηθθικλμνξοπρρςστυφφχψω**  
**ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ**  
**αβγδεεζηθθικλμνξοπρρςστυφφχψω**

#### 4.69 Test X020a

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[\mathbfsfit{\LATINText}\]
\[\mathbfsfit{\latintext}\]
\[\mathbfsfit{\LATINmath}\]
\[\mathbfsfit{\latinmath}\]
\[\mathbfsfit{0123456789}\]
\end{document}
```

**ABCDEFGHIJKLMNOPQRSTUVWXYZ**

***abcdefghijklmnopqrstuvwxyz***

**ABCDEFGHIJKLMNOPQRSTUVWXYZ**

***abcdefghijklmnopqrstuvwxyz***

0123456789

#### 4.70 Test X020b

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{STIXGeneral-Bold}
\begin{document}
\[\mathbfsfup{\GREEKtext}\]
\[\mathbfsfup{\greektext}\]
\[\mathbfsfup{\GREEKmath}\]
\[\mathbfsfup{\greekmath}\]
\end{document}
```

**ΑΒΓΔΕΖΗΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ**

**αβγδεζηθικλμνξοπρρςστυφχψω**

**ΑΒΓΔΕΖΗΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ**

**αβγδεζηθικλμνξοπρρςστυφχψω**

#### 4.71 Test X021a

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[\mathbfsfit{\LATINText}\]
\[\mathbfsfit{\latintext}\]
\[\mathbfsfit{\LATINmath}\]
\[\mathbfsfit{\latinmath}\]
\[\mathbfsfit{0123456789}\]
\end{document}
```

**ABCDEFGHIJKLMNOPQRSTUVWXYZ**

***abcdefghijklmnopqrstuvwxyz***

**ABCDEFGHIJKLMNOPQRSTUVWXYZ**

***abcdefghijklmnopqrstuvwxyz***

0123456789

#### 4.72 Test X021b

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{STIXGeneral-BoldItalic}
\begin{document}
\[\mathbfsfit{\GREEKtext}\]
\[\mathbfsfit{\greektext}\]
\[\mathbfsfit{\GREEKmath}\]
\[\mathbfsfit{\greekmath}\]
\end{document}
```

*ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ*  
*αβγδεεζηθδικκλμνξοπωρρςστυφφχψω*  
*ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ*  
*αβγδεεζηθδικκλμνξοπωρρςστυφφχψω*

#### 4.73 Test X030a

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{FreeSerif}
\begin{document}
\[\mathup{\mathbb{F}}\]
\[\mathbf{\mathbb{F}}\]
\end{document}
```

$\mathbb{F}$   
 $\mathbf{\mathbb{F}}$   
 $\mathbb{F}$   
 $\mathbf{\mathbb{F}}$

#### 4.74 Test X031a

```
\input{umtest-preamble}
\usepackage[nabla=upright]{unicode-math}
\setmathfont{Free Serif}
\begin{document}
\[\mathbb{N} \quad \mathbb{N} \quad \mathbb{N}\]
\[\mathbb{N} \quad \mathbf{\mathbb{N}} \quad \mathbf{\mathbb{N}}\]
\[\mathup{\mathbb{N}} \quad \mathit{\mathbb{N}}\]
\[\mathbfup{\mathbb{N}} \quad \mathbf{\mathbb{N}}\]
\[\mathbfsfup{\mathbb{N}} \quad \mathbf{\mathbb{N}}\]
\end{document}
```

$\mathbb{N}$   $\mathbb{N}$   $\mathbb{N}$   
 $\mathbb{N}$   $\mathbf{\mathbb{N}}$   $\mathbf{\mathbb{N}}$   
 $\mathup{\mathbb{N}}$   $\mathit{\mathbb{N}}$   
 $\mathbfup{\mathbb{N}}$   $\mathbf{\mathbb{N}}$   
 $\mathbfsfup{\mathbb{N}}$   $\mathbf{\mathbb{N}}$

#### 4.75 Test X031b

