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

2.1 Test F-alph-spaces

```
\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*** *αβγ* ***ABΓ***

2.2 Test F-mathstyle-french

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

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

2.3 Test F-mathstyle-iso

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

$$ABCDEFGHIJKLMNOPQRSTUVWXYZ$$

$$abcdefghijklmnopqrstuvwxyz$$

$$ABCDEFGHIJKLMNOPQRSTUVWXYZ$$

$$abcdefghijklmnopqrstuvwxyz$$

2.4 Test F-mathstyle-literal

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

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

$$ABCDEFGHIJKLMNOPQRSTUVWXYZ$$

$$abcdefghijklmnopqrstuvwxyz$$

2.5 Test F-mathstyle-tex

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

$$ABCDEFGHIJKLMNOPQRSTUVWXYZ$$

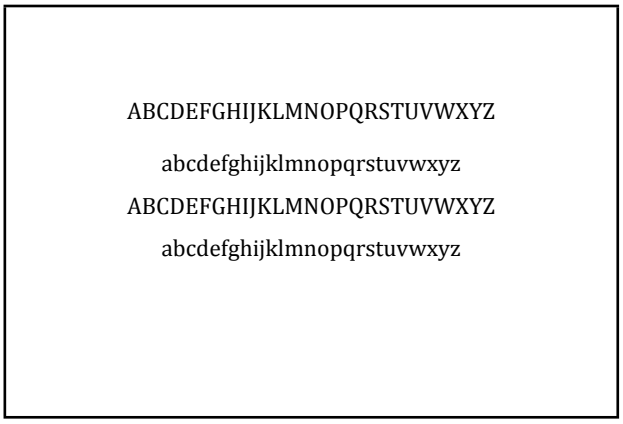
$$abcdefghijklmnopqrstuvwxyz$$

$$ABCDEFGHIJKLMNOPQRSTUVWXYZ$$

$$abcdefghijklmnopqrstuvwxyz$$

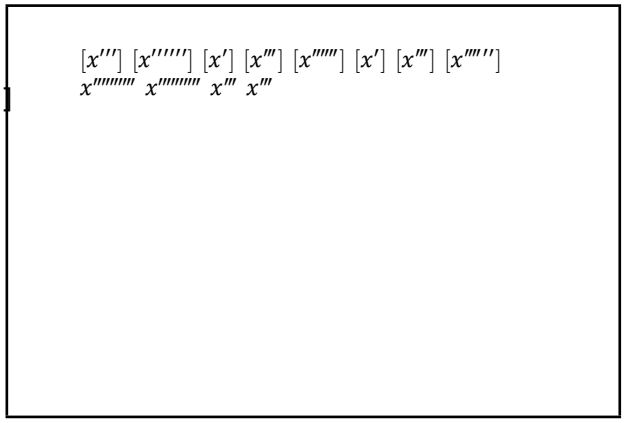
2.6 Test F-mathstyle-upright

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



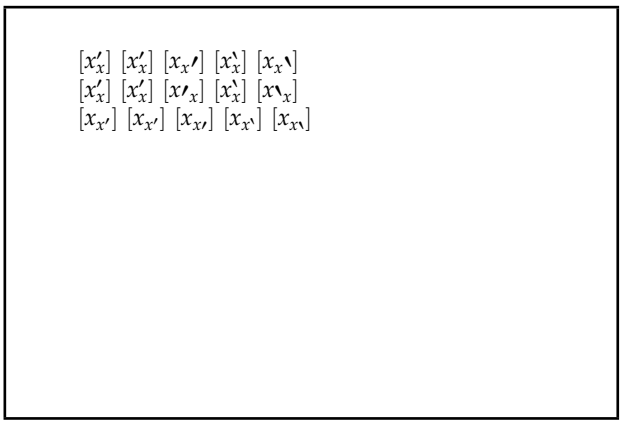
2.7 Test F-primes-1

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

   $x□□□□$
   $x□□□□$
   $x□□$
   $x□$
\end{document}
```



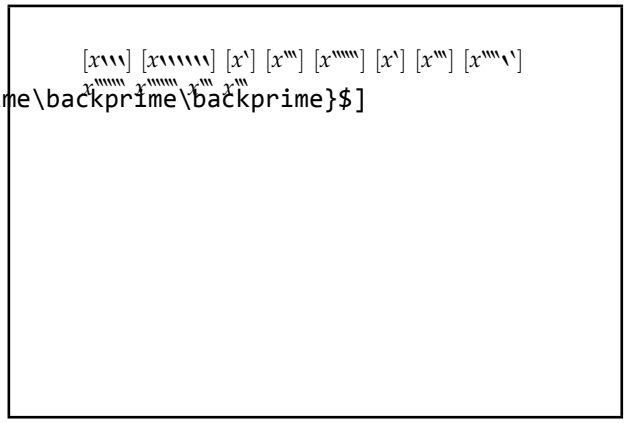
2.8 Test F-primes-2

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

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

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

\end{document}
```



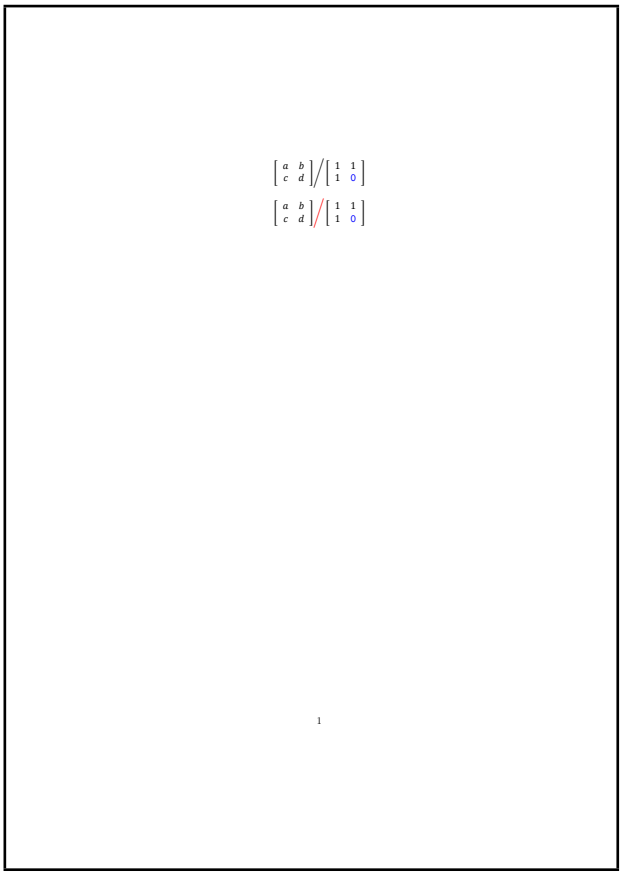
2.9 Test F-primes-back

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

   $x`□□□$
   $x□□□`$
   $x□□$
   $x□$
\end{document}
```



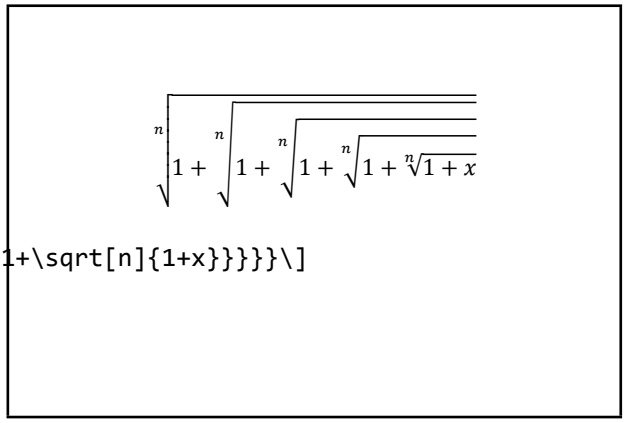
2.10 Test F-slash-delim-2

```
\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}
```



2.11 Test F-sqrt-n

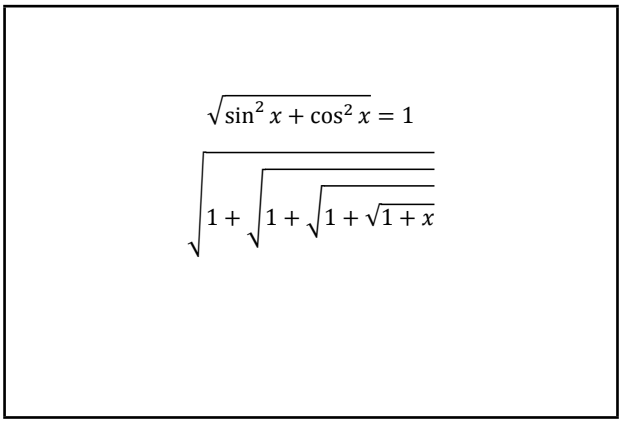
```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[ \sqrt[n]{1+\sqrt[n]{1+\sqrt[n]{1+\sqrt[n]{1+\sqrt[n]{1+x}}}}}\]
\end{document}
```



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

2.12 Test F-sqrt

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



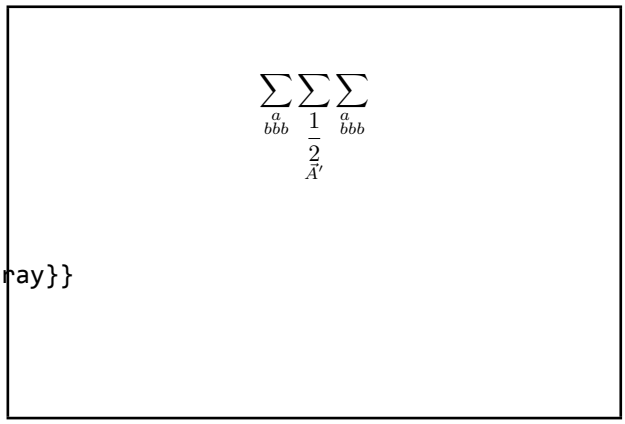
$$\sqrt{\sin^{2}x+\cos^{2}x}=1$$

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

3 LuaLaTeX test files

3.1 Test L600a

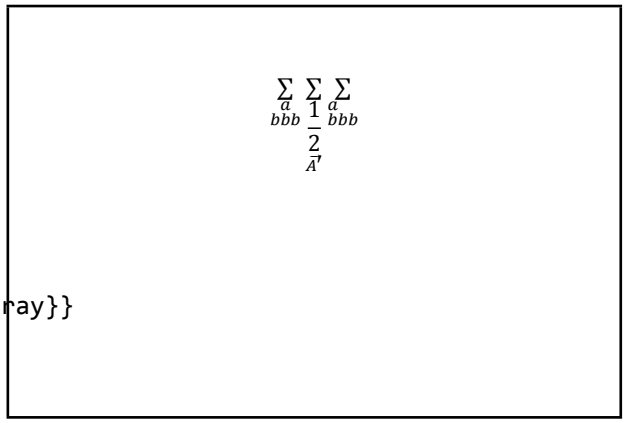
```
\input{umtest-preamble}
\usepackage{amsmath}
\begin{document}
\[
\sum_{\substack{a \\ bbb}}
\sum_{\substack{\dfrac12 \\ \vec A'}}
\sum_{\begin{subarray}{l} a \\ bbb \end{subarray}}
\]
\end{document}
```



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

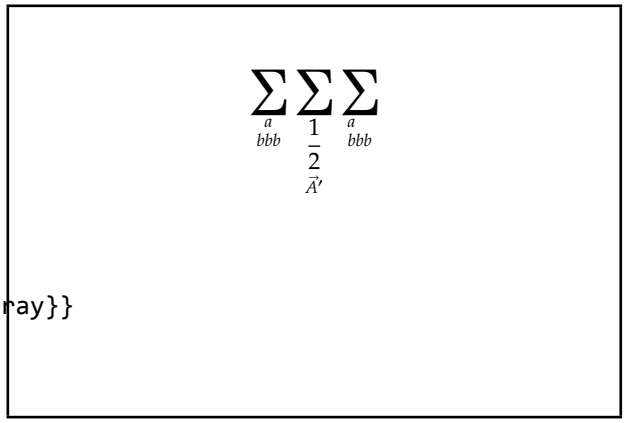
3.2 Test L600b

```
\input{umtest-preamble}
\usepackage{amsmath}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[
\sum_{\substack{a \\ bbb}}
\sum_{\substack{\dfrac12 \\ \vec A'}}
\sum_{\begin{subarray}{l} a \\ bbb \end{subarray}}
\]
\end{document}
```



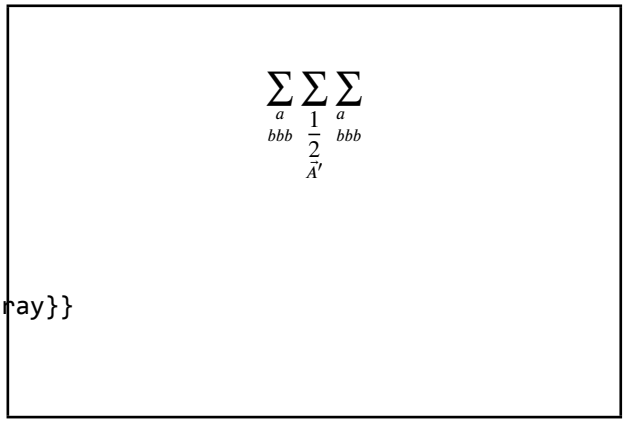
3.3 Test L600c

```
\input{umtest-preamble}
\usepackage{amsmath}
\usepackage{unicode-math}
\setmathfont{Asana Math}
\begin{document}
\[
\sum_{\substack{a \\ bbb}}
\sum_{\substack{\dfrac12 \\ \vec A'}}
\sum_{\begin{subarray}{l} a \\ bbb \end{subarray}}
\]
\end{document}
```



3.4 Test L600f

```
\input{umtest-preamble}
\usepackage{amsmath}
\usepackage{unicode-math}
\setmathfont{XITS Math}
\begin{document}
\[
\sum_{\substack{a \\ bbb}}
\sum_{\substack{\dfrac12 \\ \vec A'}}
\sum_{\begin{subarray}{l} a \\ bbb \end{subarray}}
\]
\end{document}
```



3.5 Test L601a

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

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

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

3.6 Test L601b

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

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

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

3.7 Test L601f

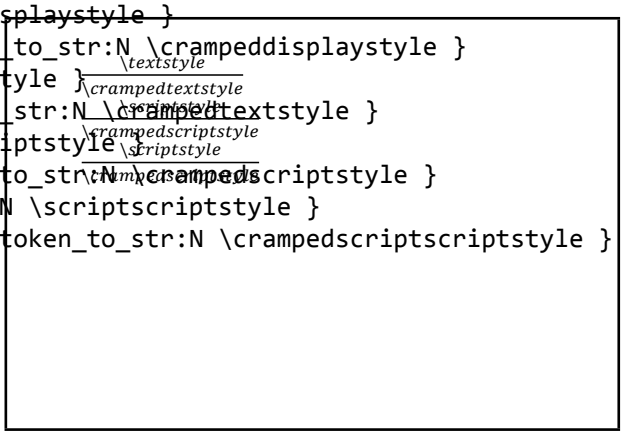
```
\input{umtest-preamble}
\usepackage{mathtools}
\usepackage{unicode-math}
\setmathfont{XITS Math}
\begin{document}
\[
\frac{a^2 + b^2}{a^2 + b^2}
\frac{\cramped{a^2 + b^2}}{a^2 + b^2}
\frac{a^2 + b^2}{\cramped{a^2 + b^2}}
\]
\(
\frac{a^2 + b^2}{a^2 + b^2}
\frac{\cramped{a^2 + b^2}}{a^2 + b^2}
\frac{a^2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

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

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

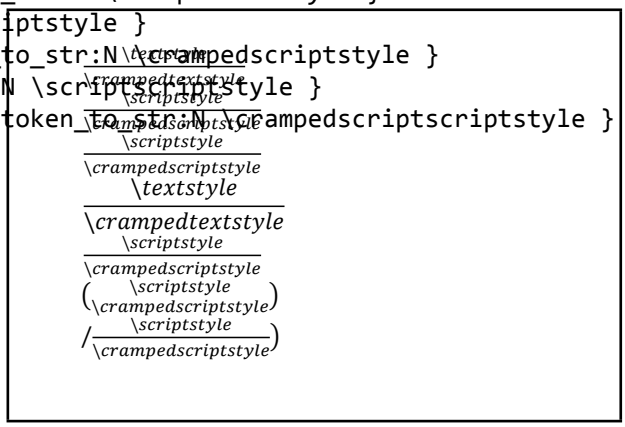
3.8 Test L602b

