

The unicode-math test suite

Will Robertson

Compiled: July 31, 2011

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

2.1 Test F-alpha-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}  
$abc$ $ABC$  
$\alpha\beta\gamma$  
$\Alpha\Beta\Gamma$  
\end{document}
```

abc ABC $\alpha\beta\gamma$ $\Alpha\Beta\Gamma$

2.2 Test F-alpha-spaces-X

```
\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}  
$abc$ $ABC$  
$\alpha\beta\gamma$  
$\Alpha\Beta\Gamma$  
\end{document}
```

abc ABC $\alpha\beta\gamma$ $\Alpha\Beta\Gamma$

2.3 Test F-arrow-accents-L

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

\setmathfont{Cambria Math}
\[ \vec{a} \quad \vec{a} \quad \vec{abc} \quad \overrightarrow{abc} \quad \underline{abc}
\overrightarrow{abc} \quad \underrightarrow{abc} \quad \]
\end{document}
```

\vec{a} \vec{a} \vec{abc} \overrightarrow{abc} \underline{abc}

\vec{a} \vec{a} \vec{abc} \overrightarrow{abc} \underline{abc}

2.4 Test F-arrow-accents-X

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

\setmathfont{Cambria Math}
\[ \vec{a} \quad \vec{a} \quad \vec{abc} \quad \overrightarrow{abc} \quad \underline{abc}
\overrightarrow{abc} \quad \underrightarrow{abc} \quad \]
\end{document}
```

\vec{a} \vec{a} \vec{abc} \overrightarrow{abc} \underline{abc}

\vec{a} \vec{a} \vec{abc} \overrightarrow{abc} \underline{abc}

2.5 Test F-mathstyle-french-L

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

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

2.6 Test F-mathstyle-french-X

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

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxy

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxy

2.7 Test F-mathstyle-iso-L

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

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxy

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxy

2.8 Test F-mathstyle-iso-X

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

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxy

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxy

2.9 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

2.10 Test F-mathstyle-literal-X

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

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

2.11 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

2.12 Test F-mathstyle-tex-X

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

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

2.13 Test F-mathstyle-upright-L

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

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

2.14 Test F-mathstyle-upright-X

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

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

2.15 Test F-primes-1-L

```
\input{umtest-preamble}
\usepackage{amsmath,unicode-math}
\setmathfont{Cambria Math}
\begin{document}
  [${x\prime\prime\prime}$]
  [${x\prime\prime\prime\prime\prime\prime}$]
  [${x'}$]
  [${x'''}$]
  [${x'''''''}$]
  [${x_{\text{a}}}$]
  [${x_{\text{a b c}}}$]
  [${x_{\text{a b c}}'\text{d}\prime_{\text{e}}}$]

  $x_{\text{a b c d e}}$
  $x_{\text{a b c d e f}}$
  $x_{\text{a b c}}$
  $x_{\text{a}}$

\end{document}
```

$$\begin{array}{cccccccc} [x'''] & [x'''''] & [x'] & [x'''] & [x'''''] & [x'] & [x'''] & [x'''''] \\ x'''''' & x'''''' & x''' & x''' & & & & \end{array}$$

2.16 Test F-primes-1-X

```

\input{umtest-preamble}
\usepackage{amsmath,unicode-math}
\setmathfont{Cambria Math}
\begin{document}
  [${x\prime\prime\prime}$]
  [${x\prime\prime\prime\prime\prime\prime}$]
  [${x'}$]
  [${x'''}$]
  [${x'''''''}$]
  [${x_{\text{a}}}$]
  [${x_{\text{a b c}}}$]
  [${x_{\text{a b c}}'\text{a}\prime_{\text{a}}}$]

  $x_{\text{a b c d e}}$
  $x_{\text{a b c d e}}$
  $x_{\text{a b c}}$
  $x_{\text{a}}$

\end{document}

```

$$\frac{[x'''] [x'''''] [x'] [x'''] [x'''''] [x'] [x'''] [x''''']']}{x'''''''' x'''''''' x''' x'''}$$

2.17 Test F-primes-2-L

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

[$x'_x$]
[$x_{\boxminus}_x$]
[$x\backprime_x$]
[$x'_x$]
[$x\backprime_x$]

[$x_{\{x'\}}$]
[$x_{\{x\boxminus\}}$]
[$x_{\{x\backprime\}}$]
[$x_{\{x'\}}$]
[$x_{\{x\backprime\}}$]

\end{document}
```

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

2.18 Test F-primes-2-X

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

[$x'_x$]
[$x_{\boxminus}_x$]
[$x\backprime_x$]
[$x'_x$]
[$x\backprime_x$]

[$x_{\{x'\}}$]
[$x_{\{x\boxminus\}}$]
[$x_{\{x\backprime\}}$]
[$x_{\{x'\}}$]
[$x_{\{x\backprime\}}$]

\end{document}
```

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

2.19 Test F-primes-back-L

```
\input{umtest-preamble}
\usepackage{amsmath,unicode-math}
\setmathfont{Asana Math}
\begin{document}
  [${x\backprime\backprime\backprime}$]
  [${x\backprime\backprime\backprime\backprime\backprime\backprime\backprime}$]
  [${x^{\backprime}}$]
  [${x^{\backprime\backprime}}$]
  [${x^{\backprime\backprime\backprime}}$]
  [${x^{\backprime\backprime\backprime\backprime}}$]
  [${x^{\backprime\backprime\backprime\backprime\backprime}}$]
  [${x^{\backprime\backprime\backprime\backprime\backprime\backprime}}$]

  $x^{\backprime\backprime\backprime}$
  $x^{\backprime\backprime\backprime\backprime}$
  $x^{\backprime\backprime}$
  $x^{\backprime}$
\end{document}
```

$[x^{\backprime}]$ $[x^{\backprime\backprime\backprime\backprime\backprime\backprime\backprime}]$ $[x^{\backprime}]$ $[x^{\backprime\backprime}]$ $[x^{\backprime\backprime\backprime\backprime}]$ $[x^{\backprime}]$ $[x^{\backprime\backprime}]$ $[x^{\backprime\backprime\backprime\backprime}]$

$[x^{\backprime\backprime\backprime\backprime\backprime\backprime\backprime}]$

2.20 Test F-primes-back-X