```
\input{umtest-preamble}
\usepackage[nabla=italic]{unicode-math}
\setmathfont{Free Serif}
\begin{document}
\[\nabla \quad \nabla \quad \nabla\]
\[\nabla \quad \mathbf{\nabla} \quad \mathbf{sf{\nabla}}\]
\[\mathup{\nabla} \quad \mathit{\nabla}\]
\[\mathbfup{\nabla} \quad \mathbf{fit{\nabla}}\]
\[\mathbfsfup{\nabla} \quad \mathbf{sf{fit{\nabla}}}\]
\end{document}
```

$\nabla$   $\nabla$   $\nabla$   
 $\nabla$   $\nabla$   $\nabla$   
 $\nabla$   $\nabla$   
 $\nabla$   $\nabla$   
 $\nabla$   $\nabla$

#### 4.76 Test X031c

```
\input{umtest-preamble}
\usepackage[nabla=literal]{unicode-math}
\setmathfont{Free Serif}
\begin{document}
\[\nabla \quad \nabla \quad \nabla\]
\[\nabla \quad \mathbf{\nabla} \quad \mathbf{sf{\nabla}}\]
\[\mathup{\nabla} \quad \mathit{\nabla}\]
\[\mathbfup{\nabla} \quad \mathbf{fit{\nabla}}\]
\[\mathbfsfup{\nabla} \quad \mathbf{sf{fit{\nabla}}}\]
\end{document}
```

$\nabla$   $\nabla$   $\nabla$   
 $\nabla$   $\nabla$   $\nabla$   
 $\nabla$   $\nabla$   
 $\nabla$   $\nabla$   
 $\nabla$   $\nabla$

#### 4.77 Test X032a

```
\input{umtest-preamble}
\usepackage[partial=upright]{unicode-math}
\setmathfont{Code2001}
\begin{document}
\[\partial \quad \partial \quad \partial\]
\[\partial \quad \mathbf{\partial} \quad \mathbf{sf{\partial}}\]
\[\mathup{\partial} \quad \mathit{\partial}\]
\[\mathbfup{\partial} \quad \mathbf{fit{\partial}}\]
\[\mathbfsfup{\partial} \quad \mathbf{sf{fit{\partial}}}\]
\end{document}
```

$\partial$   $\partial$   $\partial$   
 $\partial$   $\partial$   $\partial$   
 $\partial$   $\partial$   
 $\partial$   $\partial$   
 $\partial$   $\partial$



#### 4.78 Test X032b

```
\input{umtest-preamble}
\usepackage[partial=italic]{unicode-math}
\setmathfont{Code2001}
\begin{document}
\[\partial \quad \partial \quad \partial\]
\[\partial \quad \mathbf{\partial} \quad \mathbf{sf{\partial}}\]
\[\mathup{\partial} \quad \mathit{\partial}\]
\[\mathbfup{\partial} \quad \mathbf{fit{\partial}}\]
\[\mathbfsfup{\partial} \quad \mathbf{sf{fit{\partial}}}\]
\end{document}
```

*$\partial \quad \partial \quad \partial$*

*$\partial \quad \partial \quad \partial$*

*$\partial \quad \partial$*

*$\partial \quad \partial$*

*$\partial \quad \partial$*

#### 4.79 Test X032c

```
\input{umtest-preamble}
\usepackage[partial=literal]{unicode-math}
\setmathfont{Code2001}
\begin{document}
\[\partial \quad \partial \quad \partial\]
\[\partial \quad \mathbf{\partial} \quad \mathbf{sf{\partial}}\]
\[\mathup{\partial} \quad \mathit{\partial}\]
\[\mathbfup{\partial} \quad \mathbf{fit{\partial}}\]
\[\mathbfsfup{\partial} \quad \mathbf{sf{fit{\partial}}}\]
\end{document}
```

$\partial \quad \partial \quad \partial$

$\partial \quad \partial \quad \partial$

$\partial \quad \partial$

$\partial \quad \partial$

$\partial \quad \partial$

#### 4.80 Test X033a

