DLMF LaTeX Guide

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1 Introduction

We have chosen LaTeX (specifically LaTeX2e), along with a variety of LaTeX packages with customizations and extensions, as the primary format for accepting material because of its familiarity and its expressiveness, particularly for mathematics.

However, the need to generate from these sources both the printed book format and the online web version with MathML and enhanced interactivity, among other possible formats, poses very specific requirements of the TeX markup.

The complete package of DLMF style files, along with examples and other supplementary materials, is available for download (See Appendix A).

Please pay particular attention to the following important points:

Document Structure follow the requested document structure (See §2).

Semantics over Presentation stick to higher-level, standard LaTeX markup, emphasizing logical or semantic markup over low-level presentational markup. In particular, please do not get too obsessed with the printed page layout; we'll fix it.

Mathematical Markup use the higher-level mathematical markup, to preserve the 'meaning' (See §3).

Meta-data add as much meta-data as feasible to support enhanced use-cases (see §5).

For New Chapters Please see the provided chapter template as a good starting point.

For Updated Chapters We have an obligation to preserve the chapter, section and equation numbers associated with those objects within the DLMF. However, we have not yet agreed upon a long-term strategy for modifying and updating existing chapters while preserving those numbers, let alone a mechanism for enforcing it. Until we have developed that strategy, please follow these guidelines when modifying an existing chapter.

- Do not remove or reorder existing numbered material.
- When inserting new sections or subsections, please use `\section*` or `\subsection*`, so that they will not (yet) be numbered; we'll fix that later.
- When inserting new equations, use the number keyword such as:

  ```
  \begin{equation}[number=somenumber]
   \label{eq:XX.YY.ZZ}
  ```

  with whatever number you like; this will allow you to refer to the equation in the interim. The same approach should be used with the `equationmix` and `equationgroup` environments.
- Also, please resist 'beautifying' the existing TeX-markup, by rearranging or indenting (this makes using `diff` for comparisons more difficult).

2 Document Structure

Each chapter can be processed as a stand-alone LaTeX document, using the `DLMF` document class. The first line of your document should contain

```
\documentclass[options,...]{DLMF}
```

(the brackets can be omitted if no class options are used; see Table 1).

This document class is an extension of the `article` class, and includes various other standard LaTeX packages (See Appendix A).

2.1 Frontmatter

The Frontmatter commands for establishing author, title, etc. are listed in Table 2 (motivated by the RevTeX4 package). Multiple authors are specified by separate `\author` mark-up rather than combining them with

Table 1: DLMF Document class options.

`twocolumn` For two column printing (the default).

`onecolumn` For single column printing.

`annotated` For proofreading purposes; displays the main material in the left column and all meta information in the right column, roughly aligned with the material it corresponds to.

`print` Prepare the document in its print form, excluding electronic-only material.

`electronic` Prepare the document in its electronic form, excluding print-only material.

The default is to include both sets of material, print and electronic, with marginal markings along each block indicating the type. (see §2.4).

`noindex` omit the keyword index (see §5).

`nometa` omit the metadata listing (see §5).

Table 2: Frontmatter commands.

`\thischapter{`*chapcode*`}` Identifies the chapter. (see the Authors Guide, Appendix)

`\title{`*title*`}` Gives the chapter title.

`\author{`*author*`}` Gives a single author.

`\affiliation{`*text*`}` Gives author's affiliation.

`\acknowledgements{`*text*`}` Gives additional information.

`\galleryitem{`*name*`}{`*file*`}` Specifies a gallery item. The *name* provides a mechanism to link to a secondary web page describing the image and its relation to the subject. The *file* is the filename of an image (passed to `\includegraphics`).

`\and`. The additional mark-up for affiliation, etc., apply to the preceding author. Additionally, the macros `\email` and `\URL` (see §5), may be useful to provide additional contact information; these should be placed inside the affiliation or acknowledgements text, as appropriate.