```
\input{umtest-preamble}

\usepackage{unicode-math}

\setmathfont{Cambria Math}

\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}
```



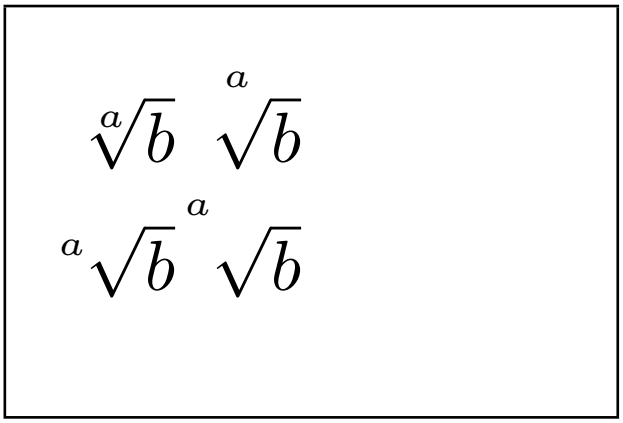
3.9 Test L603b

```
\input{umtest-preamble}

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

\setmathfont{Cambria Math}

\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}
```



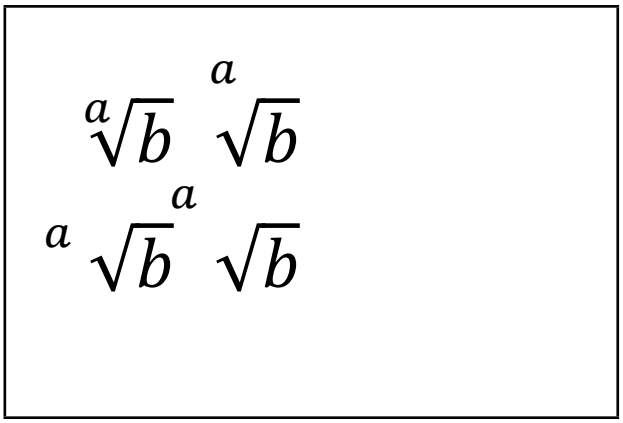
3.10 Test L604a

```
\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}
```



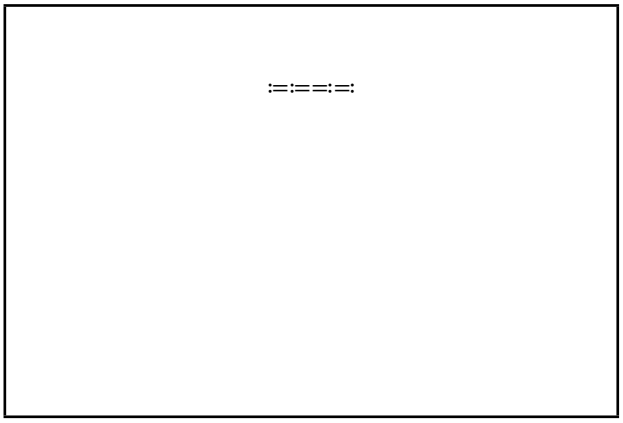
3.11 Test L604b

```
\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}
```



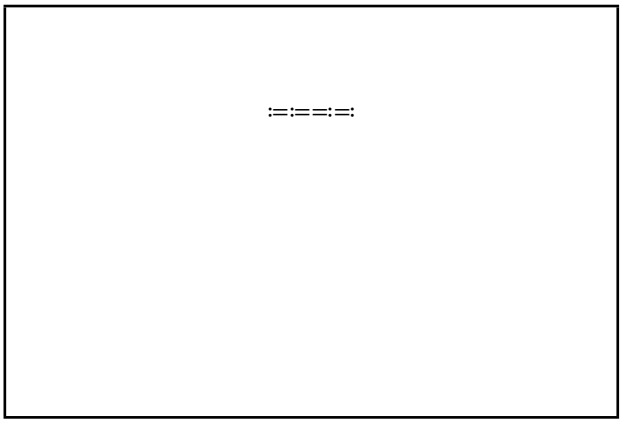
3.12 Test L650a

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



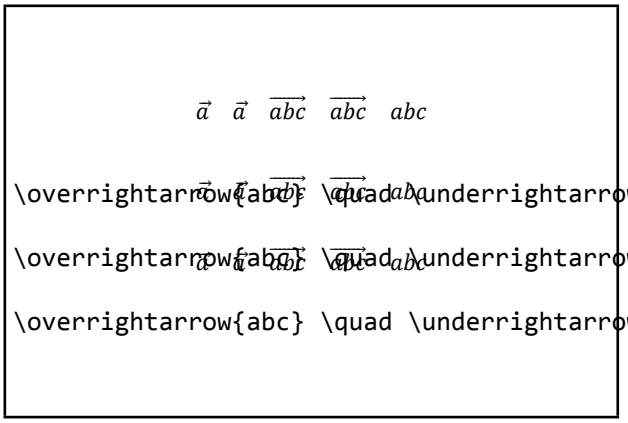
3.13 Test L650b

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



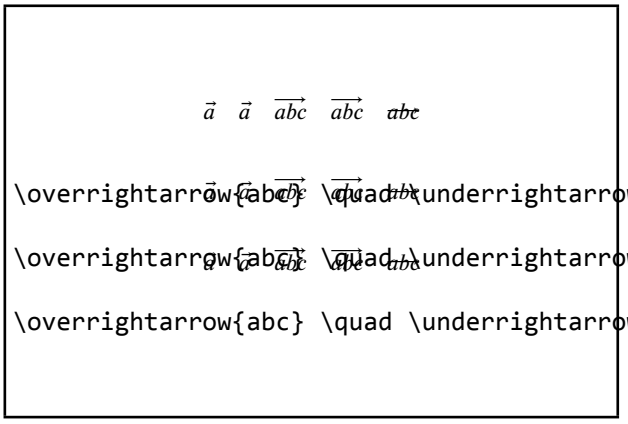
3.14 Test L700a

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[ \vec a \quad \vec{a} \quad \vec{abc} \quad \overrightarrow{abc} \quad \overrightarrow{abc} \]
\unimathsetup{growing-accents}
\[ \vec a \quad \vec{a} \quad \vec{abc} \quad \overrightarrow{abc} \quad \overrightarrow{abc} \]
\unimathsetup{growing-accents=false}
\[ \vec a \quad \vec{a} \quad \vec{abc} \quad \overrightarrow{abc} \quad \overrightarrow{abc} \]
\end{document}
```



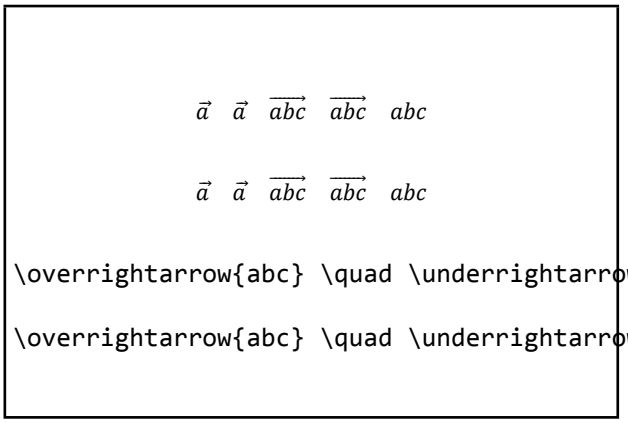
3.15 Test L700b

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{XITS Math}
\begin{document}
\[ \vec a \quad \vec{a} \quad \vec{abc} \quad \overrightarrow{abc} \quad \overrightarrow{abc} \]
\unimathsetup{growing-accents}
\[ \vec a \quad \vec{a} \quad \vec{abc} \quad \overrightarrow{abc} \quad \overrightarrow{abc} \]
\unimathsetup{growing-accents=false}
\[ \vec a \quad \vec{a} \quad \vec{abc} \quad \overrightarrow{abc} \quad \overrightarrow{abc} \]
\end{document}
```



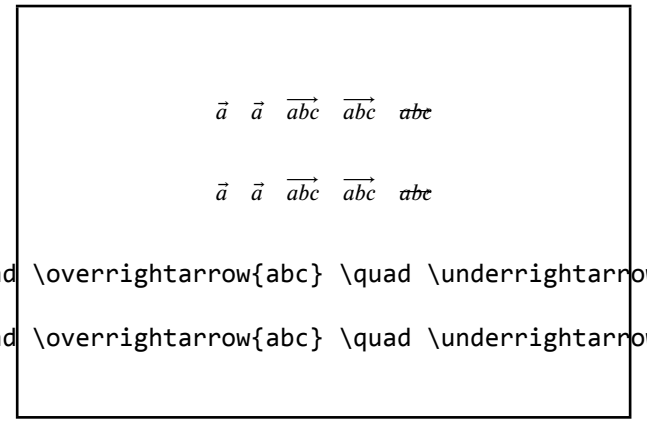
3.16 Test L700c

```
\input{umtest-preamble}
\let\luatexversion\relax
\newcount\luatexversion
\luatexversion=64
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[ \vec a \quad \vec{a} \quad \vec{abc} \quad \overrightarrow{abc} \quad \underrightarrow{abc} \]
\unimathsetup{growing-accents}
\[ \vec a \quad \vec{a} \quad \vec{abc} \quad \overrightarrow{abc} \quad \underrightarrow{abc} \]
\end{document}
```



3.17 Test L700d

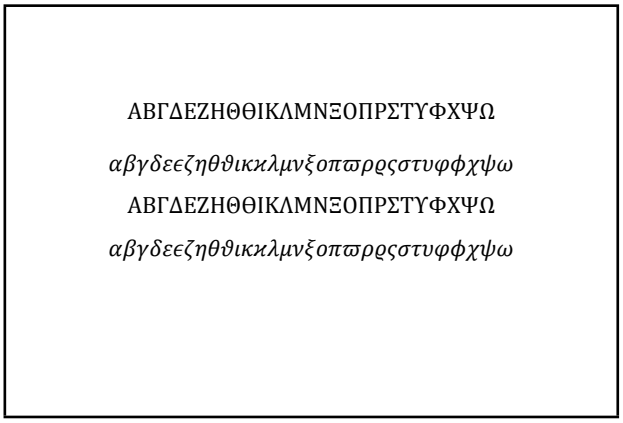
```
\input{umtest-preamble}
\let\luatexversion\relax
\newcount\luatexversion
\luatexversion=64
\usepackage{unicode-math}
\setmathfont{XITS Math}
\begin{document}
\[ \vec a \quad \vec{a} \quad \vec{abc} \quad \overrightarrow{abc} \quad \underrightarrow{abc} \]
\unimathsetup{growing-accents}
\[ \vec a \quad \vec{a} \quad \vec{abc} \quad \overrightarrow{abc} \quad \underrightarrow{abc} \]
\end{document}
```



4 XeLaTeX 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}
```

$$ABΓΔEZHΘΘIKΛMNΞOΠPΣTΥΦXΨΩ$$

$$αβγδεεζηθϑικϰλμνξοπϖρϱσςτυφϕχψω$$

$$ABΓΔEZHΘΘIKΛMNΞOΠPΣTΥΦXΨΩ$$

$$αβγδεεζηθϑικϰλμνξοπϖρϱσςτυφϕχψω$$

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

αβγδεεζηθϑικϰλμνξοπϖρϱσςτυφϕχψω

$$ABΓΔEZHΘΘIKΛMNΞOΠPΣTΥΦXΨΩ$$

$$αβγδεεζηθϑικϰλμνξοπϖρϱσςτυφϕχψω$$

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

αβγδεεζηθϑικϰλμνξοπϖρϱσςτυφϕχψω

ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ

αβγδεεζηθϑικϰλμνξοπϖρϱσςτυφϕχψω

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

αβγδεεζηθϑικϰλμνξοπϖρϱσςτυφφχψω

ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ

αβγδεεζηθϑικϰλμνξοπϖρϱσςτυφφχψω

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}
```

ABCDEFGHIJKLMNOPQRSTUVWXYZ

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

abcdefghijklmnopqrstuvwxyz

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}
```

ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ

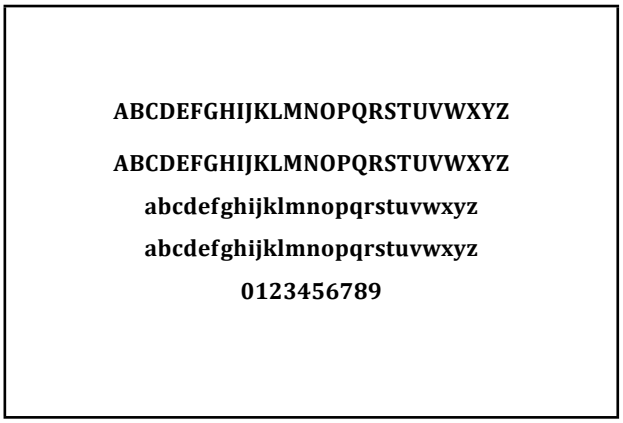
ΑΒΓΔΕΖΗΘΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ

αβγδεεζηθϑικϰλμνξοπϖρϱσςτυφφχψω

αβγδεεζηθϑικϰλμνξοπϖρϱσςτυφφχψω

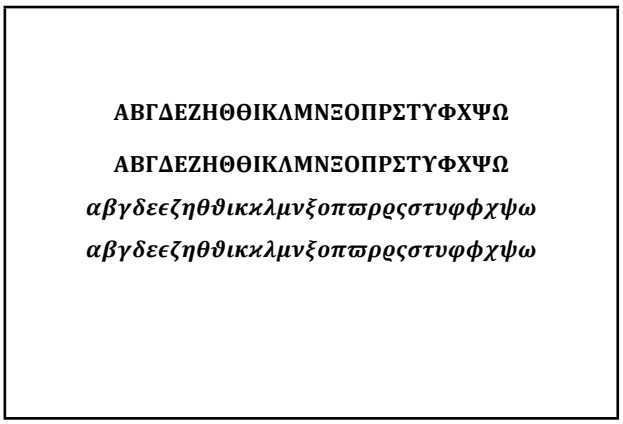
4.8 Test X003c

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



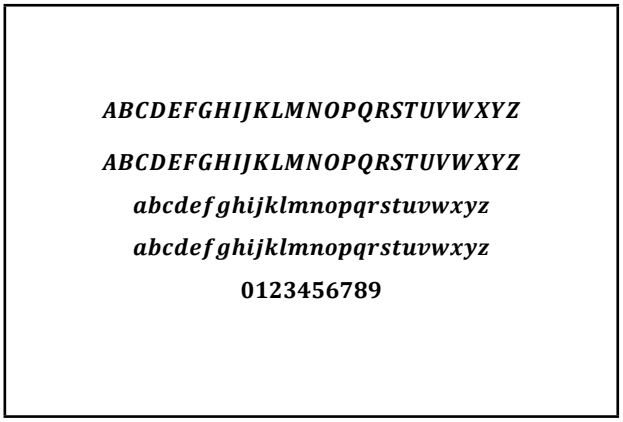
4.9 Test X003d

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



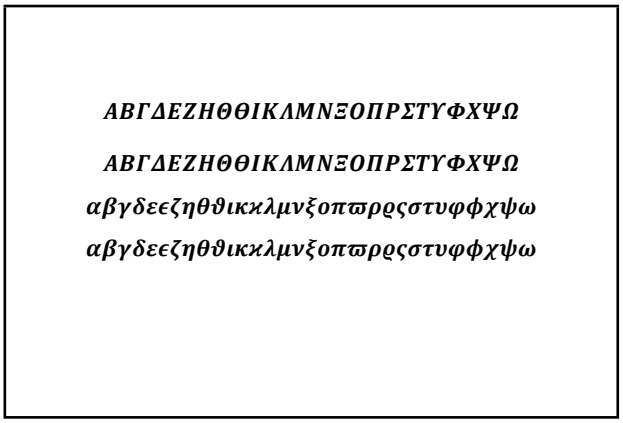
4.10 Test X003e

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



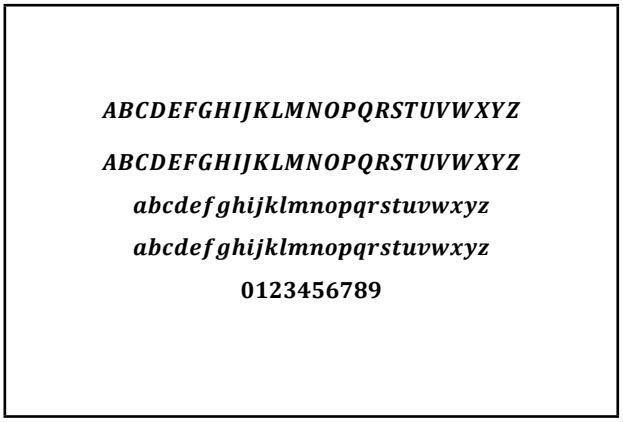
4.11 Test X003f

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



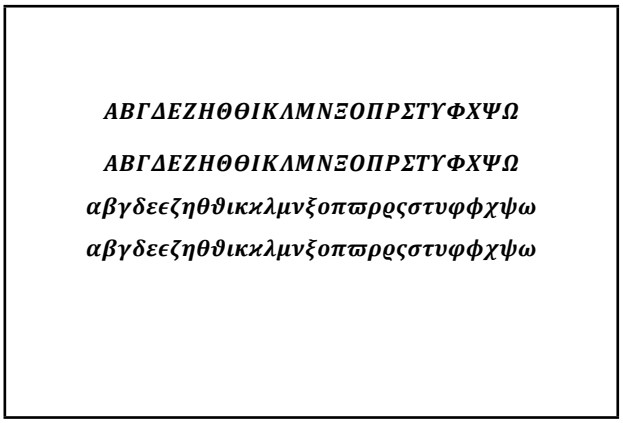
4.12 Test X003g

```
\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}
```