```
\input{umtest-preamble}
\usepackage{amsmath,unicode-math}
\setmathfont{Asana Math}
\begin{document}
  [${x\backprime\backprime\backprime}$]
  [${x\backprime\backprime\backprime\backprime\backprime\backprime\backprime}$]
  [${x^{\backprime}}$]
  [${x^{\backprime\backprime}}$]
  [${x^{\backprime\backprime\backprime}}$]
  [${x^{\backprime\backprime\backprime\backprime}}$]
  [${x^{\backprime\backprime\backprime\backprime\backprime}}$]
  [${x^{\backprime\backprime\backprime\backprime\backprime\backprime}}$]

  $x^{\backprime\backprime\backprime}$
  $x^{\backprime\backprime\backprime\backprime}$
  $x^{\backprime\backprime}$
  $x^{\backprime}$
\end{document}
```

$[x^{\backprime}]$ $[x^{\backprime\backprime\backprime\backprime\backprime\backprime\backprime}]$ $[x^{\backprime}]$ $[x^{\backprime\backprime}]$ $[x^{\backprime\backprime\backprime\backprime}]$ $[x^{\backprime}]$ $[x^{\backprime\backprime}]$ $[x^{\backprime\backprime\backprime\backprime}]$

$[x^{\backprime\backprime\backprime\backprime\backprime\backprime\backprime}]$

2.21 Test F-slash-delim-2-L

```
\documentclass{article}
\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}
```

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

1

2.22 Test F-slash-delim-2-X

```
\documentclass{article}
\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}
```

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

1

2.23 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]
\[ \sqrt{1 + \sqrt{1 + \sqrt{1 + \sqrt{1 + x}}}} \backslash]
\end{document}
```

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

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

2.24 Test F-sqrt-X

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

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

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

2.25 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}
```

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

2.26 Test F-sqrt-n-X

<pre> \input{umtest-preamble} \usepackage{unicode-math} \setmathfont{Cambria Math} \begin{document} \[\sqrt[n]{1+\sqrt[n]{1+\sqrt[n]{1+\sqrt[n]{1+\sqrt[n]{1+x}}}}}} \] \end{document} </pre>	
--	--

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

3 Lua[®]TeX test files

3.1 Test L-sscale-dimen

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

75
60
75
60
75
60

3.2 Test L600a

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

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

3.3 Test L600b

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

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

3.4 Test L600c

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

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

3.5 Test L600f

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

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

3.6 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\}}
\right)
\end{document}
```

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

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

3.7 Test L601b

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

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

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

3.8 Test L601f

```

\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}

```

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

3.9 Test L602b

```
\input{umtest-preamble}

\usepackage{unicode-math}

\setmathfont{Cambria Math}

\ExplSyntaxOn

\NewDocumentCommand \mathstylenam { } {
  \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}

 $\mathstylenam \over \mathstylenam$ 

 $\luatexUstack{\mathstylenam \over \mathstylenam}$ 

 $\frac{\mathstylenam}{\mathstylenam}$ 

\end{document}
```

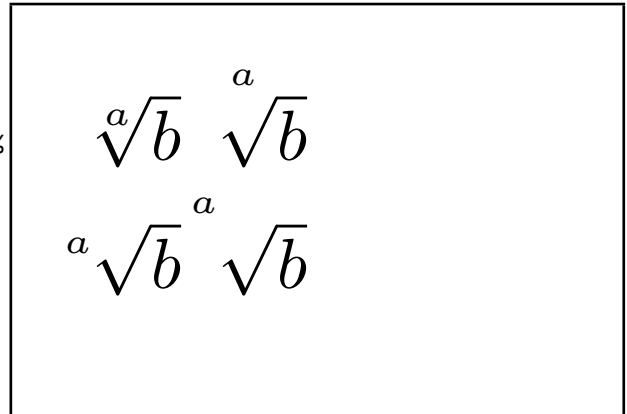


[illegible]

3.11 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}}

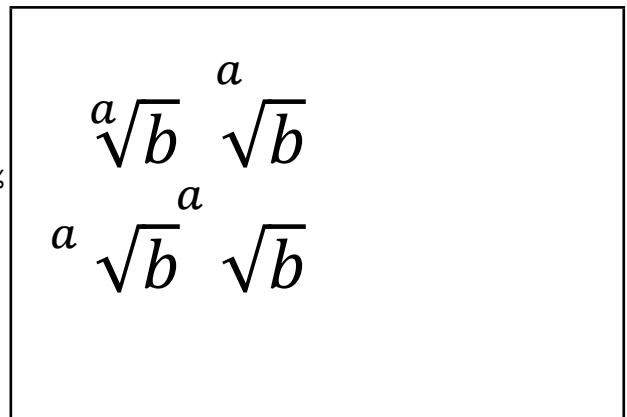
\test{\sqrt[\leftroot{10}a]{b}}
\test{\sqrt[\leftroot{10}\uproot{10}a]{b}}
\end{document}
```



3.12 Test L604b

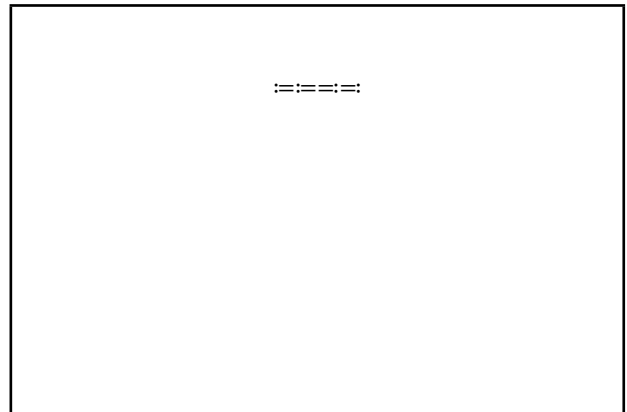
```
\input{umtest-preamble}
\usepackage{unicode-math}
\usepackage{amsmath}
\usepackage{graphicx}
\setmathfont{Cambria Math}
\newcommand*{\test}[1]{%
  \parbox[b][50pt][50pt]{\scalebox{3}{\$#1\$}}%
}
\begin{document}
\test{\sqrt[a]{b}}
\test{\sqrt[\uproot{10}a]{b}}