The title page for each chapter is produced by `\maketitle`. It will include an automatically generated table of contents for the chapter. Additionally, a 'gallery' of eye-catching but relevant images related to the subject at hand may be supplied. [Each can have a brief separately supplied text describing the relevance of the image to the subject.] See the Airy chapter online, http://dlmf.nist.gov/9, for an example.

2.2 Sectioning Commands

Sections are marked up in usual LaTeX fashion, but note that we have appropriated `\part` to partition each chapter (rather than the book) into its major subdivisions. Common chapter structure includes parts for: 'Notation'; 'Properties'; 'Applications'; 'Computation' and 'References'. In longer or more complex chapters may include several parts instead of 'Properties', such as in Elementary Functions: 'Logarithm, Exponential, Powers'; 'Trigonometric Functions'; and 'Hyperbolic Functions'. See the chapter template for a guide. Each unit (section, equation and table) should have a `\label`; the following format, mimicking the numbering scheme, will make the labels easier to manage:

`\chapter`	`\label{ch:`*XX*`}`
`\part`	`\label{pt:`*XX.PT*`}`
`\section`	`\label{sec:`*XX.SC*`}`
`\subsection`	`\label{sec:`*XX.SC.SS*`}`
`\begin{equation}`	`\label{eq:`*XX.SC.EQ*`}`
`\begin{figure}`	`\label{fig:`*XX.SC.FG*`}`
`\begin{table}`	`\label{tab:`*XX.SC.TB*`}`

The codes table may be chosen freely, but should be short and unique within the containing unit.

2.3 Column Layout

The material may be formatted in either one or two column formats. We have adapted the `multicol` package to fulfill this need. Certain parts, such as frontmatter, title pages and so on, are arranged to work consistently in either form, and most material will also work in either form. However, occasional blocks of material may require special treatment when in two column mode, such as a particularly wide table, or a formula that can not be broken to fit into a narrow column (see comments in §3.2 below). In those cases, we provide an environment to process the contained material in one column mode, set off from adjacent material by horizontal rules:

```
\begin{onecolumn}
  ...
\end{onecolumn}
```

This environment has no effect if processing is already in one column mode. It should be used only at 'top-level', that is not contained within any other environment (other than `document`). It can contain a whole sectional unit if needed.

2.4 Electronic versus Print formats

Some material is intended only for electronic versions of the document (such as the Software section), or only for printed versions. Paragraph-level material is indicated by including it within one of the following environments:

```
\begin{printonly}
   Only appearing in print versions.
\end{printonly}
\begin{electroniconly}
   Only appearing in electronic versions.
\end{electroniconly}
```

Note that the `\begin` and `\end` commands for these environments must appear on a line by themselves, with no leading space. Avoid using these environments in situations where their inclusion or omission will alter the numbering of neighboring elements outside the environment.

For short phrases, the macros `\onlyprint{text}` and `\onlyelectronic{text}` may be used.

3 Mathematics Mark-up

The DLMF styles include certain AMS packages such as `amsmath` and `amsfonts`, and so the mathematical markup from these packages is available for use. However, please do not use the exotic formatting environments defined by the AMS packages; we have incorporated Michael Downes' `breqn` package which provides automatic line breaking for mathematical formulas. See §3.2 for discussion of the math environments.

In order to provide consistent presentation of mathematical formulas, and to reduce ambiguities in the mathematical meaning, several higher level macros are defined. These are listed in §3.3 and §3.4. Please use these macros when they convey the mathematical intent.

3.1 Bracketing

Unless conventions dictate use of braces or brackets, properly sized parentheses are to be used. (The commands `\left(`, `\right)`, `\left\{`, ... are used to get proper sizing.)

3.2 Displayed Equations

The `breqn` package for displaying mathematics automatically breaks and aligns formulas into multiple lines according to the column width. This eliminates confusing presentation mark-up for manually breaking the formula and allows the input to be more concise, semantic and readable. Line breaking and alignment hints can still be given, however, and in some cases may be needed.