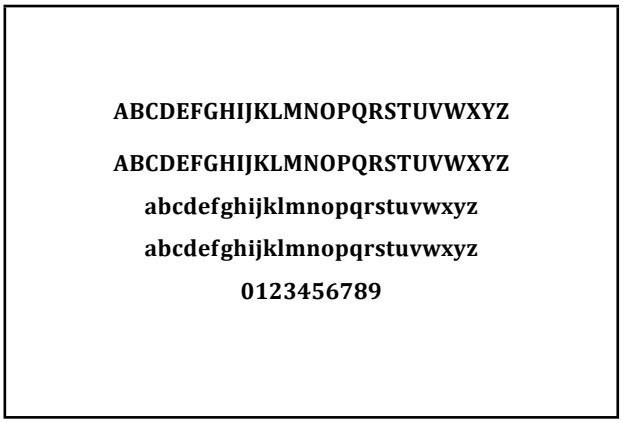
4.13 Test X003h

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



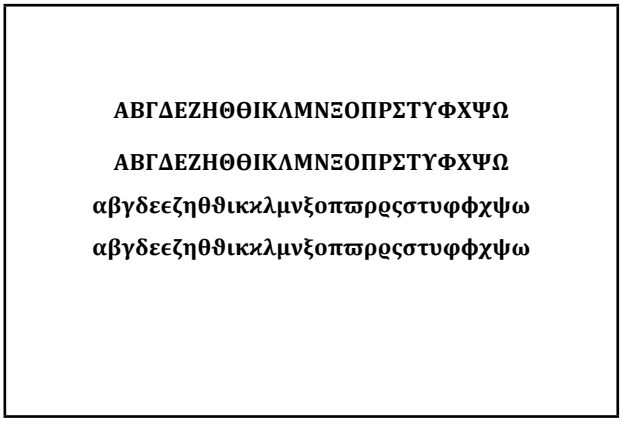
4.14 Test X003i

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



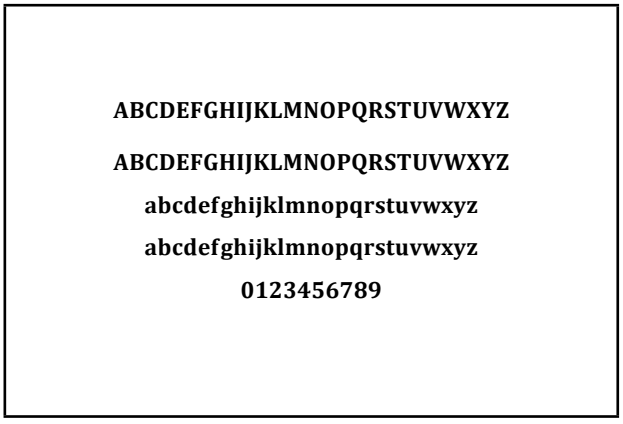
4.15 Test X003j

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



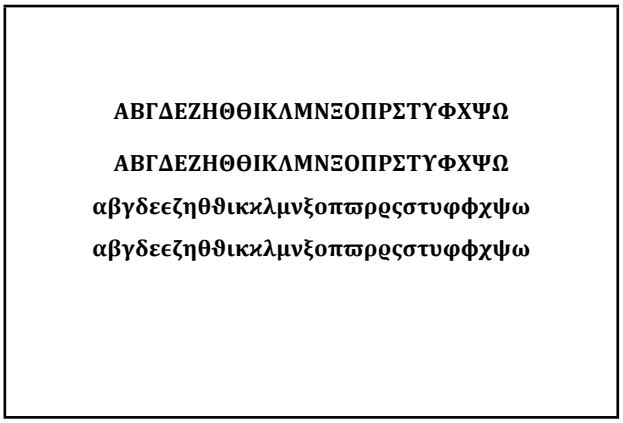
4.16 Test X003k

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



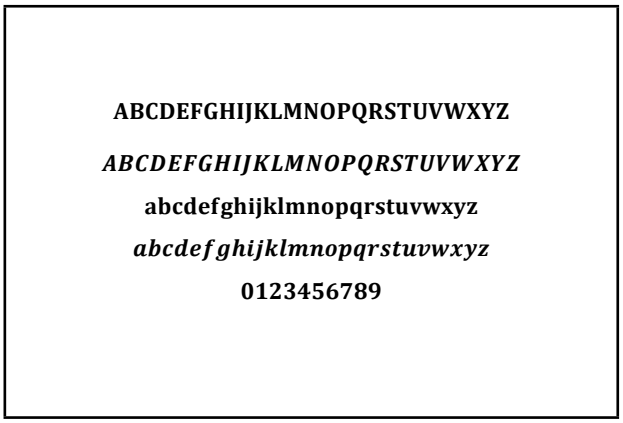
4.17 Test X003l

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



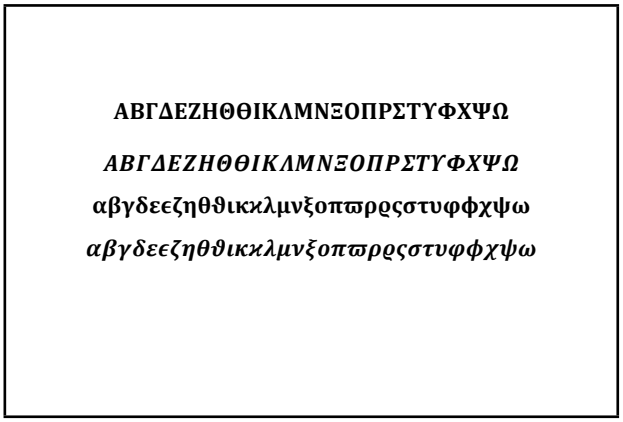
4.18 Test X003m

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



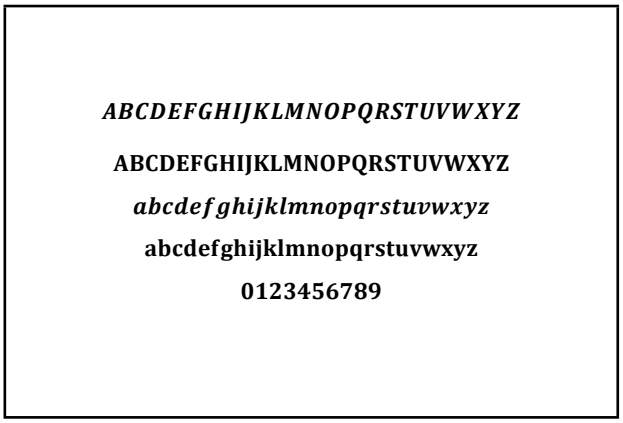
4.19 Test X003n

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



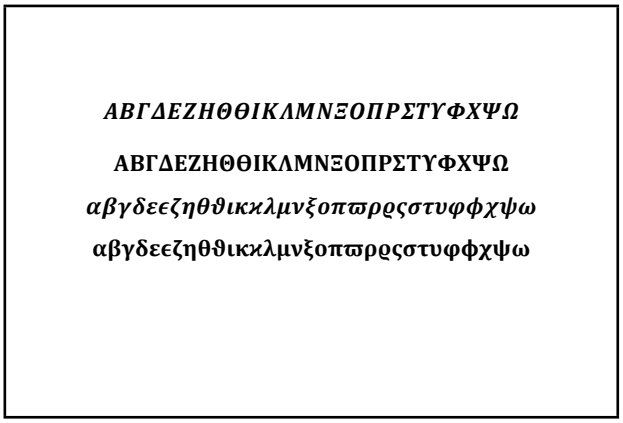
4.20 Test X003o

```
\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}
```



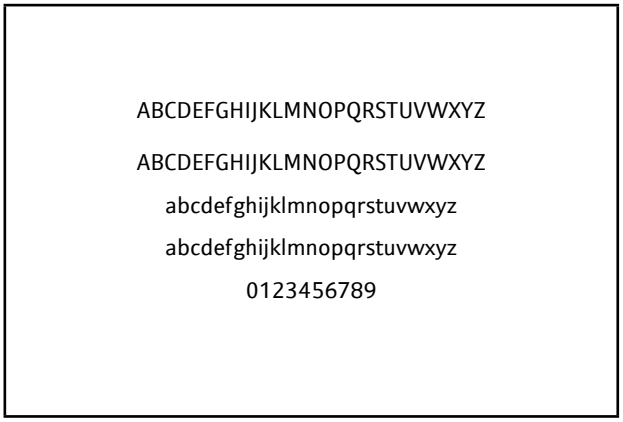
4.21 Test X003p

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



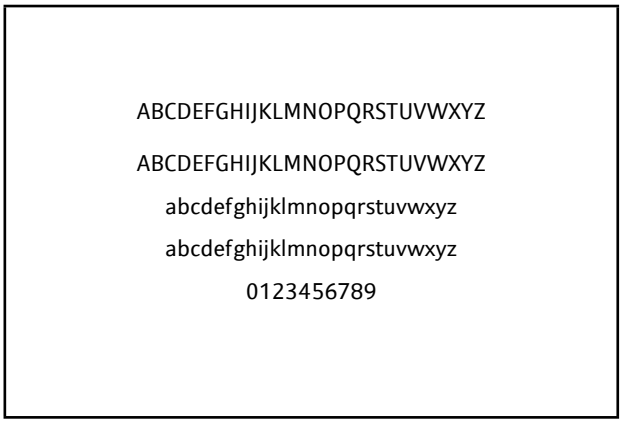
4.22 Test X004a

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



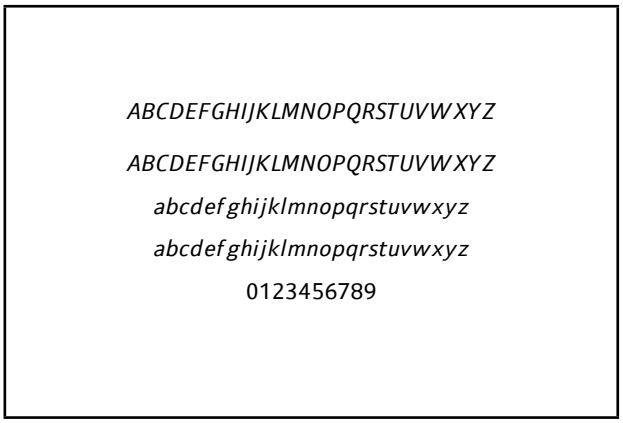
4.23 Test X004b

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



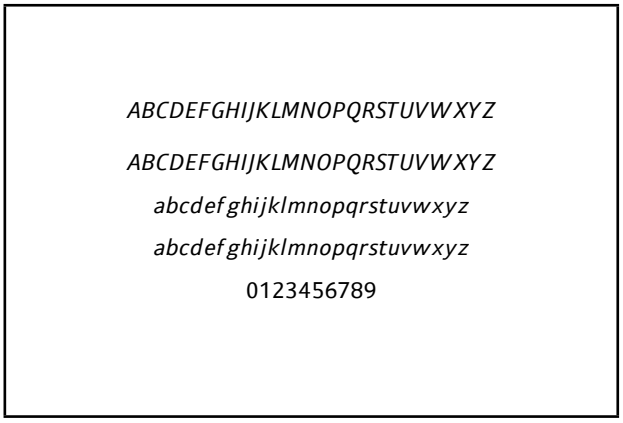
4.24 Test X004c

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



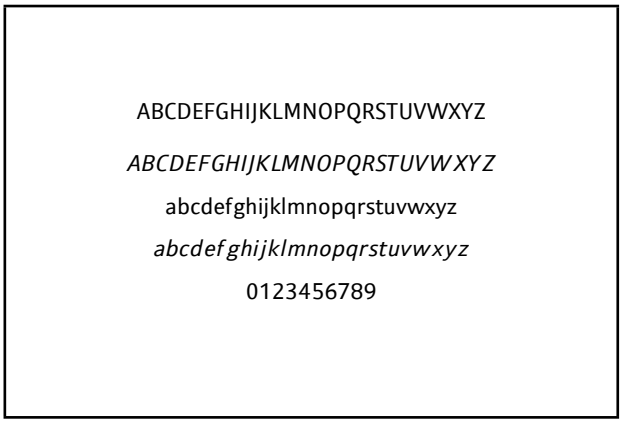
4.25 Test X004d

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



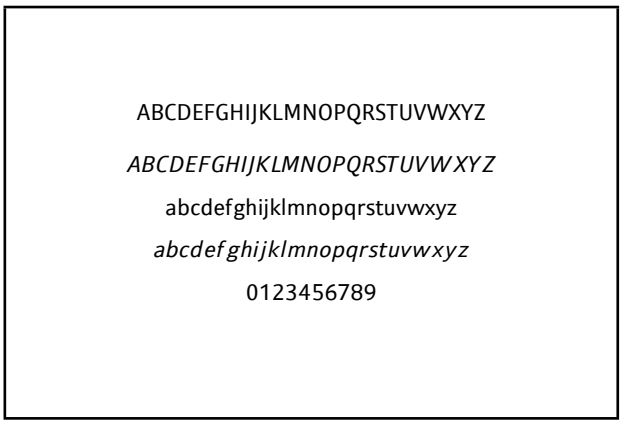
4.26 Test X004e

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



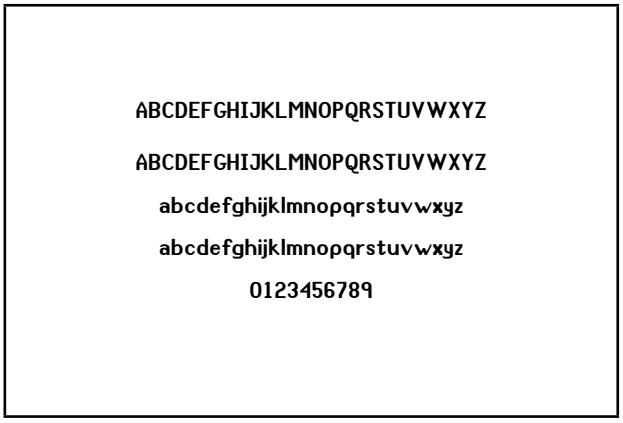
4.27 Test X004f

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



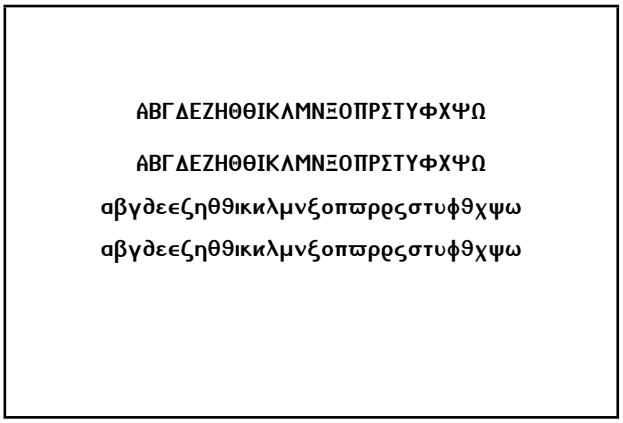
4.28 Test X005a

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



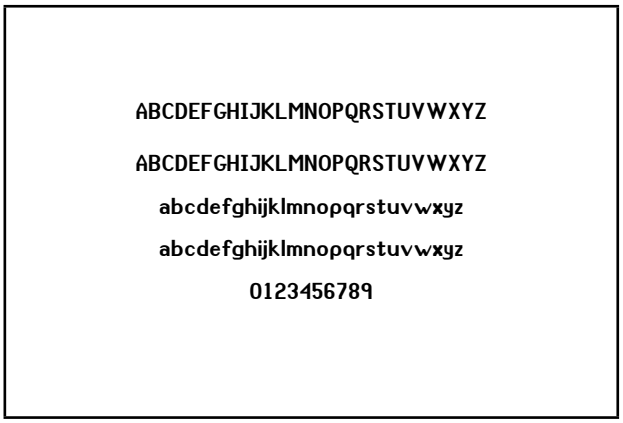
4.29 Test X005b

```
\input{umtest-preamble}
\usepackage[sans-style=upright]{unicode-math}
\setmathfont{Code2001}
\begin{document}
\[\GREEKmathbfsfup\]
\[\GREEKmathbfsfit\]
\[\greekmathbfsfup\]
\[\greekmathbfsfit\]
\end{document}
```