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



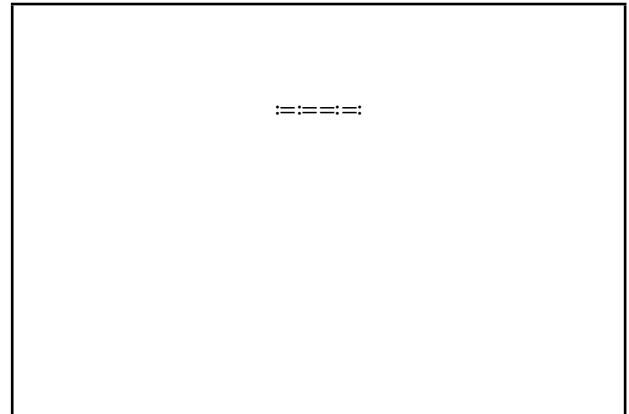
3.13 Test L650a

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



3.14 Test L650b

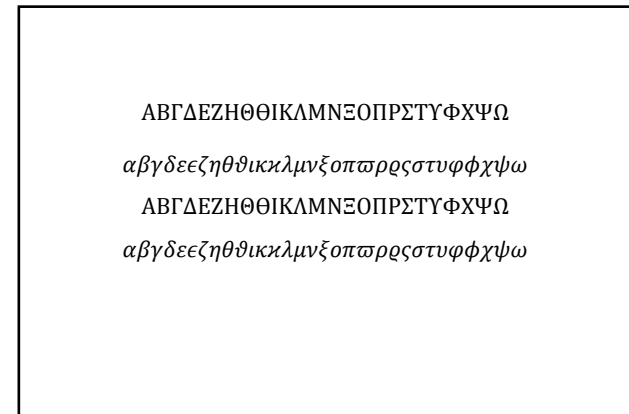
```
\input{umtest-preamble}
\usepackage{unicode-math}
\usepackage{colonequals}
\setmathfont{Cambria Math}
\begin{document}
\[
\coloneq
\colonequals
\eqcolon
\equalscolon
\]
\end{document}
```



4 X_YL^AT_EX test files

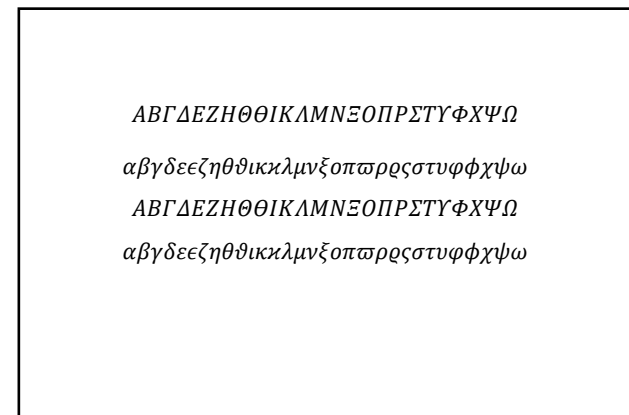
4.1 Test X002a

```
\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}  
\[\LATINmathbfup\  
\[\LATINmathbfit\  
\[\latinmathbfup\  
\[\latinmathbfit\  
\[\numbersmathbfup\  
\end{document}
```

ABCDEFGHIJKLMN**OP**QRSTUVWXY^Z
ABCDEFGHIJKLMN**OP**QRSTUVWXY^Z
*abcdefghijklmnopqrstuvwx**yz*
*abcdefghijklmnopqrstuvwx**yz*
0123456789

4.7 Test X003b

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

ABCDEFGHIJKLMN**OP**QRSTUVWXY^Z
ABCDEFGHIJKLMN**OP**QRSTUVWXY^Z
*abcdefghijklmnopqrstuvwx**yz*
*abcdefghijklmnopqrstuvwx**yz*
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}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
abcdefghijklmnopqrstuvwxyz
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}
```

ΑΒΓΔΕΖΗΘΘΙΚΑΜΝΞΟΠΡΣΤΥΦΧΨΩ
ΑΒΓΔΕΖΗΘΘΙΚΑΜΝΞΟΠΡΣΤΥΦΧΨΩ
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}
```

ΑΒΓΔΕΖΗΘΙΚΛΜΝΟΠΡΣΤΥVWXYZ
ΑΒΓΔΕΖΗΘΙΚΛΜΝΟΠΡΣΤΥVWXYZ
abcdefghijklmnopqrstuvwxyz
abcdefghijklmnopqrstuvwxyz
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}
```

ΑΒΓΔΕΖΗΘΘΙΚΑΜΝΞΟΠΡΣΤΥΦΧΨΩ
ΑΒΓΔΕΖΗΘΘΙΚΑΜΝΞΟΠΡΣΤΥΦΧΨΩ
αβγδεζηθθικλμνξοπρρςστυφφχψω
αβγδεζηθθικλμνξοπρρςστυφφχψω

4.18 Test X003m

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

ABCDEFGHIJKLMNOPQRSTUVWXYZ
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxy
abcdefghijklmnopqrstuvwxy
0123456789

4.19 Test X003n

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

ABCDEFGHIJKLMNOPQRSTUVWXYZ
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxy
abcdefghijklmnopqrstuvwxy
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
αβγδεζηθικιμνξοπρρςστυφχψω
αβγδεζηθικιμνξοπρρςστυφχψω

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}  
\[\backslash\mathrm{bfsfup}\]  
\[\backslash\mathrm{bfsfit}\]  
\[\backslash\mathrm{bfsfup}\]  
\[\backslash\mathrm{bfsfit}\]  
\[\backslash\mathrm{bfsfup}\]  
\end{document}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
abcdefghijklmnopqrstuvwxyz
0123456789

4.37 Test X005j

```
\input{umtest-preamble}  
\usepackage[sans-style=literal]{unicode-math}  
\setmathfont{Code2001}  
\begin{document}  
\[\backslash\mathrm{bfsfup}\]  
\[\backslash\mathrm{bfsfit}\]  
\[\backslash\mathrm{bfsfup}\]  
\[\backslash\mathrm{bfsfit}\]  
\end{document}
```

ΑΒΓΔΕΖΗΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ
ΑΒΓΔΕΖΗΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ
αβγδεζηθικλμνξοπρρςστυφθχψω
αβγδεζηθικλμνξοπρρςστυφθχψω

4.38 Test X005k