In most cases, the standard LaTeX `equation` environment is all that is required. The following formula demonstrates the environment as well as the use of the `\constraint` command and other metadata (See §5) in formulas.

```
\begin{equation}\label{eq:AI.AS.A}
  \source{(1.07)}{Olver:1997:ASF}
  \AiryAi@{z} \asympexp
     \frac{\expe^{-\zeta}}{2\sqrt{\cpi}z^{1/4}}
     \sum_{k=0}^{\infty}
       \opminus^k\frac{u_k}{\zeta^k}
  \constraint{$|\phase@{z}|\leq\cpi-\delta$},
\end{equation}
```

produces

$$\mathrm{Ai}(z) \sim \frac{\mathrm{e}^{-\zeta}}{2\sqrt{\pi}z^{1/4}} \sum_{k=0}^{\infty}(-1)^k \frac{u_k}{\zeta^k}, \quad |\operatorname{ph}(z)| \leq \pi-\delta, \tag{9.7.5}$$

Groups of related equations can be grouped more tightly and aligned by wrapping an `equationgroup` environment around the set of equations.

```
\begin{equationgroup}
\begin{equation}\label{eq:AI.DE.A0}
  \source{(1.03)}{Olver:1997:ASF}%
  \AiryAi@{0}
     = \frac{1}{3^{2/3}
       \EulerGamma@{\tfrac{2}{3}}}
     = 0.35502\;80538\ldots
  \origref[with more digits]{10.4.4},
\end{equation}
\begin{equation}\label{eq:AI.DE.AP0}
  \source{(1.03)}{Olver:1997:ASF}%
  \AiryAi'@{0}
      = -\frac{1}{3^{1/3}
        \EulerGamma@{\tfrac{1}{3}}}
      = -0.25881\;94037\ldots
  \origref[with more digits]{10.4.5},
\end{equation}
\end{equationgroup}
```

produces

$$\mathrm{Ai}(0) = \frac{1}{3^{2/3}\,\Gamma\left(\frac{2}{3}\right)} = 0.35502\;80538\ldots, \tag{9.2.3}$$

$$\mathrm{Ai}'(0) = -\frac{1}{3^{1/3}\,\Gamma\left(\frac{1}{3}\right)} = -0.25881\;94037\ldots, \tag{9.2.4}$$

The `equationmix` environment is useful for a collection of short formulas (possibly interspersed with text) that only warrant a single label. Not only does this environment indicate that there are several formulas included, it changes the line breaking method so that breaks occur between formulas, rather than at relations or operators.

```
\begin{equationmix}\label{eq:AI.MP.MN}
  \authorproof{Combine
     \eqref{eq:AI.Def.8.9}
        --\eqref{eq:AI.Def.8.12}
       with \S\ref{sec:BS.MP.BP}}%
  \begin{math}
    \AirymodM^2@{x}\Airyphasetheta'@{x}
     = -\cpi^{-1}
  \end{math},
  \begin{math}
    \AirymodderivN^2@{x}
       \Airyphasederivphi'@{x}
     =\cpi^{-1}x
  \end{math},
 \begin{math}
    \AirymodderivN@{x}\AirymodderivN'@{x}
     = x \AirymodM@{x}\AirymodM'@{x}
  \end{math},
\end{equationmix}
```

produces

$$M^2(x)\,\theta'(x) = -\pi^{-1}\,, \quad N^2(x)\,\phi'(x) = \pi^{-1}x\,, \quad \textbf{9.8.14}$$
$$N(x)\,N'(x) = x\,M(x)\,M'(x)\,,$$

Unnumbered equations are obtained using the 'starred' versions of the above environments, e.g. `\begin{equation*} ...\end{equation*}`. Unnumbered equations should be used very sparingly, however.

Formatting Strategies The `breqn` package generally does a good job breaking formulas at relations or binary operators. One problematic case occurs in long implied products which `breqn` does not know where to break. Inserting a `\*` at reasonable places in the formula suggests a break point; if the formula ends up broken at that point the broken line will end with a $\times$ symbol to clearly indicate the multiplication.

Other strategies will be documented here when discovered.