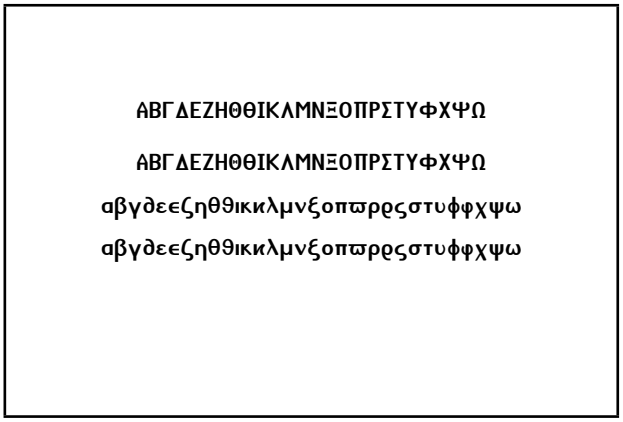
4.30 Test X005c

```
\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}
```



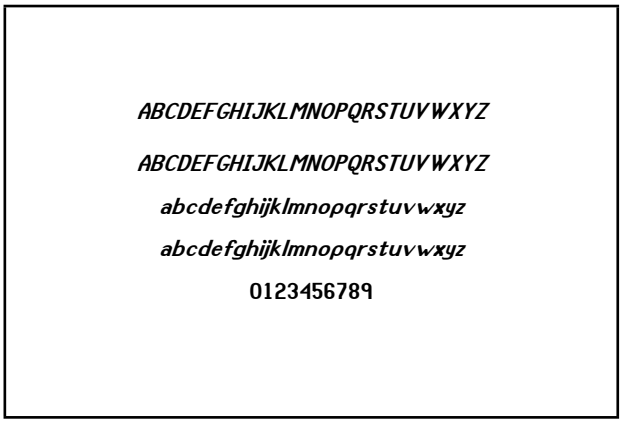
4.31 Test X005d

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



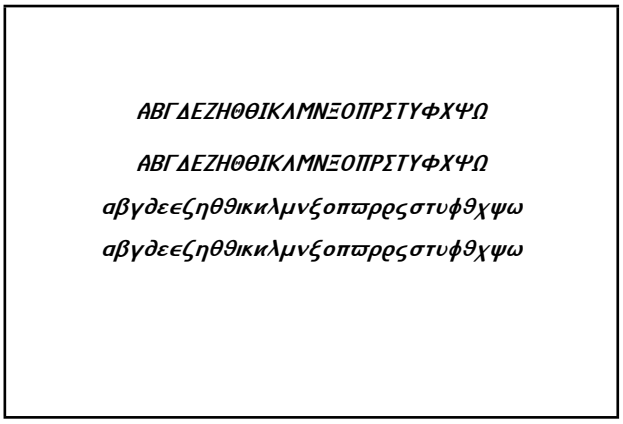
4.32 Test X005e

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



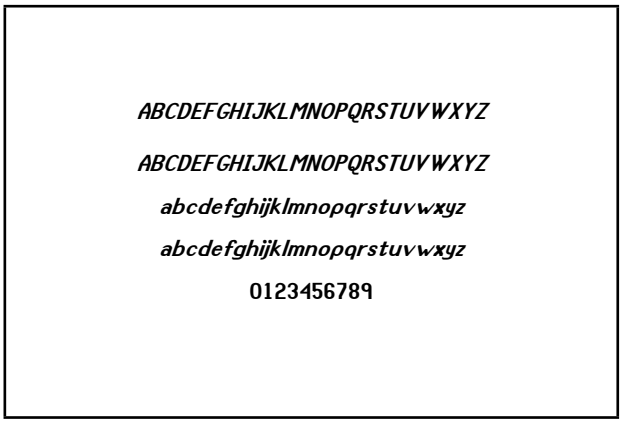
4.33 Test X005f

```
\input{umtest-preamble}
\usepackage[sans-style=italic]{unicode-math}
\setmathfont{Code2001}
\begin{document}
\[\GREEKmathbfsfup\]
\[\GREEKmathbfsfit\]
\[\greekmathbfsfup\]
\[\greekmathbfsfit\]
\end{document}
```



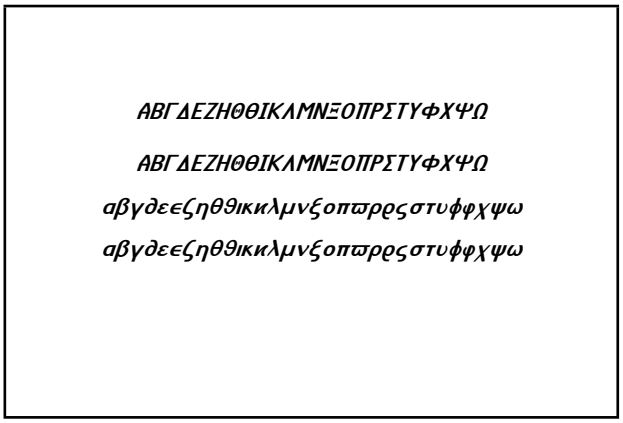
4.34 Test X005g

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



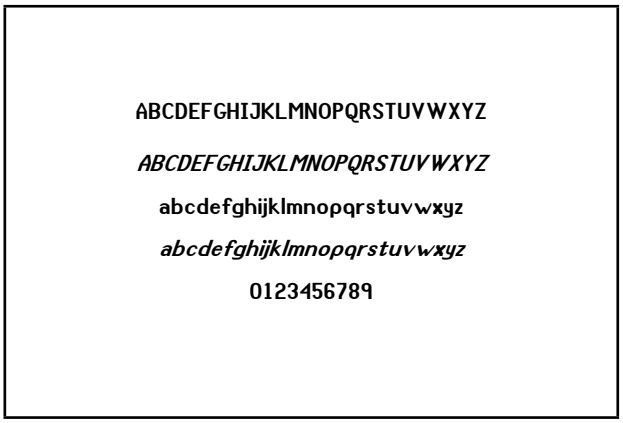
4.35 Test X005h

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



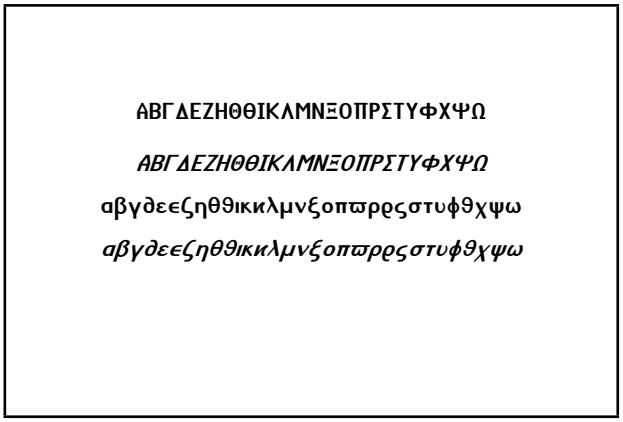
4.36 Test X005i

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



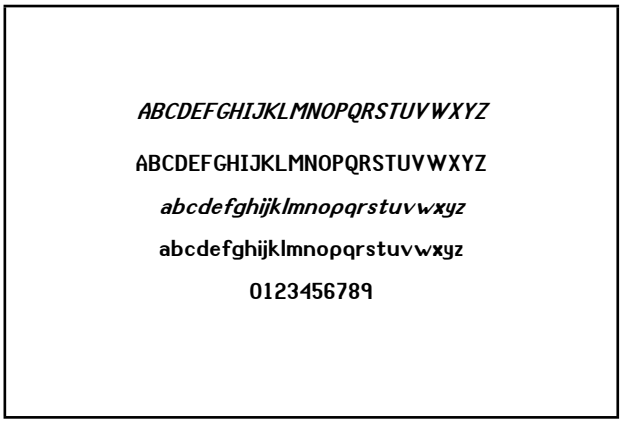
4.37 Test X005j

```
\input{umtest-preamble}
\usepackage[sans-style=literal]{unicode-math}
\setmathfont{Code2001}
\begin{document}
\[\GREEKmathbfsfup\]
\[\GREEKmathbfsfit\]
\[\greekmathbfsfup\]
\[\greekmathbfsfit\]
\end{document}
```



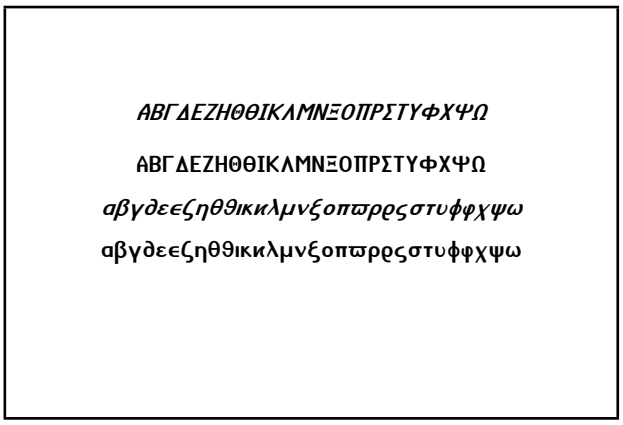
4.38 Test X005k

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



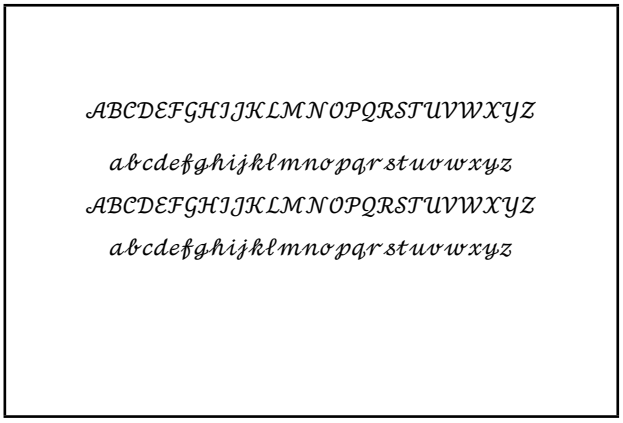
4.39 Test X005l

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



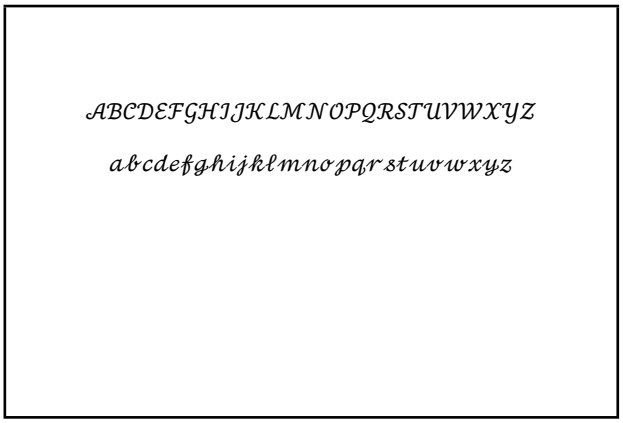
4.40 Test X010a

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



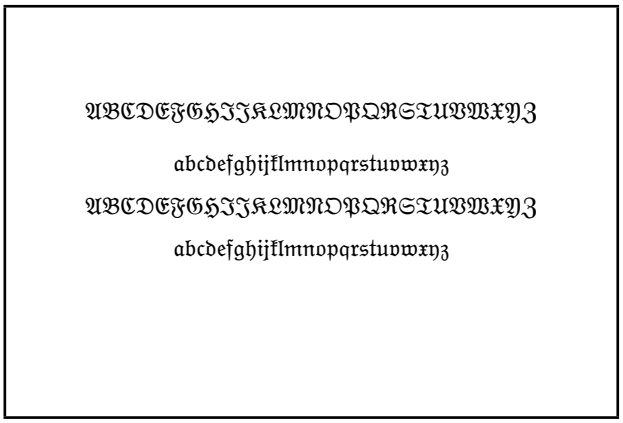
4.41 Test X010b

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



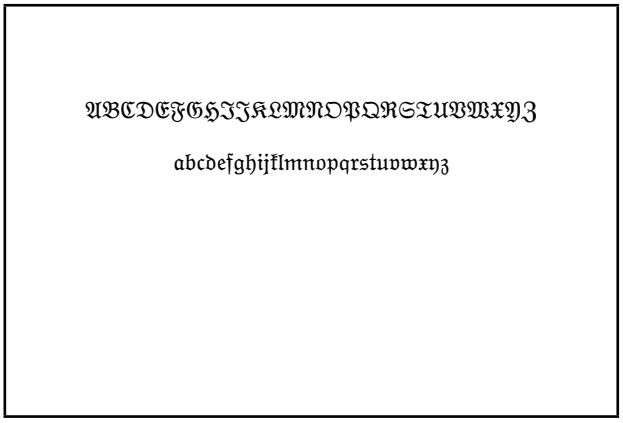
4.42 Test X010c

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



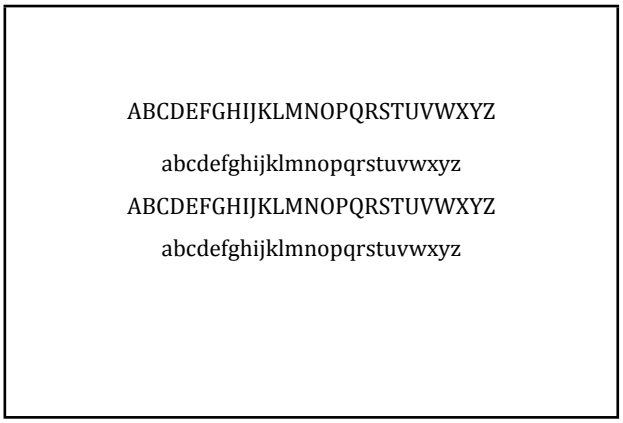
4.43 Test X010d

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



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}
```

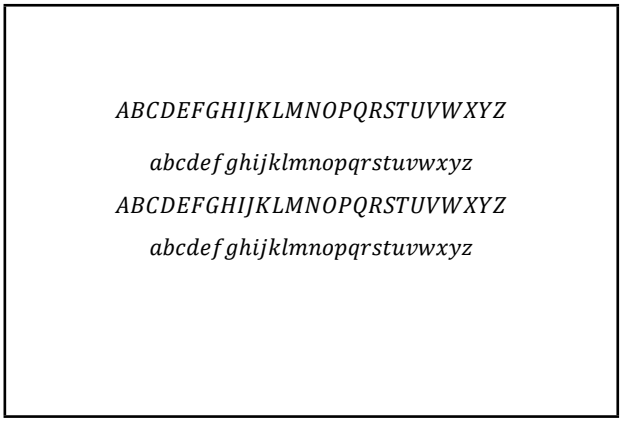


4.45 Test X011b

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

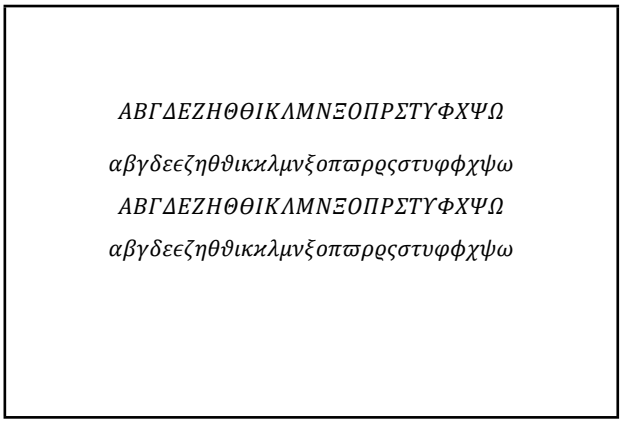
4.46 Test X012a

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



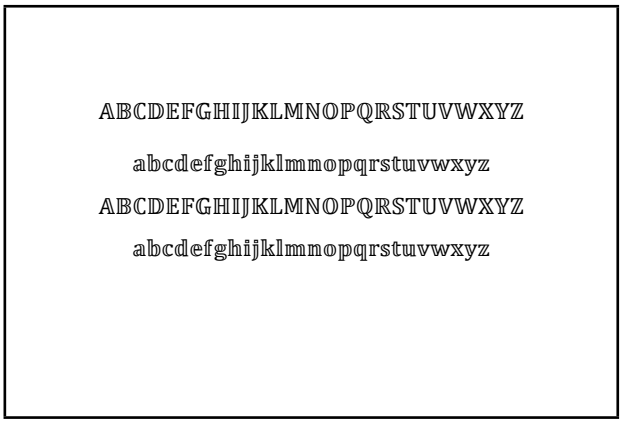
4.47 Test X012b

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



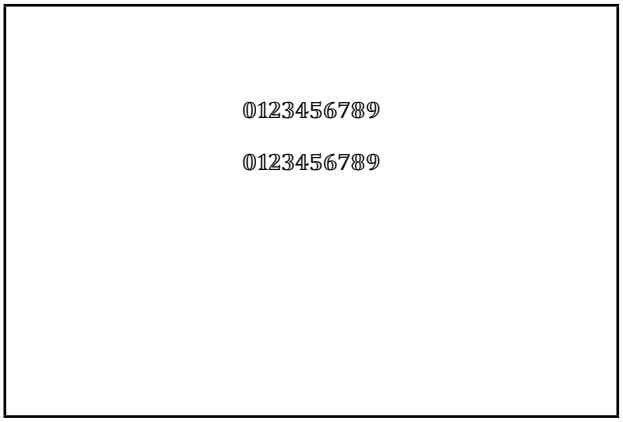
4.48 Test X013a

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



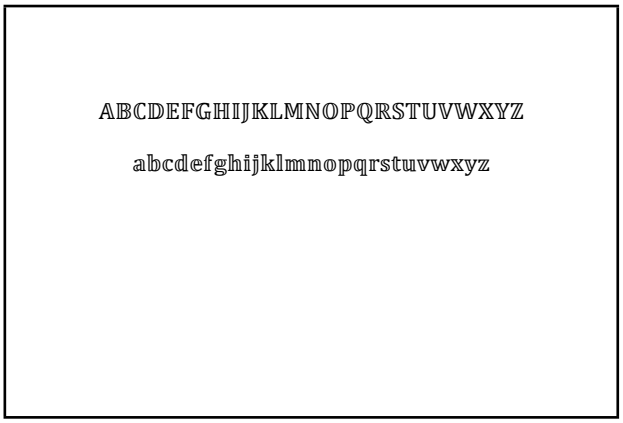
4.49 Test X013b

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



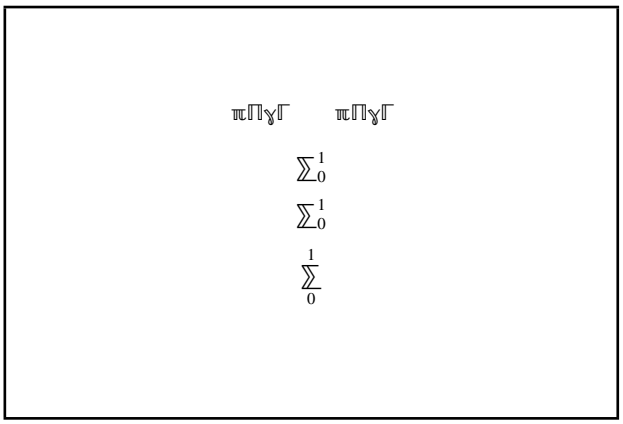
4.50 Test X013c

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



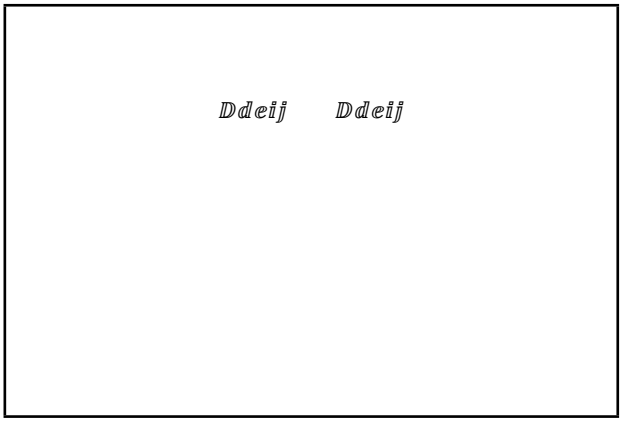
4.51 Test X013d

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{STIXGeneral}
\begin{document}
\[ \mathbb{πΠγΓ} \qquad \mathbb{□□□□□} \]
\[ \mathbb{\sum}_0^1 \]
\[ \mathbb{∑}_0^1 \]
\[ \Bbbsum_0^1 \]
\end{document}
```