```
\input{umtest-preamble}  
\usepackage[sans-style=literal]{unicode-math}  
\setmathfont{Code2001}  
\begin{document}  
\[\backslash\mathrm{bfsf}\backslash\mathrm{LATINmath}\]  
\[\backslash\mathrm{bfsf}\backslash\mathrm{LATINtext}\]  
\[\backslash\mathrm{bfsf}\backslash\mathrm{latinmath}\]  
\[\backslash\mathrm{bfsf}\backslash\mathrm{latintext}\]  
\[\backslash\mathrm{bfsf}\{0123456789\}\]  
\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
ⱭⱮⱯⱰⱱⱲⱳⱴⱵⱶⱷⱸⱹⱺⱻⱼⱽⱾⱿ

4.42 Test X010c

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

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

4.43 Test X010d

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

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

????

4.44 Test X011a

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

ΑΒΓΔΕΖΗΘΙΚΛΜΝΟΠΡΣΤΥΦΧΨΩ
αβγδεζηθικλμνξοπρςστυφχψω
ΑΒΓΔΕΖΗΘΙΚΛΜΝΟΠΡΣΤΥΦΧΨΩ
αβγδεζηθικλμνξοπρςστυφχψω

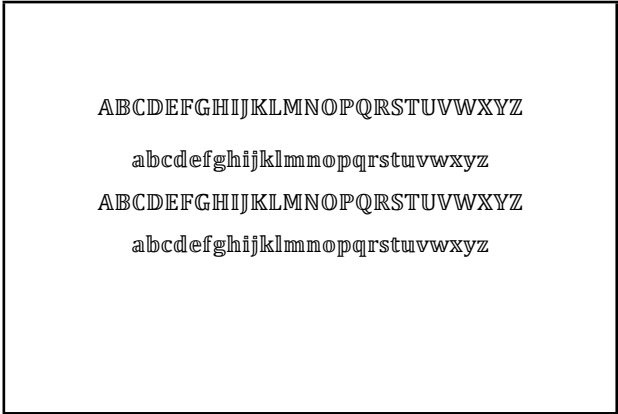
4.47 Test X012b

```
\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}
```