```
\input{umtest-preamble}
\usepackage{unicode-math}
\begin{document}
\setmathfont[math-style=TeX]{Free Serif}
\[\mathup{1} \quad \mathup{2}\]
\[\mathit{1} \quad \mathit{2}\]
\setmathfont[math-style=upright]{Free Serif}
\[\mathup{1} \quad \mathup{2}\]
\[\mathit{1} \quad \mathit{2}\]
\end{document}
```

*$1 \quad 2$*

*$1 \quad 2$*

*$1 \quad 2$*

*$1 \quad 2$*

*$1 \quad 2$*

*$1 \quad 2$*

#### 4.81 Test X101a

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[ a>b \quad c<d \]
\[ \left< \left< \left< \left< x \right>^2
\right>^2 \right>^2 \right>^2 \]
\end{document}
```

$$a > b \quad c < d$$

$$\left\langle \left\langle \left\langle \left\langle x \right\rangle^2 \right\rangle^2 \right\rangle^2 \right\rangle^2$$

#### 4.82 Test X102a

```
\input{umtest-preamble}
\usepackage[slash-delimiter=frac]{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[ \left.\left[\begin{array}{cc}
a & b \\
c & d
\end{array}\right]\right/\left[\begin{array}{cc}
1 & 1 \\
1 & 0
\end{array}\right]
\]
\end{document}
```

$$\left[\begin{array}{cc} a & b \\ c & d \end{array}\right] / \left[\begin{array}{cc} 1 & 1 \\ 1 & 0 \end{array}\right]$$

#### 4.83 Test X150a

```
\input{umtest-preamble}
\usepackage{amsmath,unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\centerline{\int\quad\quad\quad\int\quad\quad\quad\int}
\end{document}
```

$$\int \quad \int \cdots \int$$

$$\int \quad \int \cdots \int$$

#### 4.84 Test X202a

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[a\colon b\qqquad a: b
\qqquad a^{^^^2236} b\]
\end{document}
```

$$a\colon b \quad a: b \quad a: b$$

#### 4.85 Test X202b

```
\input{umtest-preamble}
\usepackage[colon=literal]{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[a\colon b\qqquad a: b
\qqquad a^{^^^2236} b\]
\end{document}
```

$$a: b \quad a: b \quad a: b$$

#### 4.86 Test X203a

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[a-b\]
\[a\minus b\]
\end{document}
```

$$a - b$$

$$a - b$$

#### 4.87 Test X206a

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[A+B+\dots+Z\]
\[(A+B+\dots)\]
\[(A+B+\cdots)\]
\end{document}
```

$$A + B + \dots + Z$$

$$(A + B + \dots)$$

$$(A + B + \cdots)$$

#### 4.88 Test X206b

```
\input{umtest-preamble}
\usepackage{amsmath}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[A+B+\dots+Z\]
\[(A+B+\dots)\]
\[(A+B+\cdots)\]
\end{document}
```

$$A + B + \dots + Z$$

$$(A + B + \dots)$$

$$(A + B + \cdots)$$

#### 4.89 Test X206c

```
\input{umtest-preamble}
\usepackage{amsmath}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[ a\% b \% c \]
\[ a\mathdollar b \$ c \]
\[ a\& b \& c \]
\[ a\octothorpe b \# c \]
\end{document}
```

$$a\%b\%c$$

$$a\$b\$c$$

$$a\&b\&c$$

$$a\#b\#c$$

#### 4.90 Test X401a

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{XITS Math}
\begin{document}

\setmathfont{Cambria Math}

\[ x=1.23 \quad x=1,23\]

\end{document}
```

$$x = 1.23 \quad x = 1,23$$

#### 4.91 Test X502a

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{STIXGeneral}
\setmathfont
  [range={\mathit,\mathsf,\mathscr}]
  {STIXGeneral-Italic}
\setmathfont
  [range={\mathbfup,\mathbffrak,
  \mathbfsfup}]
  {STIXGeneral-Bold}
\setmathfont
  [range={\mathbfit,\mathbfsfit,\mathbfscr}]
  {STIXGeneral-BoldItalic}
\begin{document}
\[ \mathit{A}\mathup{A}
  \mathsfup{A}\mathsfit{A}\]
\[ \mathscr{A}\mathfrak{A}\mathbb{A}\]
\[ \mathbfup{A}\mathbfit{A}
  \mathbfsfup{A}\mathbfsfit{A}\]
\[ \mathbfscr{A}\mathbffrak{A}\]
\end{document}
```

AAAA

*AA*

AAAA

*AA*

#### 4.92 Test X502b

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{XITS Math}
\begin{document}
Default:
\[
(a+b)^2 = \sqrt{c+d}
\]
\setmathfont[range={\mathup}]{Linux Libertine O}
\setmathfont[range={\mathit}]{Linux Libertine O Italic}
Example of a non-math OpenType font:
\[
(a+b)^2 = \sqrt{c+d}
\]
With symbols:
\setmathfont[range={`\+,`\=,`\(`,\)`}]{Linux Libertine O}
\[
(a+b)^2 = \sqrt{c+d}
\]
\end{document}
```