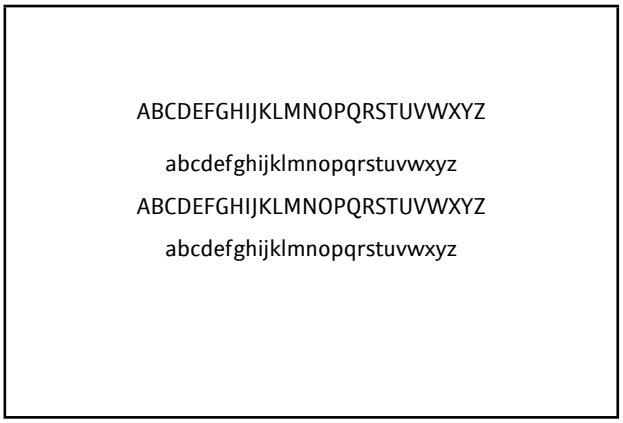
4.52 Test X013e

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[\mathbbit{Ddeij}\qquad\mathbbit{□□□□□}\]
\end{document}
```



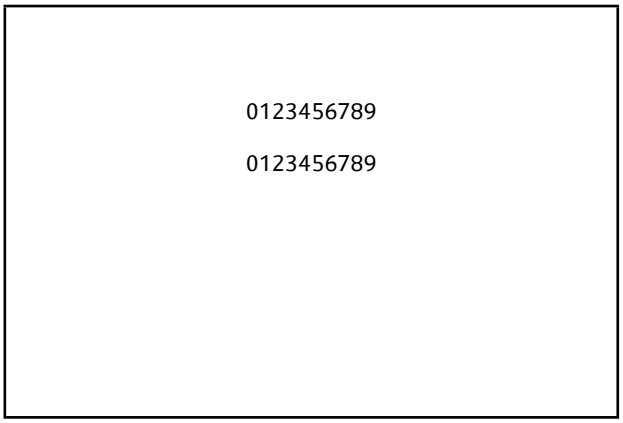
4.53 Test X014a

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



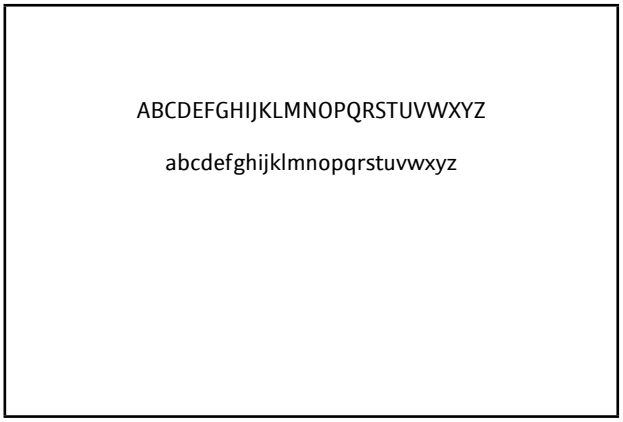
4.54 Test X014b

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



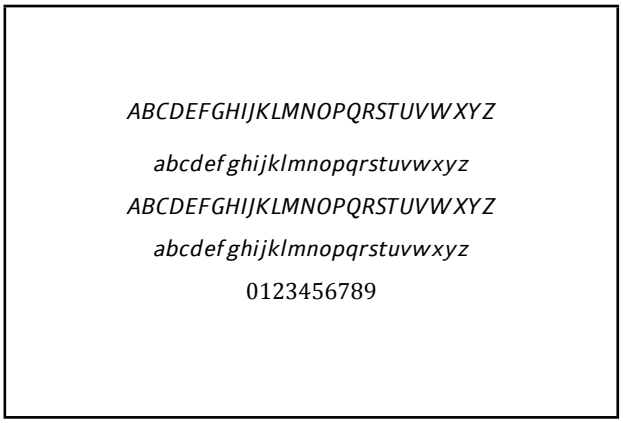
4.55 Test X014c

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



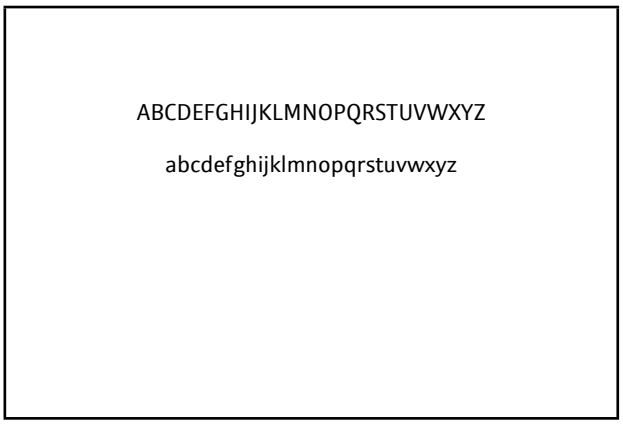
4.56 Test X015a

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



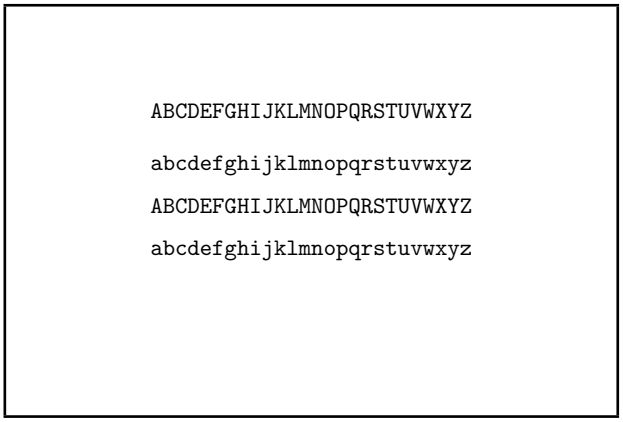
4.57 Test X015b

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



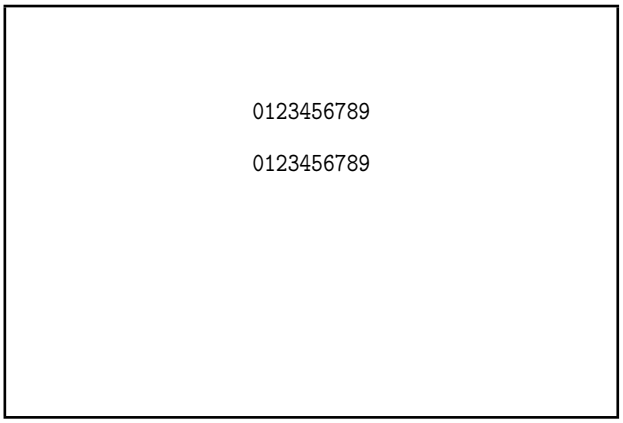
4.58 Test X016a

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



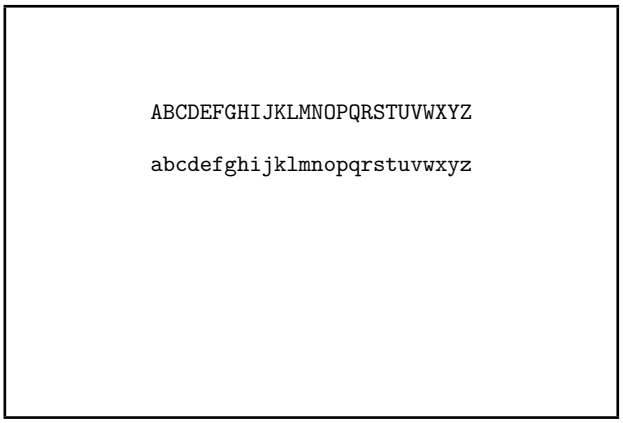
4.59 Test X016b

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



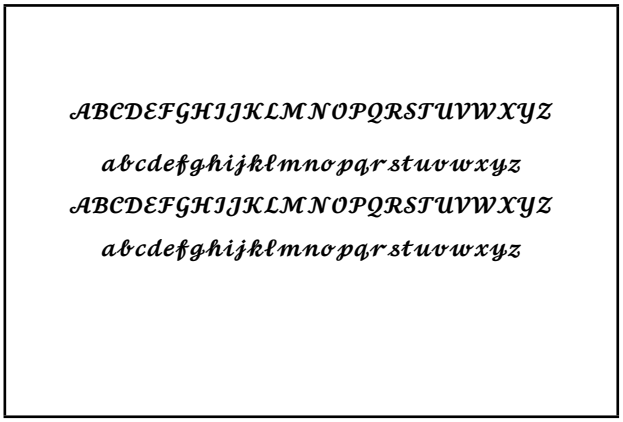
4.60 Test X016c

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



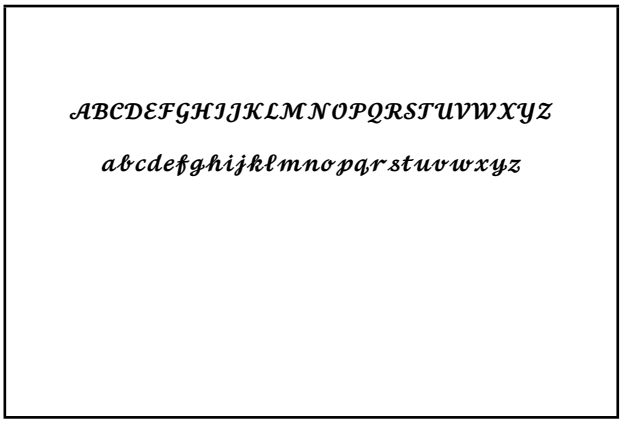
4.61 Test X017a

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



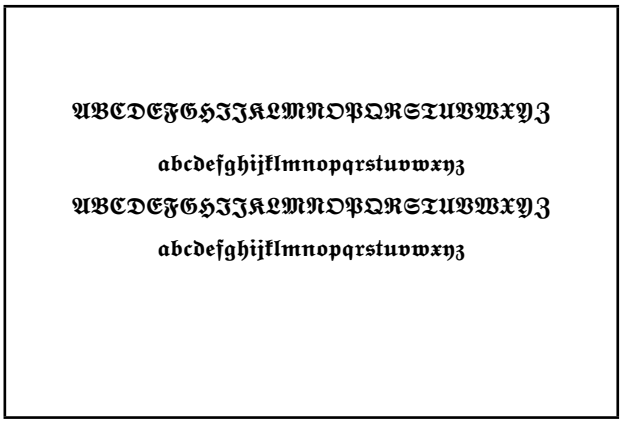
4.62 Test X017b

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



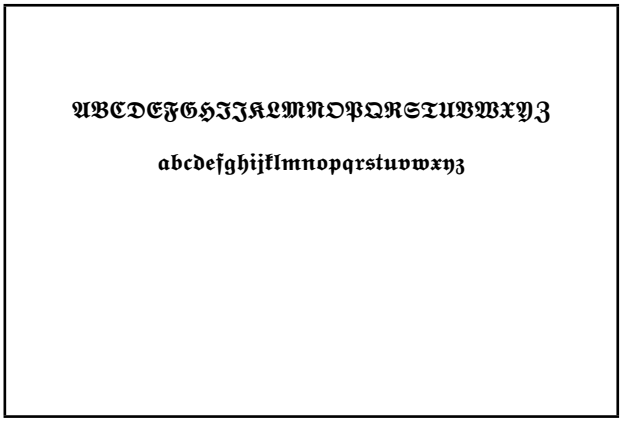
4.63 Test X017c

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



4.64 Test X017d

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

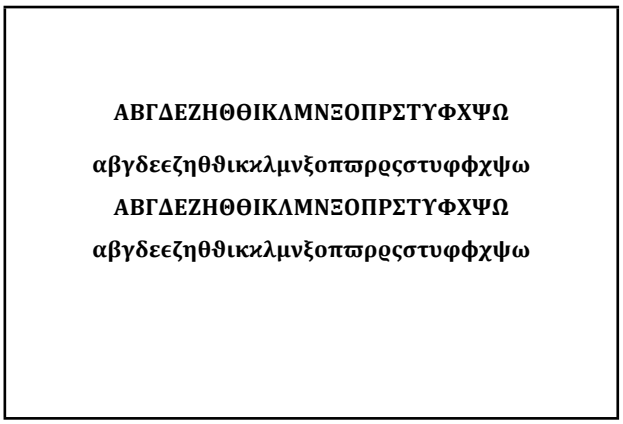


4.65 Test X018a

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

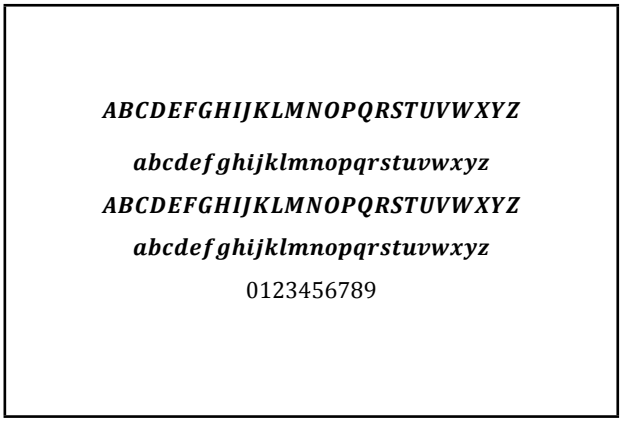
4.66 Test X018b

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



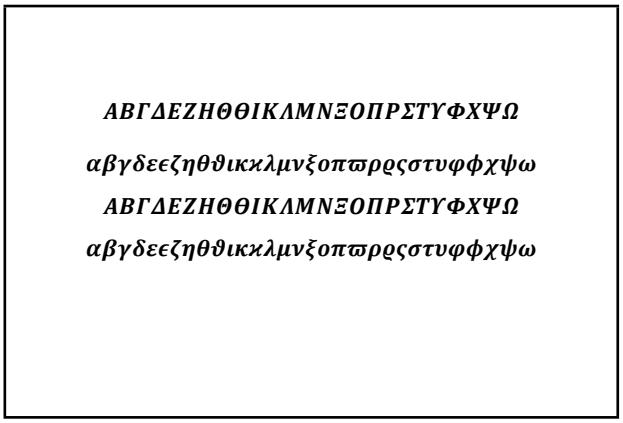
4.67 Test X019a

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



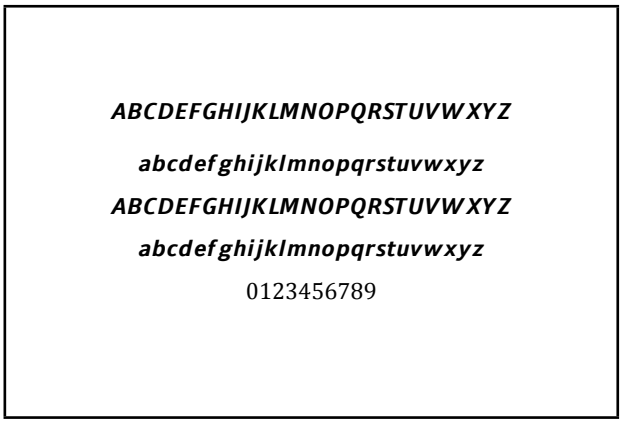
4.68 Test X019b

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



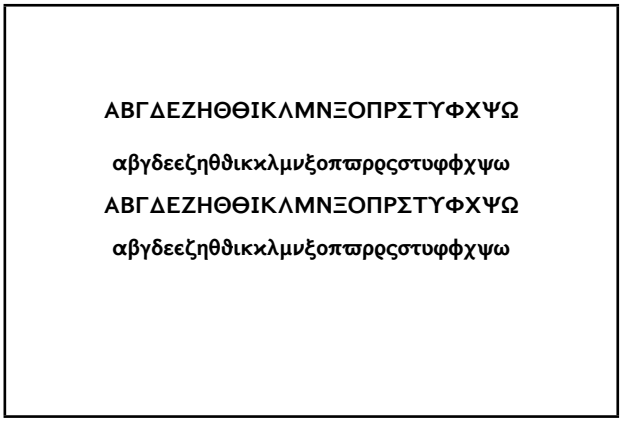
4.69 Test X020a

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



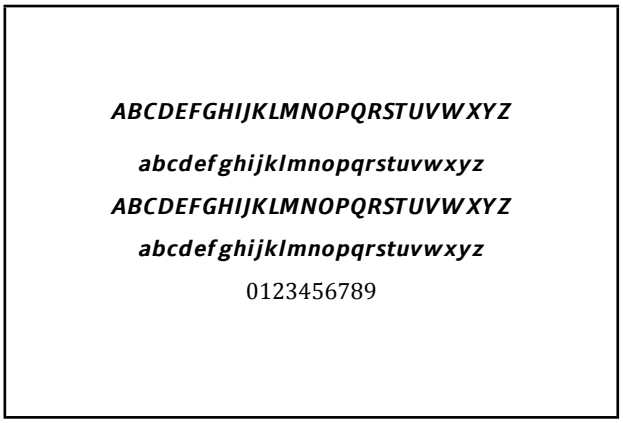
4.70 Test X020b

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



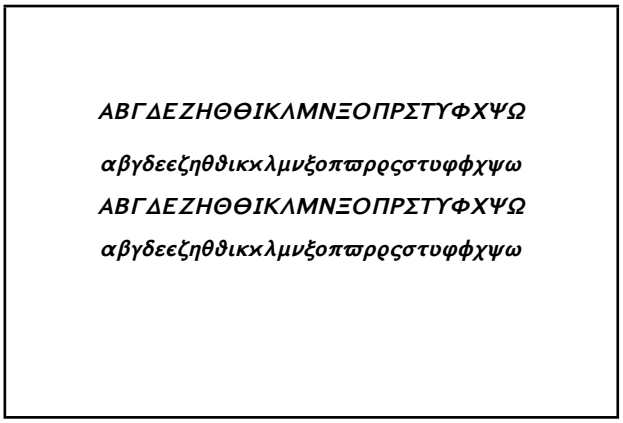