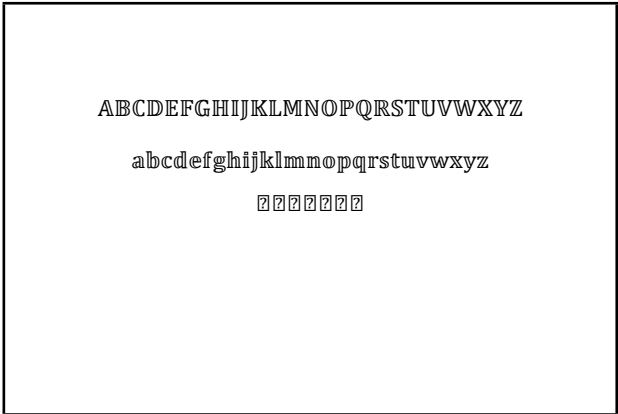
4.49 Test X013b

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



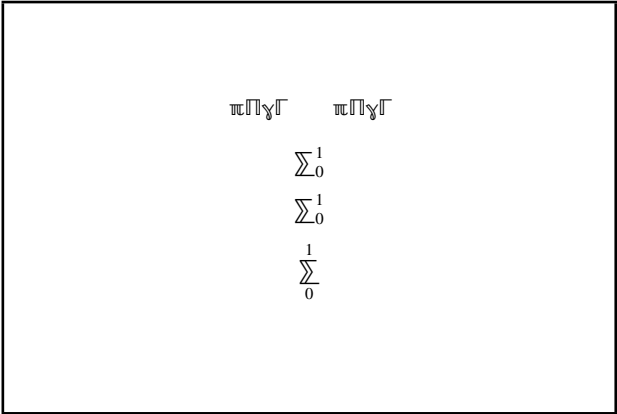
4.50 Test X013c

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



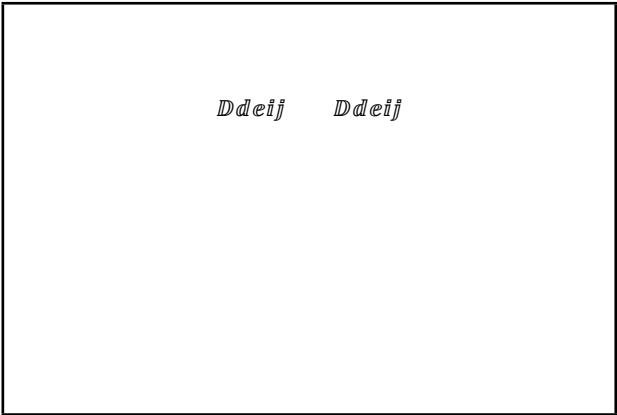
4.51 Test X013d

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



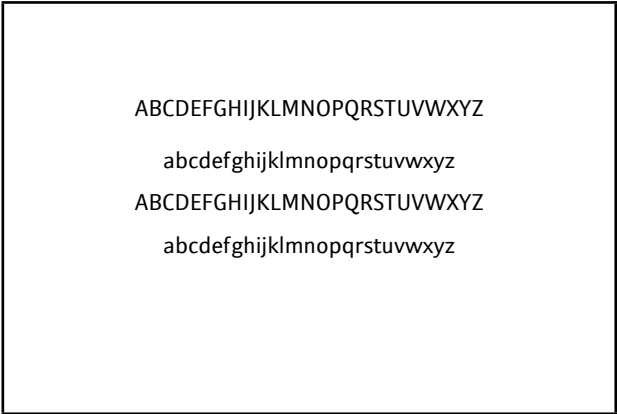
4.52 Test X013e

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



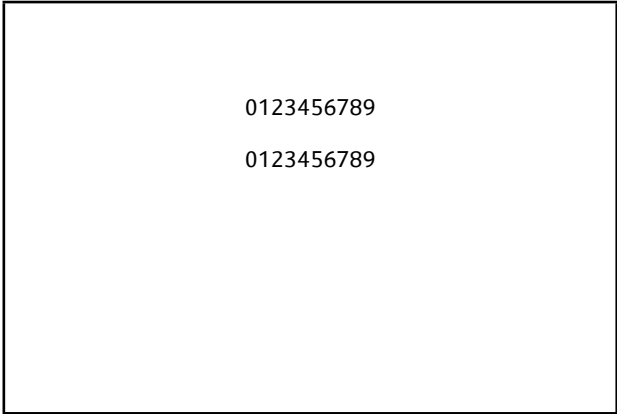
4.53 Test X014a

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



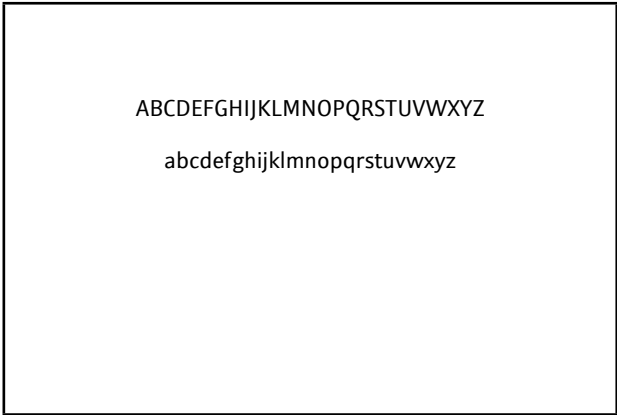
4.54 Test X014b

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



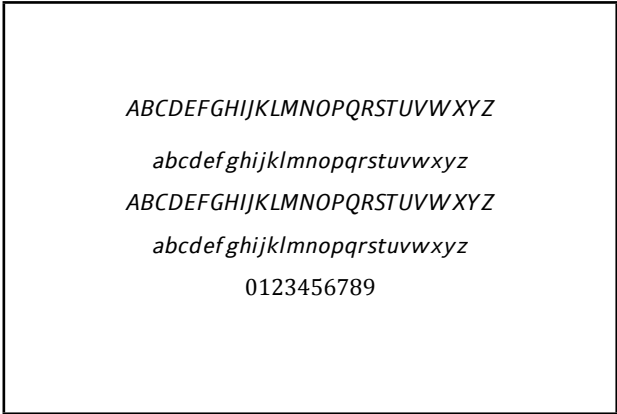
4.55 Test X014c

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



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}
```



4.57 Test X015b

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[\backslash\text{LATINmathsf}\backslash]
\[\backslash\text{latinmathsf}\backslash]
\end{document}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

4.58 Test X016a

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

$$\text{\LaTeX}$$


$$\text{\LaTeX}$$


$$\text{\LaTeX}$$


$$\text{\LaTeX}$$

\end{document}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

4.59 Test X016b

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

0123456789

0123456789

4.60 Test X016c

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

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

4.61 Test X017a

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

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

4.62 Test X017b

```
\input{umtest-preamble}  
\usepackage{unicode-math}  
\setmathfont{Cambria Math}  
\begin{document}  
\[ \LATINmathbfscr \]  
\[ \latinmathbfscr \]  
\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}  
\[\mathbf{\uparrow\text{LATINtext}}\]  
\[\mathbf{\uparrow\text{LATINtext}}\]  
\[\mathbf{\uparrow\text{LATINmath}}\]  
\[\mathbf{\uparrow\text{LATINmath}}\]  
\[\mathbf{\uparrow0123456789}\]  
\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

abcdefghijklmnopqrstuvwxy

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxy

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

abcdefghijklmnopqrstuvwxy

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxy

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}
```

$\nabla \quad \nabla \quad \nabla$
 $\nabla \quad \nabla \quad \nabla$
 $\nabla \quad \nabla$
 $\nabla \quad \nabla$
 $\nabla \quad \nabla$

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}
```

$\nabla \quad \nabla \quad \nabla$
 $\nabla \quad \nabla \quad \nabla$
 $\nabla \quad \nabla$
 $\nabla \quad \nabla$
 $\nabla \quad \nabla$

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}
```

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

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 X100a

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

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

4.82 Test X100b

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

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

4.83 Test X100c

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

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

4.84 Test X100d

[illegible]

4.85 Test X100e

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

4.86 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}
```

4.87 Test X102a

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


$$\begin{bmatrix} a & b \\ c & d \end{bmatrix} / \begin{bmatrix} 1 & 1 \\ 1 & 0 \end{bmatrix}$$

4.88 Test X150a

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

$$\begin{array}{c} \int \quad \int \cdots \int \\ \int \quad \int \cdots \int \end{array}$$

4.89 Test X151a

<pre> \input{umtest-preamble} \usepackage{unicode-math} \setmathfont{Cambria Math} \begin{document} \[\hat{i} \quad \hat{x} \quad \hat{M} \quad \widehat{x+y}] \[\widehat{i} \quad \widehat{x} \quad \widehat{M} \quad \widehat{\widehat{x+y}}] \[\tilde{i} \quad \tilde{x} \quad \tilde{M} \quad \widetilde{x+y}] \[\widetilde{\tilde{i}} \quad \widetilde{\tilde{x}} \quad \widetilde{\tilde{M}} \quad \widetilde{\widetilde{x+y}}] \end{document} </pre>		$\hat{i} \quad \hat{x} \quad \hat{M} \quad \widehat{x+y}$ $\widehat{i} \quad \widehat{x} \quad \widehat{M} \quad \widehat{\widehat{x+y}}$ $\tilde{i} \quad \tilde{x} \quad \tilde{M} \quad \widetilde{x+y}$ $\widetilde{\tilde{i}} \quad \widetilde{\tilde{x}} \quad \widetilde{\tilde{M}} \quad \widetilde{\widetilde{x+y}}$
---	---	---

\hat{i}	\hat{x}	\hat{M}	$\widehat{x+y}$
\hat{i}	\hat{x}	\hat{M}	$\widehat{x+y}$
\tilde{i}	\tilde{x}	\tilde{M}	$\widetilde{x+y}$
$\widehat{\widehat{i}}$	$\widehat{\widehat{x}}$	$\widehat{\widehat{M}}$	$\widehat{\widehat{x+y}}$