Default:

$$(a+b)^2 = \sqrt{c+d}$$

Example of a non-math OpenType font:

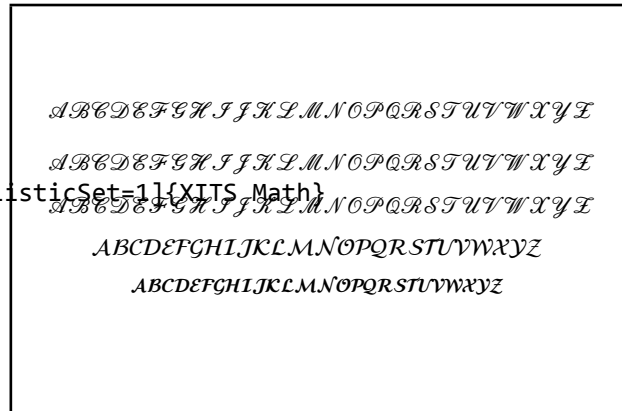
$$(a+b)^2 = \sqrt{c+d}$$

With symbols:

$$(a+b)^2 = \sqrt{c+d}$$

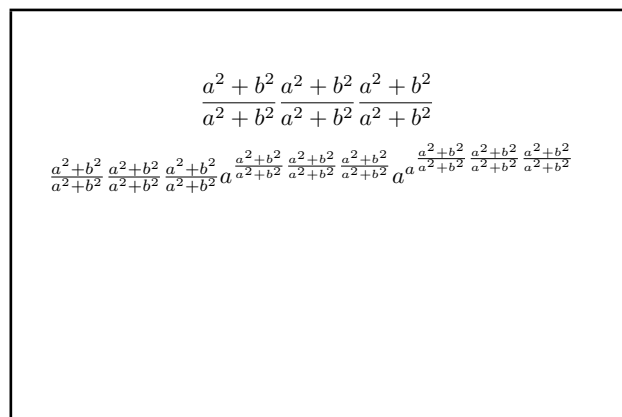
#### 4.93 Test X503a

```
\input{umtest-preamble}
\usepackage{unicode-math}
\begin{document}
\setmathfont{XITS Math}
\[
\mathscr{\LATINText}
\]
\[
\mathcal{\LATINText}
\]
\setmathfont[range={\mathcal,\mathbfcal},StylisticSet=1]{XITS Math}
\[
\mathscr{\LATINText}
\]
\[
\mathcal{\LATINText}
\]
\footnotesize
\[
\mathbfcal{\LATINText}
\]
\end{document}
```



#### 4.94 Test X601a

```
\input{umtest-preamble}
\usepackage{mathtools}
\begin{document}
\[
\frac{a^2 + b^2}{a^2 + b^2}
\frac{\cramped{a^2 + b^2}}{\cramped{a^2 + b^2}}
\frac{a^2 + b^2}{\cramped{a^2 + b^2}}
\]
\[
\frac{a^2 + b^2}{a^2 + b^2}
\frac{\cramped{a^2 + b^2}}{\cramped{a^2 + b^2}}
\frac{a^2 + b^2}{\cramped{a^2 + b^2}}
\]
a^{
\frac{a^2 + b^2}{a^2 + b^2}
\frac{\cramped{a^2 + b^2}}{\cramped{a^2 + b^2}}
\frac{a^2 + b^2}{\cramped{a^2 + b^2}}
}
a^{
a^{
\frac{a^2 + b^2}{a^2 + b^2}
\frac{\cramped{a^2 + b^2}}{\cramped{a^2 + b^2}}
\frac{a^2 + b^2}{\cramped{a^2 + b^2}}
}
}
\]
\end{document}
```



```

\input{umtest-preamble}
\usepackage{mathtools}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[
\frac{a^2 + b^2}{a^2 + b^2}
\frac{\cramped{a^2 + b^2}}{a^2 + b^2}
\frac{a^2 + b^2}{\cramped{a^2 + b^2}}
\]
\(\frac{a^2 + b^2}{a^2 + b^2}\)
\(\frac{\cramped{a^2 + b^2}}{a^2 + b^2}\)
\(\frac{a^2 + b^2}{\cramped{a^2 + b^2}}\)
a^{
  \frac{a^2 + b^2}{a^2 + b^2}
  \frac{\cramped{a^2 + b^2}}{a^2 + b^2}
  \frac{a^2 + b^2}{\cramped{a^2 + b^2}}
}
a^{
  a^{
    \frac{a^2 + b^2}{a^2 + b^2}
    \frac{\cramped{a^2 + b^2}}{a^2 + b^2}
    \frac{a^2 + b^2}{\cramped{a^2 + b^2}}
  }
}
\end{document}