4.71 Test X021a

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



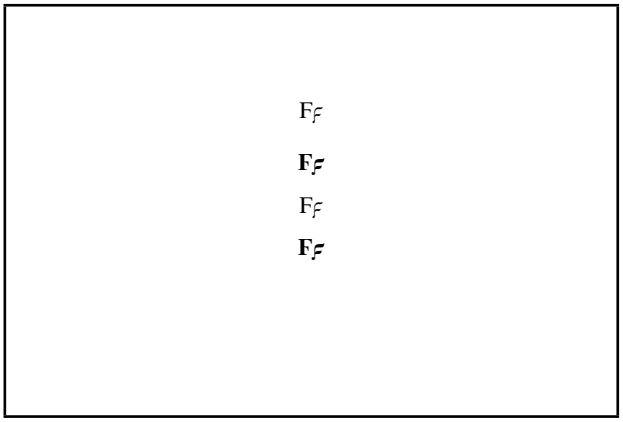
4.72 Test X021b

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



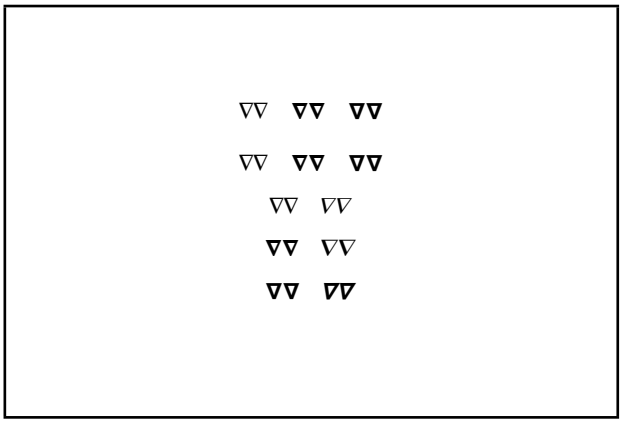
4.73 Test X030a

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



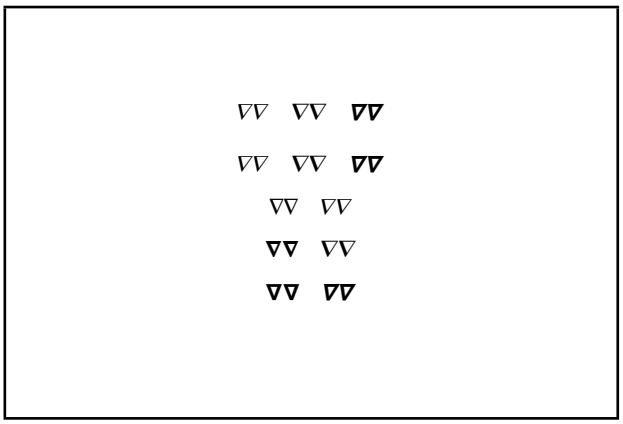
4.74 Test X031a

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



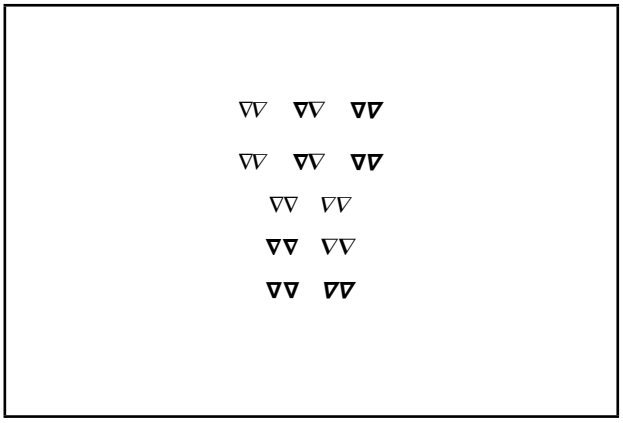
4.75 Test X031b

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



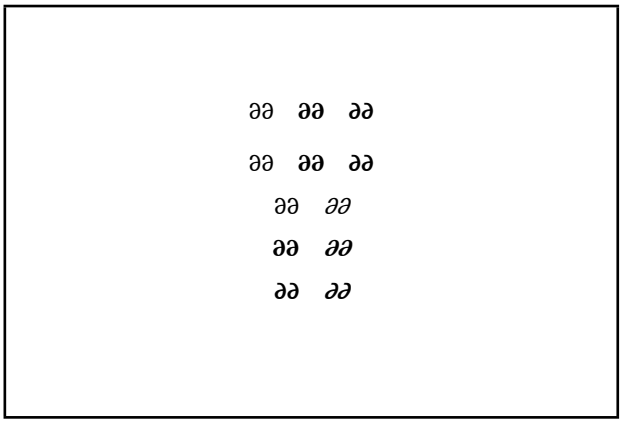
4.76 Test X031c

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



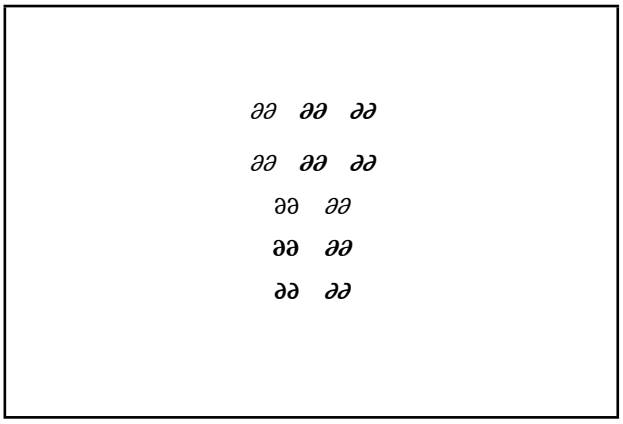
4.77 Test X032a

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



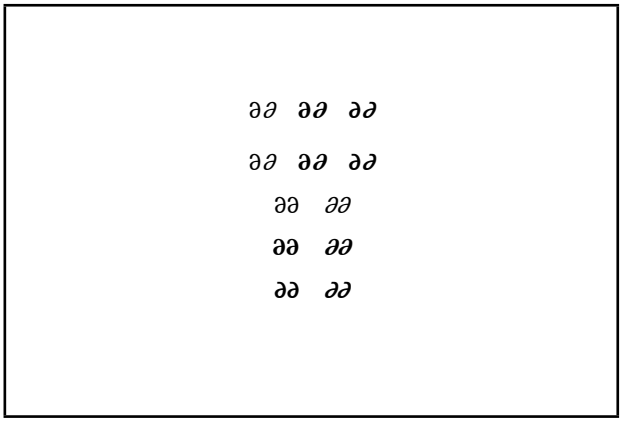
4.78 Test X032b

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



4.79 Test X032c

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



4.80 Test X033a

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

$$ij \quad ij$$

$$\mathrm{ij} \quad \mathrm{ij}$$

$$ij \quad ij$$

$$\mathrm{ij} \quad \mathrm{ij}$$

$$\mathrm{ij} \quad \mathrm{ij}$$

$$ij \quad ij$$

4.81 Test X100a

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

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

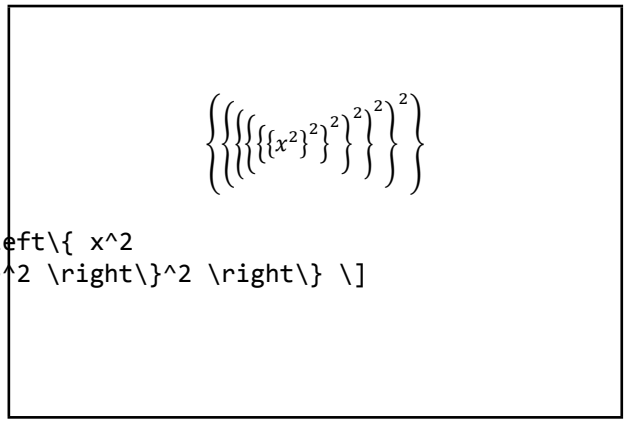
4.82 Test X100b

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

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

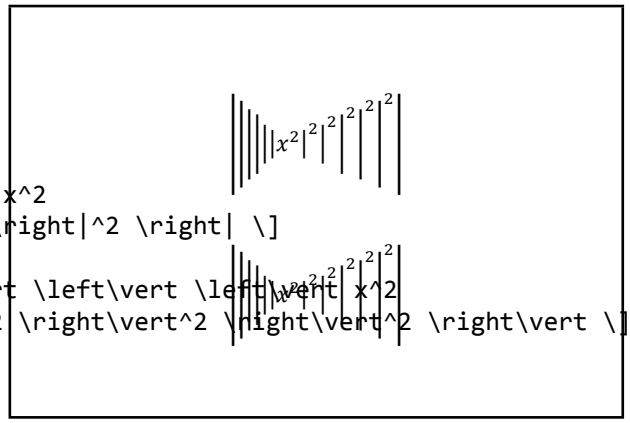
4.83 Test X100c

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



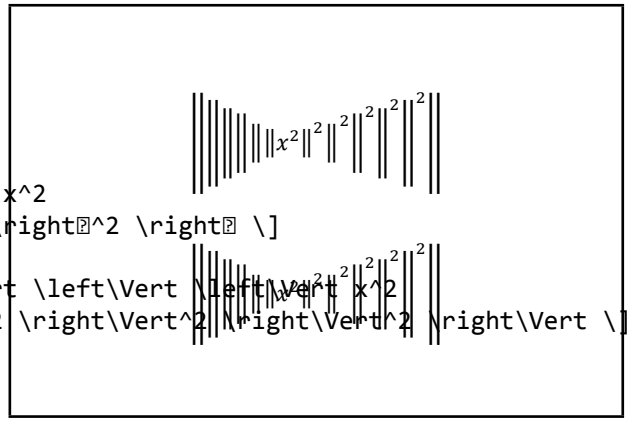
4.84 Test X100d

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

\[ \left\vert \left\vert \left\vert \left\vert \left\vert \left\vert x^2
    \right\vert^2 \right\vert^2 \right\vert^2 \right\vert^2 \right\vert^2 \right\vert \]
\end{document}
```



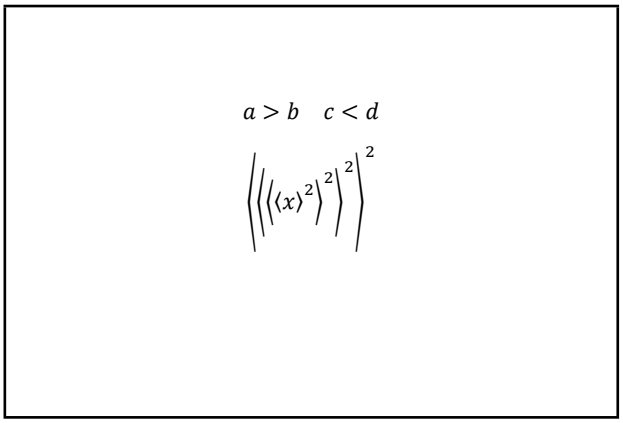
4.85 Test X100e

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

\[ \left\Vert \left\Vert \left\Vert \left\Vert \left\Vert \left\Vert x^2
    \right\Vert^2 \right\Vert^2 \right\Vert^2 \right\Vert^2 \right\Vert^2 \right\Vert \]
\end{document}
```



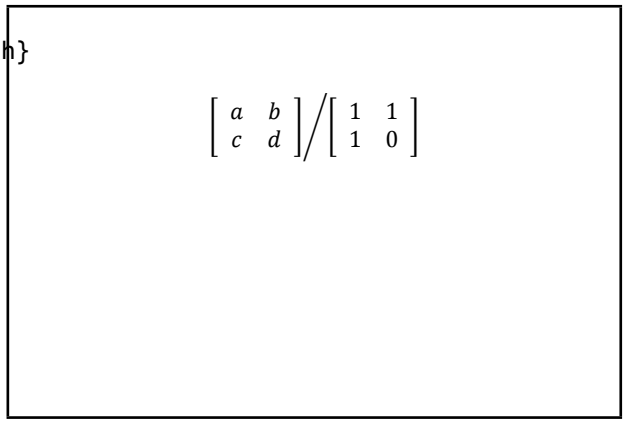
4.86 Test X101a