4.90 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}
```

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

4.91 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}
```

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

4.92 Test X203a

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

$$a - b$$

$$a - b$$

4.93 Test X204a

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\setlength{\parskip}{12pt}
\begin{document}
 $\$x_{012}\$ \quad \$x_{123}\$ \quad \$x_{234}\$ \quad \$x_{345}\$$ 
 $\$x_{9+-}\$ \quad \$x_{+-(}\$ \quad \$x_{-(=}\$ \quad \$x_{(=)}\$$ 
 $\$x^{0\textcircled{+}}\textcircled{+}^2\$ \quad \$x^{\textcircled{+}}\textcircled{+}^2\$ \quad \$x^{\textcircled{+}}\textcircled{+}^2\$ \quad \$$ 
 $\$x_{34}^{2\textcircled{+}}\textcircled{+}\$$ 
\end{document}
```

$$x_{012} \ x_{123} \ x_{234} \ x_{345} \ x_{456} \ x_{567} \ x_{678} \ x_{789} \ x_{89+}$$
$$x_{9+-} \ x_{+-(} \ x_{-(=) \ x_{(=)} \ x_{(=)a} \ x_{)ae} \ x_{aeo} \ x_{eox} \ x_{ox0} \ x_{x01}$$
$$x^{0i+n} x^{1i+n} x^{2i+n}$$
$$x_{2i+1}^{(n)} = x_{2i}^{(n)} + x_{2i+1}^{(n)}$$
$$x^{0+}x^2 \quad x^{+}x^2 \quad x^2x \quad x^{2+}x$$
$$X_{34}^2 \otimes \mathbb{C} \oplus \mathbb{C} \otimes X_{34}^2$$

4.94 Test X205a

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

$$\lim_{n \rightarrow \infty} \frac{1}{n}$$

\end{document}
```

$$\iiint_V$$
$$\iiint_V$$
$$\iiint_V$$

4.95 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}
```

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

4.96 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}
```

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

4.97 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}
```

$$a\%b\%c$$
$$abc$$
$$a\&b\&c$$
$$a\#b\#c$$

4.98 Test X207a

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

$$\frac{1}{4} \frac{1}{2} \frac{3}{4} \frac{1}{7} \frac{1}{9} \frac{1}{10} \frac{1}{3} \frac{1}{3} \frac{1}{5} \frac{1}{5} \frac{1}{5} \frac{1}{5} \frac{1}{6} \frac{1}{6} \frac{1}{8} \frac{1}{8} \frac{1}{8} \frac{1}{8}$$
$$\frac{1}{4} \frac{1}{2} \frac{3}{4} \frac{1}{7} \frac{1}{9} \frac{1}{10} \frac{1}{3} \frac{1}{3} \frac{1}{5} \frac{1}{5} \frac{1}{5} \frac{1}{5} \frac{1}{6} \frac{1}{6} \frac{1}{8} \frac{1}{8} \frac{1}{8} \frac{1}{8}$$

4.99 Test X300a

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont[script-font      = {Asana Math},
               script-features = {ScriptStyle,Colour=FF0000},
               sscript-font    = {Cambria Math},
               sscript-features= {ScriptScriptStyle,Colour=0000FF}]
               {Cambria Math}
\begin{document}
\[123456789^{\{123456789^{\{123456789\}}}\}]
\end{document}
```

123456789^{123456789¹²³⁴⁵⁶⁷⁸⁹}

4.100 Test X400a

```
\input{umtest-preamble}
\usepackage[trace=on]{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="~!@#%&*()<>`'

4.101 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}
```

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

4.102 Test X500a

```
\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}
\[
  F(s)=\mathscr{L}\left\{f(t)\right\}=
  \int_0^\infty \mathop{e}^{\textcolor{red}{-st}}\mathop{f}\textcolor{blue}{(t)}\,\mathop{d}t
\]
```

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

4.103 Test X501a

```
\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{\textcolor{red}{a}b\textcolor{blue}{c}d\textcolor{red}{e}f\textcolor{blue}{g}h\textcolor{red}{i}j\textcolor{blue}{k}\textcolor{red}{l}m\textcolor{blue}{n}\textcolor{red}{o}\textcolor{blue}{p}\textcolor{red}{q}\textcolor{blue}{r}\textcolor{red}{s}\textcolor{blue}{t}\textcolor{red}{u}\textcolor{blue}{v}\textcolor{red}{w}\textcolor{blue}{x}\textcolor{red}{y}\textcolor{blue}{z}}
\[\text{\textcolor{red}{a}b\textcolor{blue}{c}d\textcolor{red}{e}f\textcolor{blue}{g}h\textcolor{red}{i}j\textcolor{blue}{k}\textcolor{red}{l}m\textcolor{blue}{n}\textcolor{red}{o}\textcolor{blue}{p}\textcolor{red}{q}\textcolor{blue}{r}\textcolor{red}{s}\textcolor{blue}{t}\textcolor{red}{u}\textcolor{blue}{v}\textcolor{red}{w}\textcolor{blue}{x}\textcolor{red}{y}\textcolor{blue}{z}}
\[\text{\textcolor{red}{a}b\textcolor{blue}{c}d\textcolor{red}{e}f\textcolor{blue}{g}h\textcolor{red}{i}j\textcolor{blue}{k}\textcolor{red}{l}m\textcolor{blue}{n}\textcolor{red}{o}\textcolor{blue}{p}\textcolor{red}{q}\textcolor{blue}{r}\textcolor{red}{s}\textcolor{blue}{t}\textcolor{red}{u}\textcolor{blue}{v}\textcolor{red}{w}\textcolor{blue}{x}\textcolor{red}{y}\textcolor{blue}{z}}
\[\text{\textcolor{red}{a}b\textcolor{blue}{c}d\textcolor{red}{e}f\textcolor{blue}{g}h\textcolor{red}{i}j\textcolor{blue}{k}\textcolor{red}{l}m\textcolor{blue}{n}\textcolor{red}{o}\textcolor{blue}{p}\textcolor{red}{q}\textcolor{blue}{r}\textcolor{red}{s}\textcolor{blue}{t}\textcolor{red}{u}\textcolor{blue}{v}\textcolor{red}{w}\textcolor{blue}{x}\textcolor{red}{y}\textcolor{blue}{z}}
\[\text{\textcolor{red}{a}b\textcolor{blue}{c}d\textcolor{red}{e}f\textcolor{blue}{g}h\textcolor{red}{i}j\textcolor{blue}{k}\textcolor{red}{l}m\textcolor{blue}{n}\textcolor{red}{o}\textcolor{blue}{p}\textcolor{red}{q}\textcolor{blue}{r}\textcolor{red}{s}\textcolor{blue}{t}\textcolor{red}{u}\textcolor{blue}{v}\textcolor{red}{w}\textcolor{blue}{x}\textcolor{red}{y}\textcolor{blue}{z}}
\end{document}
```