```

$$\frac{a^2 + b^2}{a^2 + b^2} \frac{a^2 + b^2}{a^2 + b^2} \frac{a^2 + b^2}{a^2 + b^2} a^{\frac{a^2 + b^2}{a^2 + b^2}} a^{\frac{a^2 + b^2}{a^2 + b^2}} a^{\frac{a^2 + b^2}{a^2 + b^2}} a^{\frac{a^2 + b^2}{a^2 + b^2}}$$

```

\input{umtest-preamble}
\usepackage{mathtools}
\usepackage{unicode-math}
\setmathfont{XITS Math}
\begin{document}
\[
\frac{a^2 + b^2}{a^2 + b^2}
\frac{\cramped{a^2 + b^2}}{a^2 + b^2}
\frac{a^2 + b^2}{\cramped{a^2 + b^2}}
\]
\(\frac{a^2 + b^2}{a^2 + b^2}\)
\(\frac{\cramped{a^2 + b^2}}{a^2 + b^2}\)
\(\frac{a^2 + b^2}{\cramped{a^2 + b^2}}\)
a^{\frac{a^2 + b^2}{a^2 + b^2}}
a^{\cramped{a^2 + b^2}}
a^{\frac{a^2 + b^2}{\cramped{a^2 + b^2}}}
\end{document}

```

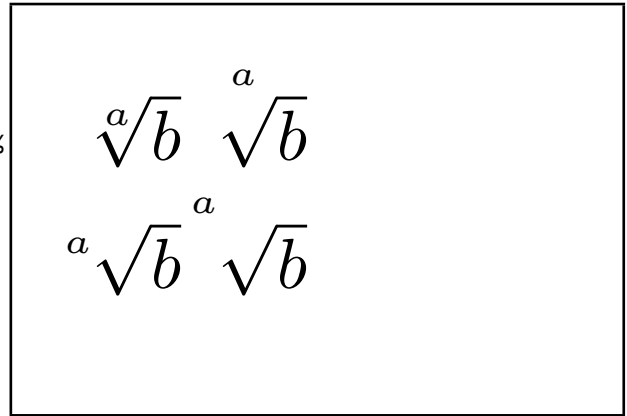
$$\frac{a^2 + b^2}{a^2 + b^2} \frac{a^2 + b^2}{a^2 + b^2} \frac{a^2 + b^2}{a^2 + b^2}$$

$$\frac{a^2 + b^2}{a^2 + b^2} \frac{a^2 + b^2}{a^2 + b^2} \frac{a^2 + b^2}{a^2 + b^2} a \frac{a^2 + b^2}{a^2 + b^2} \frac{a^2 + b^2}{a^2 + b^2} \frac{a^2 + b^2}{a^2 + b^2} a \frac{a^2 + b^2}{a^2 + b^2} \frac{a^2 + b^2}{a^2 + b^2} \frac{a^2 + b^2}{a^2 + b^2}$$