```
\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}
```



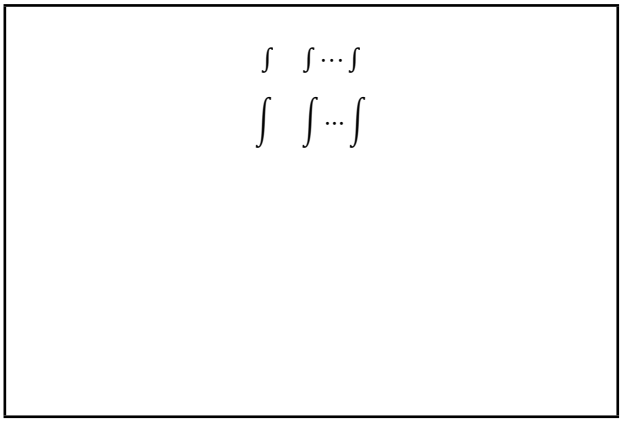
4.87 Test X102a

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



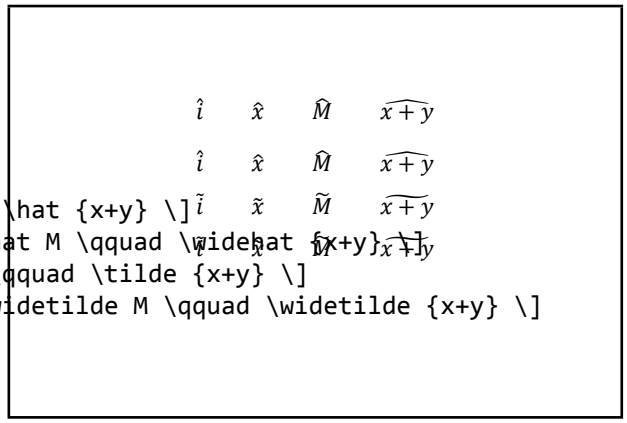
4.88 Test X150a

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



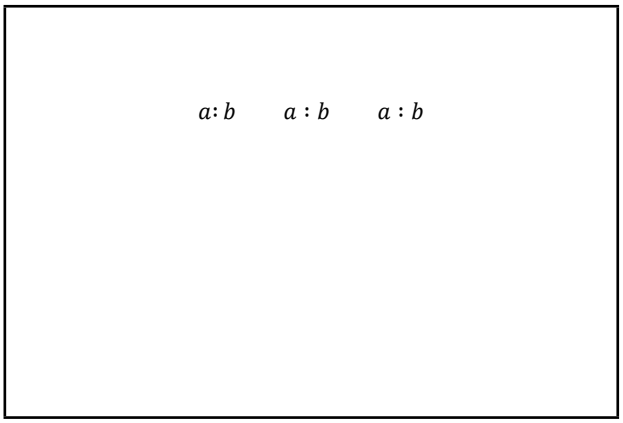
4.89 Test X151a

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[ \hat i \qquad \hat x \qquad \hat M \qquad \hat {x+y} \]
\[ \widehat i \qquad \widehat x \qquad \widehat M \qquad \widehat {x+y} \]
\[ \tilde i \qquad \tilde x \qquad \tilde M \qquad \tilde {x+y} \]
\[ \widetilde i \qquad \widetilde x \qquad \widetilde M \qquad \widetilde {x+y} \]
\end{document}
```



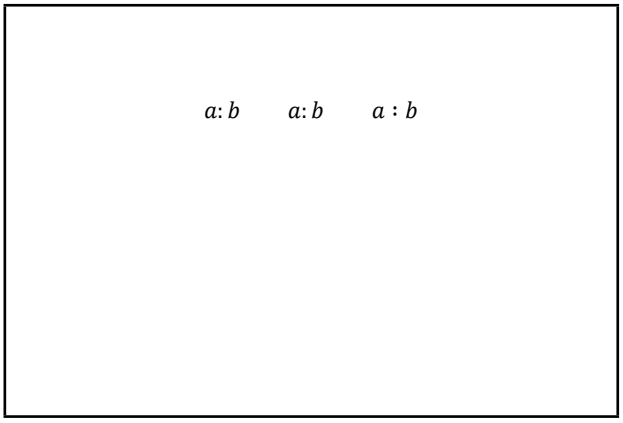
4.90 Test X202a

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



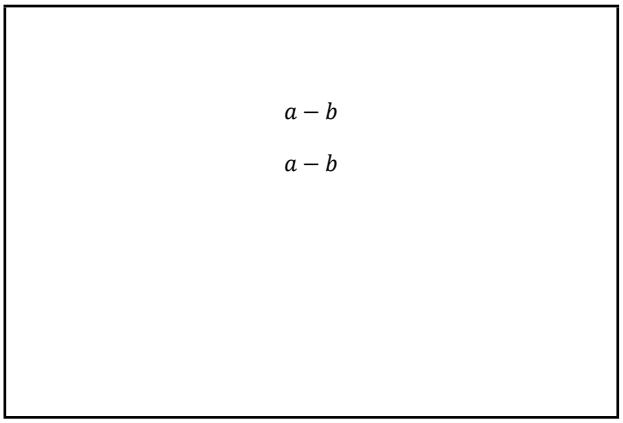
4.91 Test X202b

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



4.92 Test X203a

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

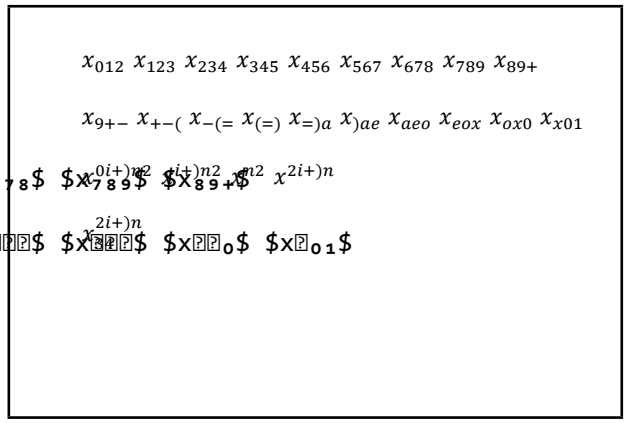


$$a - b$$

$$a - b$$

4.93 Test X204a

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\setlength\parskip{12pt}
\begin{document}
$x_{012}$ $x_{123}$ $x_{234}$ $x_{345}$ $x_{456}$ $x_{567}$ $x_{678}$ $x_{789}$ $x_{89+}$

$x_{9+-}$ $x_{+-(}$ $x_{-(=}$ $x_{(=)}$ $x_{=)}$ $x_{)}$ $x_{}$ $x_{}$ $x_{}$ $x_{}$

$x^{}$ $x^{}$ $x^{}$ $x^{}$

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



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

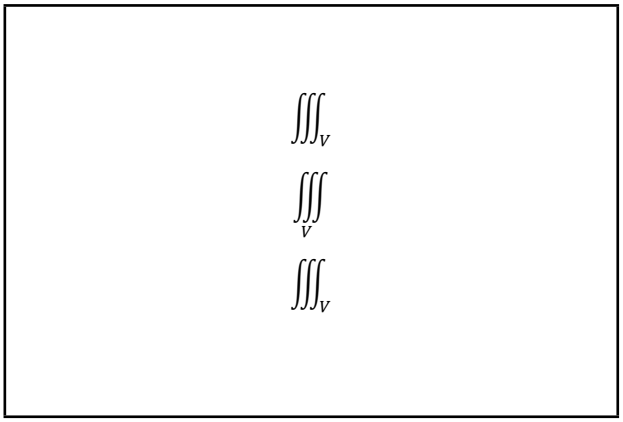
$$x_{9+-}\ x_{+-(}\ x_{-(=}\ x_{(=)}\ x_{=)a}\ x_{)ae}\ x_{aeo}\ x_{eox}\ x_{ox0}\ x_{x01}$$

$$x^{}\ x^{}\ x^{}\ x^{}$$

$$x_{}$$

4.94 Test X205a

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



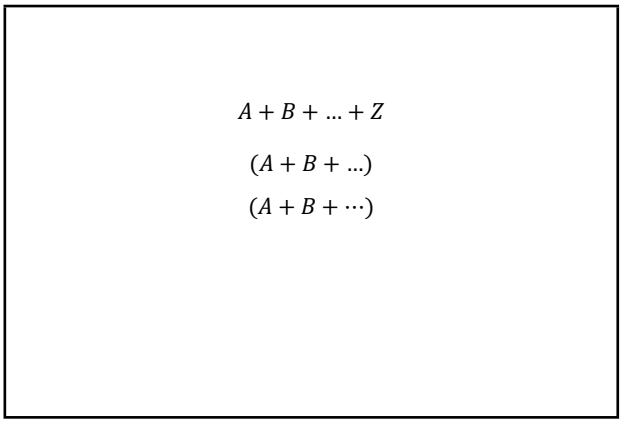
$$\iiint_V$$

$$\iiint_V$$

$$\iiint_V$$

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}
```



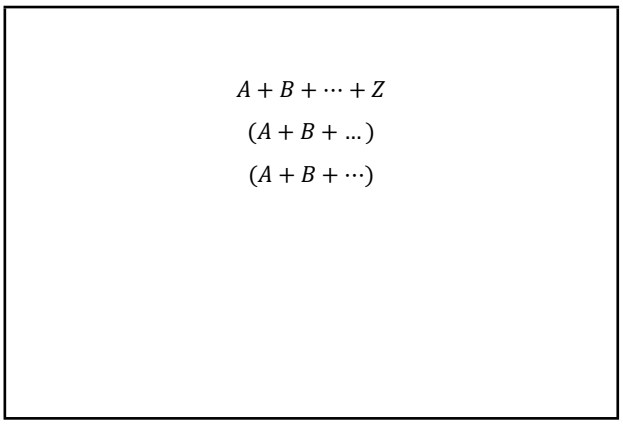
$$A+B+\dots+Z$$

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

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

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}
\[ a\percent b \% c \]
\[ a\mathdollar b \$ c \]
\[ a\ampersand b \& c \]
\[ a\octothorpe b \# c \]
\end{document}
```

$$a\%b\%c$$

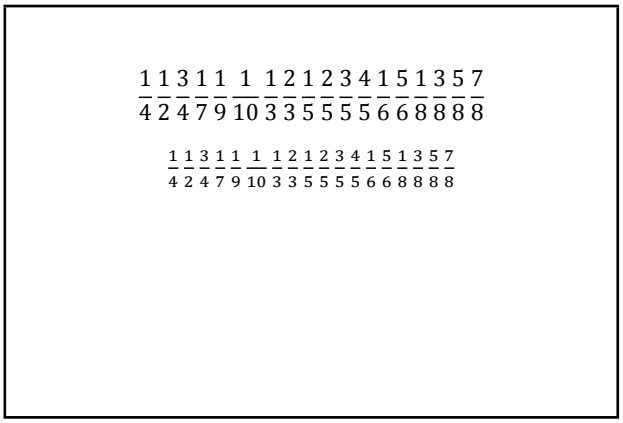
$$a\$b\$c$$

$$a\&b\&c$$

$$a\#b\#c$$

4.98 Test X207a

```
\input{umtest-preamble}
\usepackage{amsmath}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\unimathsetup{active-frac=normalsize}
\[ ¼ ½ ¾ ⅐ ⅑ ⅒ ⅓ ⅔ ⅕ ⅖ ⅗ ⅘ ⅙ ⅚ ⅛ ⅜ ⅝ ⅞ \]
\unimathsetup{active-frac=small}
\[ ¼ ½ ¾ ⅐ ⅑ ⅒ ⅓ ⅔ ⅕ ⅖ ⅗ ⅘ ⅙ ⅚ ⅛ ⅜ ⅝ ⅞ \]
\end{document}
```



4.99 Test X300a

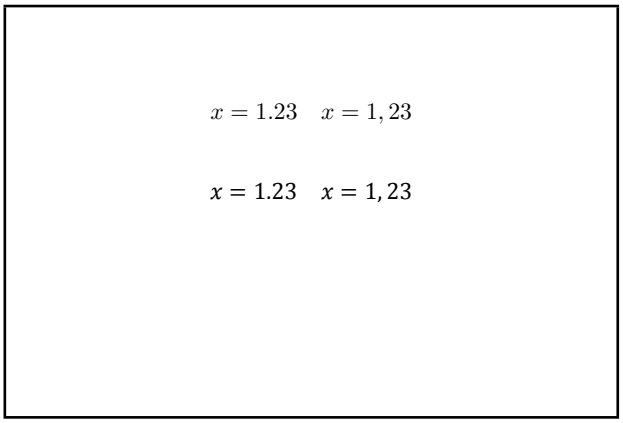
```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont[script-font     =      {Asana Math},
             script-features =      {ScriptStyle,Colour=FF0000},
             sscript-font    =      {Cambria Math},
             sscript-features=      {ScriptScriptStyle,Colour=0000FF}]
        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

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}
```

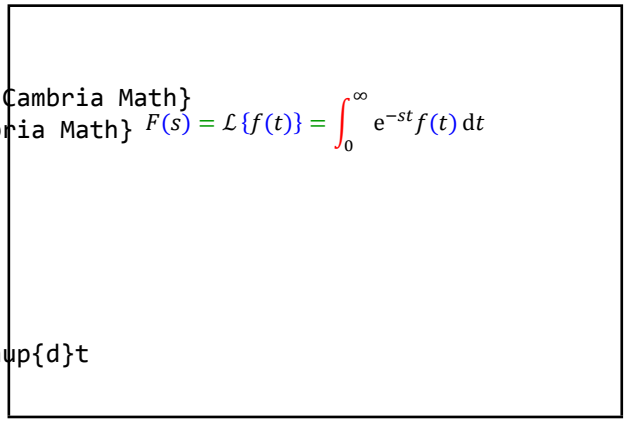
4.101 Test X401a

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

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

\setmathfont{Cambria Math}

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

\end{document}
```



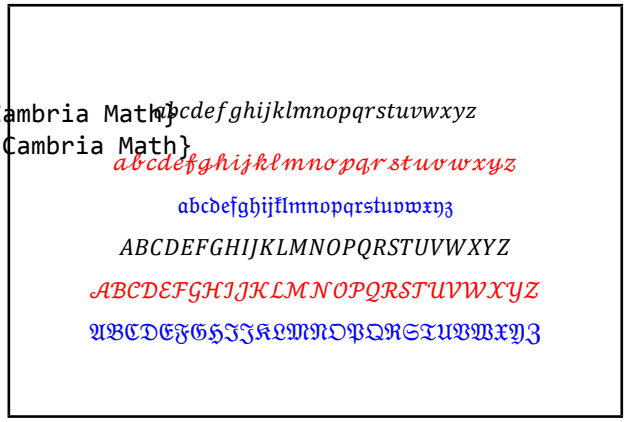
4.102 Test X500a

```
\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}
\[
  F(s)=\mathscr{L}\left\{f(t)\right\}=
    \int_0^\infty \mathup{e}^{-st}f(t)\,\mathup{d}t
\]
\end{document}
```



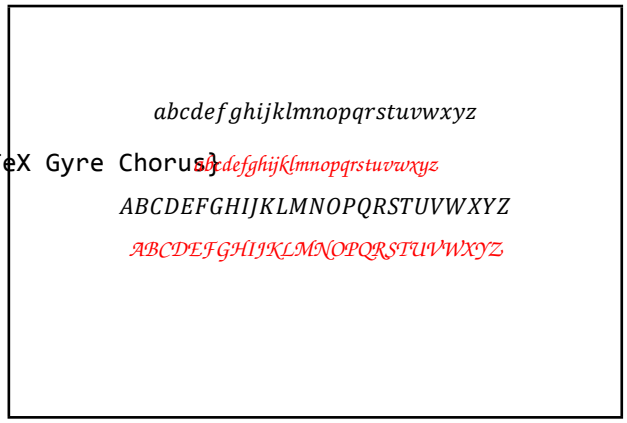
4.103 Test X501a

```
\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}
\[\latintext\]
\[\mathscr{\latintext}\]
\[\mathfrak{\latintext}\]
\[\LATINmath\]
\[\mathscr{\LATINmath}\]
\[\mathfrak{\LATINmath}\]
\end{document}
```



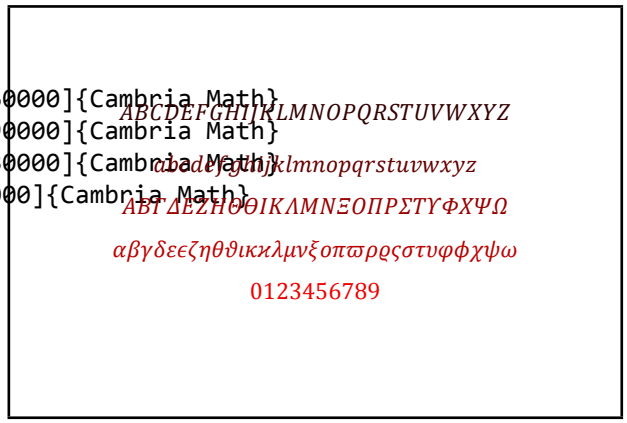
4.104 Test X501b

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



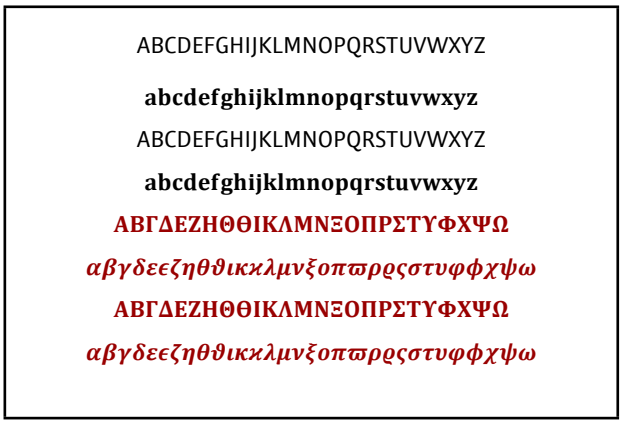
4.105 Test X501d

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



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



4.107 Test X502a

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{STIXGeneral}
\setmathfont
    [range={\mathit,\mathsfit,\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}
```

$$AAAA$$

$$\mathscr{A}\mathfrak{A}\mathbb{A}$$

$$\mathbf{A}\boldsymbol{A}\mathbf{A}\boldsymbol{A}$$

$$\boldsymbol{\mathscr{A}\mathfrak{A}}$$

4.108 Test X502b

```
\input{umtest-preamble}
\usepackage{unicode-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}
```