$$\textcolor{red}{a}\textcolor{blue}{b}\textcolor{red}{c}\textcolor{blue}{d}\textcolor{red}{e}\textcolor{blue}{f}\textcolor{red}{g}\textcolor{blue}{h}\textcolor{red}{i}\textcolor{blue}{j}\textcolor{red}{k}\textcolor{blue}{l}\textcolor{red}{m}\textcolor{blue}{n}\textcolor{red}{o}\textcolor{blue}{p}\textcolor{red}{q}\textcolor{blue}{r}\textcolor{red}{s}\textcolor{blue}{t}\textcolor{red}{u}\textcolor{blue}{v}\textcolor{red}{w}\textcolor{blue}{x}\textcolor{red}{y}\textcolor{blue}{z}$$

$$ABCDEF\textcolor{red}{GHIJKLMNOPQR}\textcolor{blue}{STUVWXYZ}$$

$$\textcolor{red}{A}BCDEF\textcolor{blue}{G}HIJK\textcolor{red}{L}MN\textcolor{blue}{O}PQR\textcolor{red}{S}TUV\textcolor{blue}{W}XYZ$$

4.104 Test X501b

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont[Colour=000000]{Cambria Math}
\setmathfont[range=\mathscr, Colour=FF0000]{TeX Gyre Chorus}
\begin{document}
\[\text{\textcolor{red}{a}b\textcolor{blue}{c}d\textcolor{red}{e}f\textcolor{blue}{g}h\textcolor{red}{i}j\textcolor{blue}{k}\textcolor{red}{l}m\textcolor{blue}{n}\textcolor{red}{o}\textcolor{blue}{p}\textcolor{red}{q}\textcolor{blue}{r}\textcolor{red}{s}\textcolor{blue}{t}\textcolor{red}{u}\textcolor{blue}{v}\textcolor{red}{w}\textcolor{blue}{x}\textcolor{red}{y}\textcolor{blue}{z}}
\[\text{\textcolor{red}{a}b\textcolor{blue}{c}d\textcolor{red}{e}f\textcolor{blue}{g}h\textcolor{red}{i}j\textcolor{blue}{k}\textcolor{red}{l}m\textcolor{blue}{n}\textcolor{red}{o}\textcolor{blue}{p}\textcolor{red}{q}\textcolor{blue}{r}\textcolor{red}{s}\textcolor{blue}{t}\textcolor{red}{u}\textcolor{blue}{v}\textcolor{red}{w}\textcolor{blue}{x}\textcolor{red}{y}\textcolor{blue}{z}}
\[\text{\textcolor{red}{a}b\textcolor{blue}{c}d\textcolor{red}{e}f\textcolor{blue}{g}h\textcolor{red}{i}j\textcolor{blue}{k}\textcolor{red}{l}m\textcolor{blue}{n}\textcolor{red}{o}\textcolor{blue}{p}\textcolor{red}{q}\textcolor{blue}{r}\textcolor{red}{s}\textcolor{blue}{t}\textcolor{red}{u}\textcolor{blue}{v}\textcolor{red}{w}\textcolor{blue}{x}\textcolor{red}{y}\textcolor{blue}{z}}
\end{document}
```

$$\textcolor{red}{a}\textcolor{blue}{b}\textcolor{red}{c}\textcolor{blue}{d}\textcolor{red}{e}\textcolor{blue}{f}\textcolor{red}{g}\textcolor{blue}{h}\textcolor{red}{i}\textcolor{blue}{j}\textcolor{red}{k}\textcolor{blue}{l}\textcolor{red}{m}\textcolor{blue}{n}\textcolor{red}{o}\textcolor{blue}{p}\textcolor{red}{q}\textcolor{blue}{r}\textcolor{red}{s}\textcolor{blue}{t}\textcolor{red}{u}\textcolor{blue}{v}\textcolor{red}{w}\textcolor{blue}{x}\textcolor{red}{y}\textcolor{blue}{z}$$

$$ABCDEF\textcolor{red}{GHIJKLMNOPQR}\textcolor{blue}{STUVWXYZ}$$

$$\textcolor{red}{A}BCDEF\textcolor{blue}{G}HIJK\textcolor{red}{L}MN\textcolor{blue}{O}PQR\textcolor{red}{S}TUV\textcolor{blue}{W}XYZ$$

4.105 Test X501d

```
\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}
\[\mathit{\backslash LATINtext}\]
\[\mathit{\backslash latintext}\]
\[\mathit{\backslash GREEKtext}\]
\[\mathit{\backslash greektext}\]
\[\backslash 0123456789\]
\end{document}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ
 abcdefghijklmnopqrstuvwxyz
 ΑΒΓΔΕΖΗΘΘΙΚΑΜΝΞΟΠΡΣΤΥΦΧΨΩ
 αβγδεζηθθικλμνξοπρρςστυφφχψω
 0123456789