#### 4.97 Test X604a

```
\input{umtest-preamble}
\usepackage{amsmath}
\usepackage{graphicx}
\newcommand*{\test}[1]{%
  \parbox[b][50pt][50pt]{\scalebox{3}{\$#1\$}}%
}
\begin{document}
\test{\sqrt[a]{b}}
\test{\sqrt[\uproot{10}a]{b}}

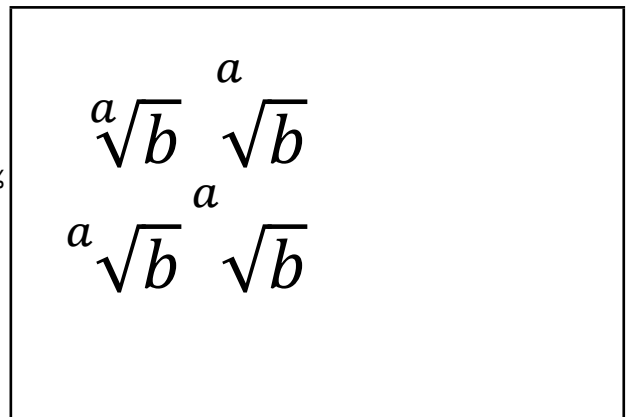
\test{\sqrt[\leftroot{10}a]{b}}
\test{\sqrt[\leftroot{10}\uproot{10}a]{b}}
\end{document}
```



#### 4.98 Test X604b

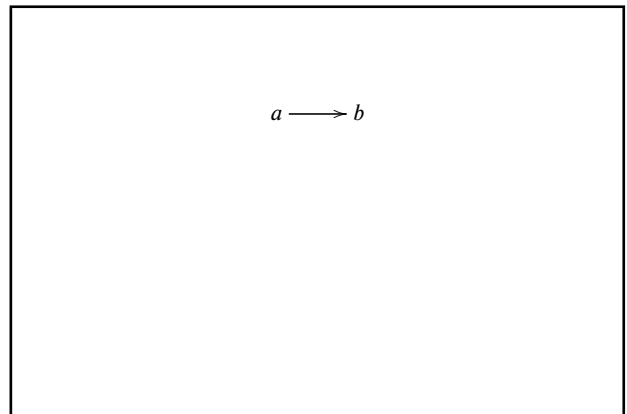
```
\input{umtest-preamble}
\usepackage{unicode-math}
\usepackage{amsmath}
\usepackage{graphicx}
\setmathfont{Cambria Math}
\newcommand*{\test}[1]{%
  \parbox[b][50pt][50pt]{\scalebox{3}{\$#1\$}}%
}
\begin{document}
\test{\sqrt[a]{b}}
\test{\sqrt[\uproot{10}a]{b}}

\test{\sqrt[\leftroot{10}a]{b}}
\test{\sqrt[\leftroot{10}\uproot{10}a]{b}}
\end{document}
```



#### 4.99 Test X610f

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{XITS Math}
\usepackage{all,pdf}[xy]
\begin{document}
\[
\mathrm{xymatrix{a \ar[r] & b}}
\]
\end{document}
```





**4.100 Test X620b**

```
\input{umtest-preamble}
\usepackage{unicode-math}
\usepackage{delarray}
\setmathfont{Cambria Math}
\begin{document}
\[
\begin{array}[t]({c}) 1\!2\!3 \end{array}
\begin{array}[c]({c}) 1\!2\!3 \end{array}
\begin{array}[b]({c}) 1\!2\!3 \end{array}
\]
\end{document}
```

$$\begin{pmatrix} 1 \\ 2 \\ 3 \end{pmatrix} \begin{pmatrix} 1 \\ 2 \\ 3 \end{pmatrix} \begin{pmatrix} 1 \\ 2 \\ 3 \end{pmatrix}$$

**4.101 Test X650a**

```
\input{umtest-preamble}
\usepackage{unicode-math}
\usepackage{mathtools}
\setmathfont{Cambria Math}
\begin{document}
\[
\coloneq
\coloneqq
\eqcolon
\eqqcolon
\]
\end{document}
```

$$\coloneq \coloneqq \eqcolon \eqqcolon$$

**4.102 Test X650b**

```
\input{umtest-preamble}
\usepackage{unicode-math}
\usepackage{colonequals}
\setmathfont{Cambria Math}
\begin{document}
\[
\coloneq
\colonequals
\eqcolon
\equalscolon
\]
\end{document}
```

$$\coloneq \colonequals \eqcolon \equalscolon$$