Default:

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

Example of a non-math OpenType font:

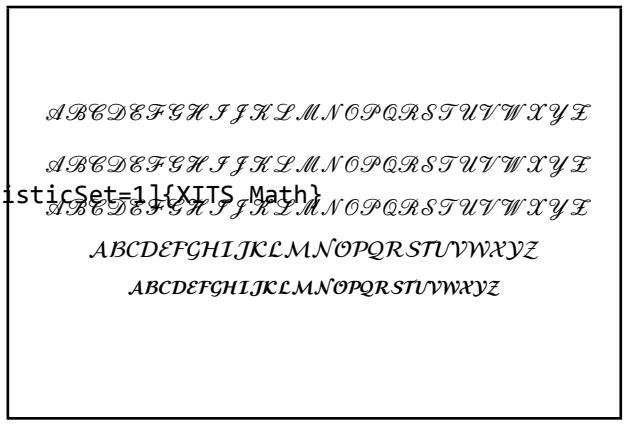
$$(a+b)^2 = \sqrt{c+d}$$

With symbols:

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

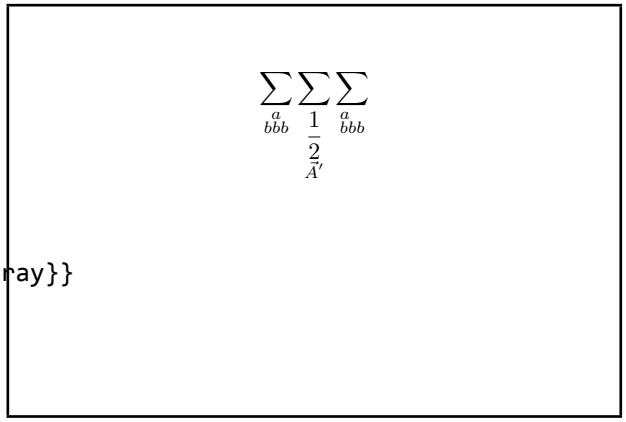
4.109 Test X503a

```
\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}
```



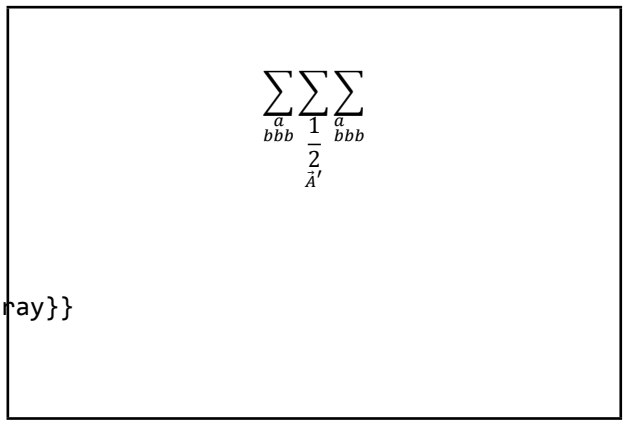
4.110 Test X600a

```
\input{umtest-preamble}
\usepackage{amsmath}
\begin{document}
\[
\sum_{\substack{a \\ bbb}}
\sum_{\substack{\dfrac12 \\ \vec A'}}
\sum_{\begin{subarray}{l} a \\ bbb \end{subarray}}
\]
\end{document}
```



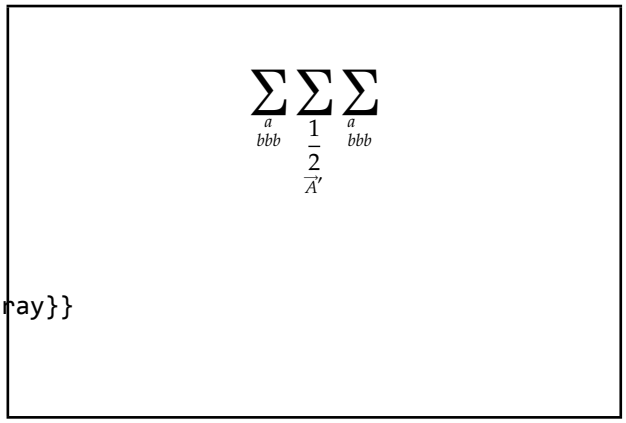
4.111 Test X600b

```
\input{umtest-preamble}
\usepackage{amsmath}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[
\sum_{\substack{a \\ bbb}}
\sum_{\substack{\dfrac12 \\ \vec A'}}
\sum_{\begin{subarray}{l} a \\ bbb \end{subarray}}
\]
\end{document}
```



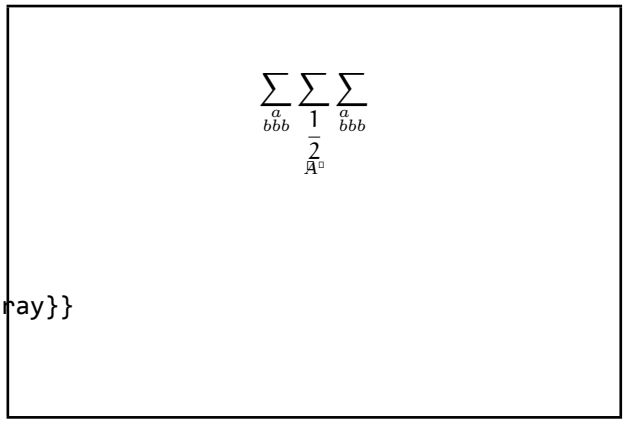
4.112 Test X600c

```
\input{umtest-preamble}
\usepackage{amsmath}
\usepackage{unicode-math}
\setmathfont{Asana Math}
\begin{document}
\[
\sum_{\substack{a \\ bbb}}
\sum_{\substack{\dfrac12 \\ \vec A'}}
\sum_{\begin{subarray}{l} a \\ bbb \end{subarray}}
\]
\end{document}
```



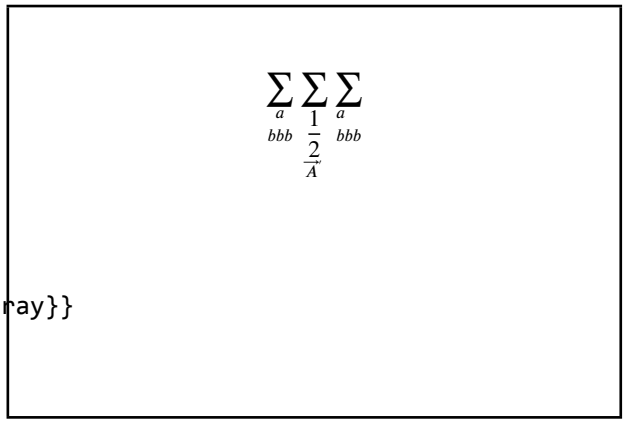
4.113 Test X600d

```
\input{umtest-preamble}
\usepackage{amsmath}
\usepackage{unicode-math}
\setmathfont{Neo Euler}
\begin{document}
\[
\sum_{\substack{a \\ bbb}}
\sum_{\substack{\dfrac12 \\ \vec A'}}
\sum_{\begin{subarray}{l} a \\ bbb \end{subarray}}
\]
\end{document}
```



4.114 Test X600f

```
\input{umtest-preamble}
\usepackage{amsmath}
\usepackage{unicode-math}
\setmathfont{XITS Math}
\begin{document}
\[
\sum_{\substack{a \\ bbb}}
\sum_{\substack{\dfrac12 \\ \vec A'}}
\sum_{\begin{subarray}{l} a \\ bbb \end{subarray}}
\]
\end{document}
```



4.115 Test X601a

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

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

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

4.116 Test X601b

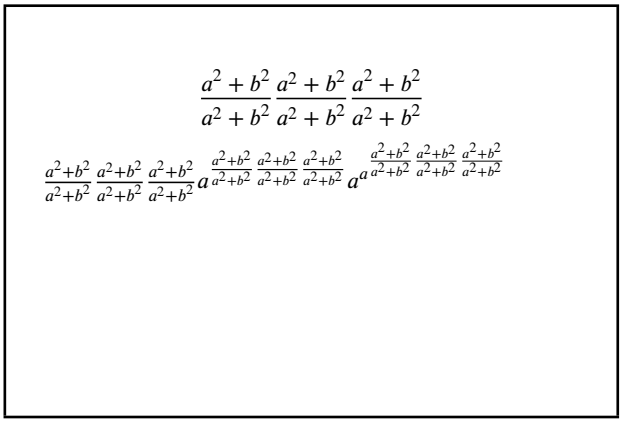
```
\input{umtest-preamble}
\usepackage{mathtools}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[
\frac{a^2 + b^2}{a^2 + b^2}
\frac{\cramped{a^2 + b^2}}{a^2 + b^2}
\frac{a^2 + b^2}{\cramped{a^2 + b^2}}
\]
\(
\frac{a^2 + b^2}{a^2 + b^2}
\frac{\cramped{a^2 + b^2}}{a^2 + b^2}
\frac{a^2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

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

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

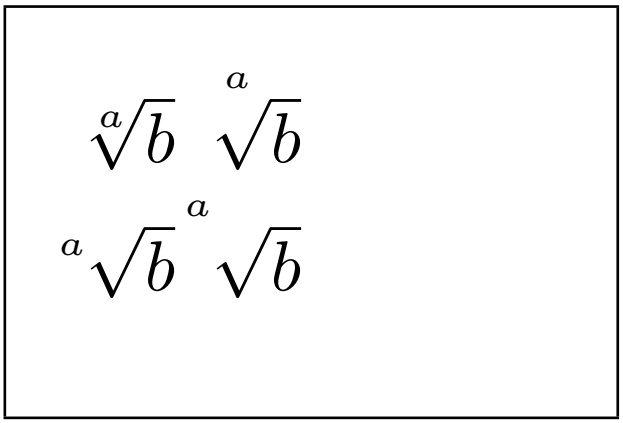
4.117 Test X601f

```
\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}
```



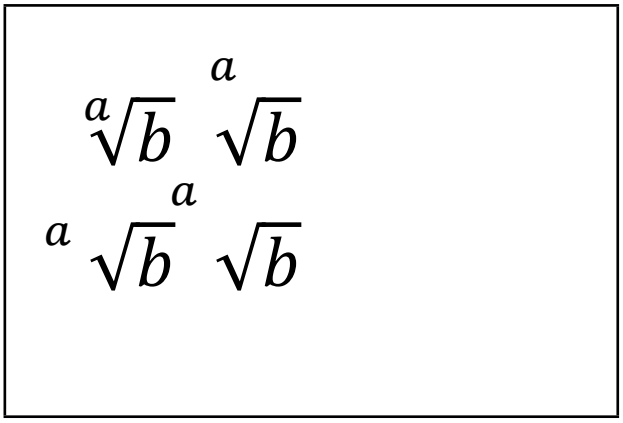
4.118 Test X604a

```
\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}
```



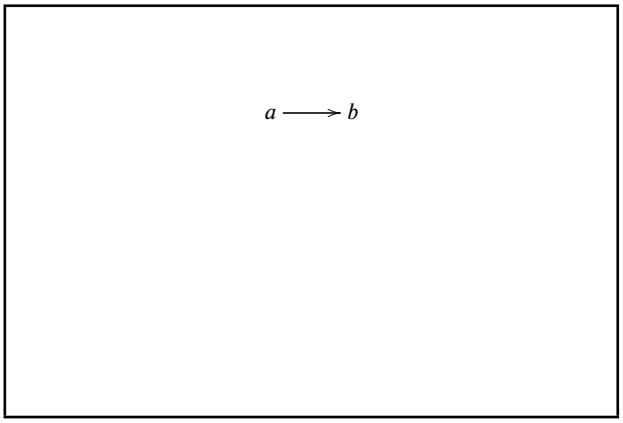
4.119 Test X604b

```
\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}
```



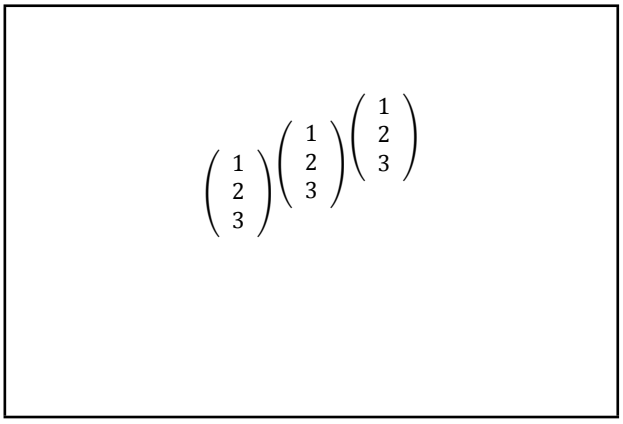
4.120 Test X610f

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



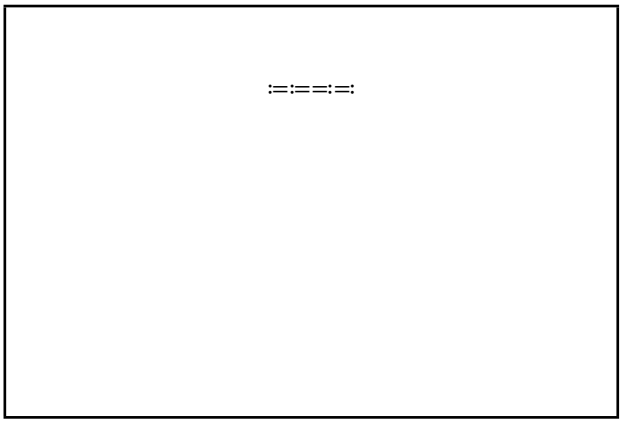
4.121 Test X620b

```
\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}
```



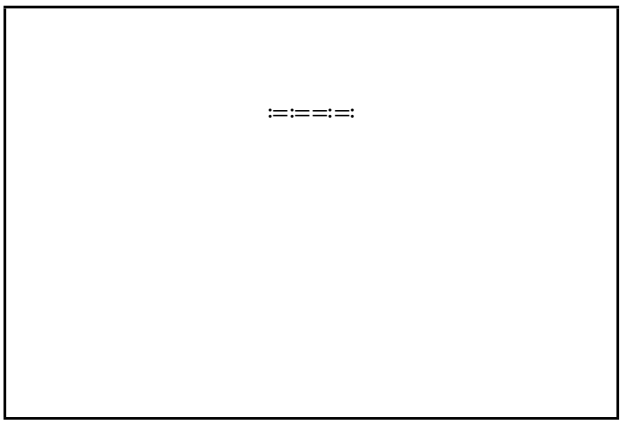
4.122 Test X650a

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



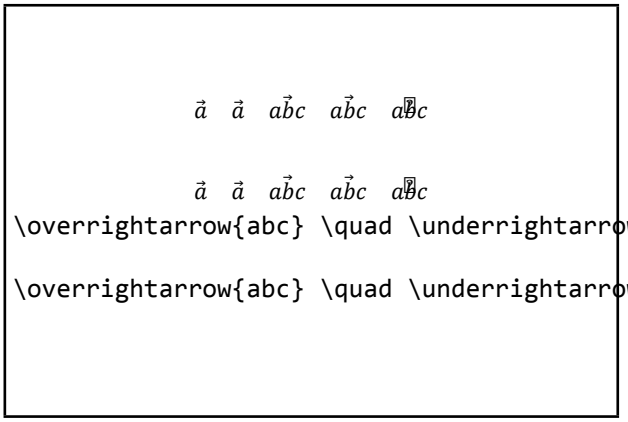
4.123 Test X650b

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



4.124 Test X700a

```
\input{umtest-preamble}
\usepackage{unicode-math}
\setmathfont{Cambria Math}
\begin{document}
\[ \vec a \quad \vec{a} \quad \vec{abc} \quad \overrightarrow{abc} \quad \underrightarrow{abc} \]
\unimathsetup{growing-accents}
\[ \vec a \quad \vec{a} \quad \vec{abc} \quad \overrightarrow{abc} \quad \underrightarrow{abc} \]
\end{document}
```



4.125 Test X700b

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