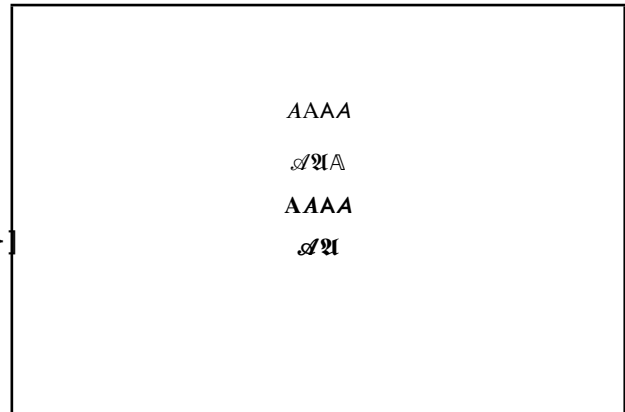
4.106 Test X501e

```
\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}
\[\backslash LATINtext\]
\[\backslash latintext\]
\[\backslash mathit{\backslash LATINtext}\]
\[\backslash mathit{\backslash latintext}\]
\[\backslash {\backslash GREEKtext}\]
\[\backslash {\backslash greektext}\]
\[\backslash mathup{\backslash GREEKtext}\]
\[\backslash mathit{\backslash greektext}\]
\end{document}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ
 abcdefghijklmnopqrstuvwxyz
 ABCDEFGHIJKLMNOPQRSTUVWXYZ
 abcdefghijklmnopqrstuvwxyz
 ΑΒΓΔΕΖΗΘΘΙΚΑΜΝΞΟΠΡΣΤΥΦΧΨΩ
 αβγδεζηθθικλμνξοπρρςστυφφχψω
 ΑΒΓΔΕΖΗΘΘΙΚΑΜΝΞΟΠΡΣΤΥΦΧΨΩ
 αβγδεζηθθικλμνξοπρρςστυφφχψω

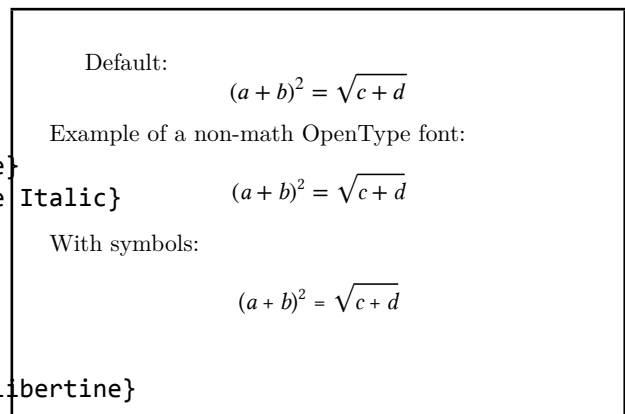
4.107 Test X502a

```
\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}
\[\mathit{A}\mathup{A}
  \mathsfup{A}\mathsf{A}\]
\[\mathscr{A}\mathfrak{A}\mathbb{A}\]
\[\mathbfup{A}\mathbfit{A}
  \mathbfsfup{A}\mathbfsfit{A}\]
\[\mathbfscr{A}\mathbffrak{A}\]
\end{document}
```



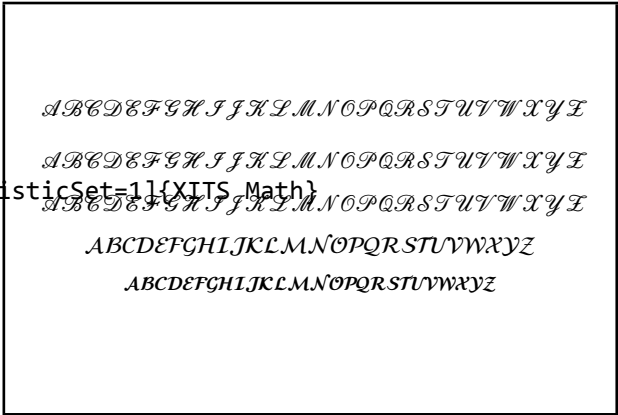
4.108 Test X502b

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



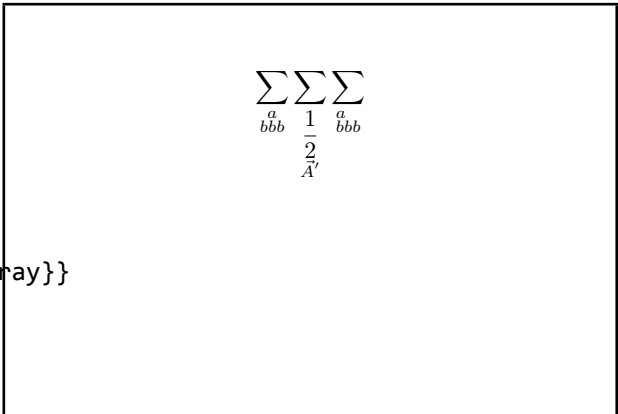
4.109 Test X503a

```
\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}
```



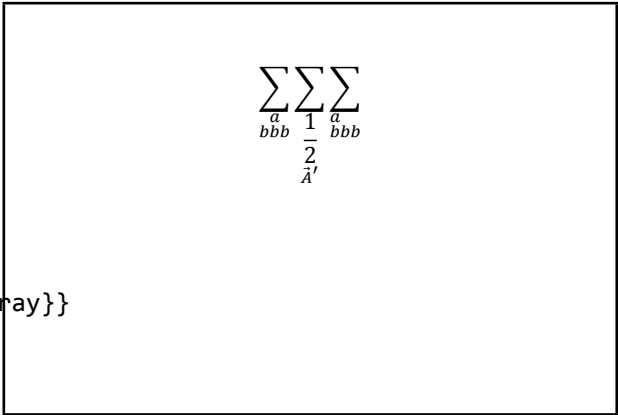
4.110 Test X600a

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



4.111 Test X600b

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



4.112 Test X600c

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

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

4.113 Test X600d

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

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

4.114 Test X600f

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

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

4.115 Test X601a

```
\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\}}
\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}
```

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

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

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

4.116 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}
```

$$\sqrt[a]{b} \sqrt[a]{b}$$

$$^a \sqrt{b} \sqrt[a]{b}$$

4.117 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}
```

$$^a \sqrt{b} \sqrt[a]{b}$$

$$^a \sqrt{b} \sqrt[a]{b}$$

4.118 Test X610f

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

$$a \longrightarrow b$$

4.119 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}
```

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

4.120 Test X650a

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

$$\coloneqq\coloneqq\coloneqq$$

4.121 Test X650b

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