3.3 Mathematical Constructs

The mathematical macros in this section are defined in AMS or DLMF style packages. The appearance produced by each of these macros may be changed, subject to consensus among the editors, but the macros should be used for their semantic intent.

Table 3: Other Basic Mathematics Markup.

Macro	*Example*	*Result*
`\frac`	`\frac{a}{b}`	$\frac{a}{b}$
`\tfrac`	`\tfrac{a}{b}`	$\tfrac{a}{b}$
`\ifrac`	`\ifrac{a}{b}`	a/b
`\cfrac`	`b_0+\cfrac{a_1}{b_1+\cfrac{a_2}{b_2+\cdots}}`	$b_0 + \frac{a_1}{b_1+}\,\frac{a_2}{b_2+}\,\cdots$
`\cfracstyle{d}`	`b_0+\cfrac{a_1}{b_1+\cfrac{a_2}{b_2+\cdots}}`	$b_0 + \cfrac{a_1}{b_1 + \cfrac{a_2}{b_2+\cdots}}$
`\midvert`	`\left(\frac{A}{B}\midvert \frac{Q}{R}\right)`	$\left(\frac{A}{B}\middle\vert \frac{Q}{R}\right)$
`\midVert`	`\left(\frac{A}{B}\midVert \frac{Q}{R}\right)`	$\left(\frac{A}{B}\middle\Vert \frac{Q}{R}\right)$
`\Sci`	`\Sci{1.234}{5}`	1.234×10^5

A variant of the scientific notation macro `\Sci` shown in Table 3 assists in aligning numbers in tables. The numbers are aligned on the decimal point. For this to work, you need to allocate *two* columns for the number, using the pattern `r@{}l`. For example,

```
\begin{tabular}{lr@{}l}
a & \TSci{1.234}{5}\\
b & \TSci{0.123}{-4}\\
\end{tabular}
```

$\Rightarrow$

a	$12.34{\times}10^5$
b	$0.123{\times}10^{-4}$

Table 4: Calculus: Derivatives and Differentials..

Macro	*Example*	*Result*
`\deriv`	`\deriv{f}{x}`	$\frac{\mathrm{d}f}{\mathrm{d}x}$
	`\deriv{}{x}`	$\frac{\mathrm{d}}{\mathrm{d}x}$
	`\deriv[n]{f}{x}`	$\frac{\mathrm{d}^n f}{\mathrm{d}x^n}$
`\tderiv`	`\tderiv[n]{f}{x}`	$\tfrac{\mathrm{d}^n f}{\mathrm{d}x^n}$
`\ideriv`	`\ideriv[n]{f}{x}`	$\mathrm{d}^n f/\mathrm{d}x^n$
`\pderiv`	`\pderiv[n]{f}{x}`	$\frac{\partial^n f}{\partial x^n}$
`\tpderiv`	`\tpderiv[n]{f}{x}`	$\tfrac{\partial^n f}{\partial x^n}$
`\ipderiv`	`\ipderiv[n]{f}{x}`	$\partial^n f/\partial x^n$
`\Deriv`	`\Deriv{z}`	D_z
	`\Deriv[n]{z}`	D_z^n
`\qDeriv`	`\qDeriv[n]{q}{z}`	$D_{q,z}^n$
`\diff`	`\diff{x}`	$\mathrm{d}x$
	`\diff[2]{x}`	d^2x
	`\int f \diff{x}`	$\int f\,\mathrm{d}x$
`\pdiff{x}`	`\pdiff[2]{x}`	$\partial^2 x$
`\qdiff`	`\qdiff[n]{q}{x}`	$\mathrm{d}_q^n x$
`\fDiff`	`\fDiff[z]`	Δ_z
`\bDiff`	`\bDiff[z]`	∇_z
`\cDiff`	`\cDiff[z]`	δ_z
`\Residue`	`\Residue_{z=a}\{f\}`	$\operatorname*{res}_{z=a}\{f\}$

For more complicated derivatives than those presented in Table 4, consider a form such as `\frac{\pdiff[3]{f}}{\pdiff{x}\pdiff{y}^2}`.

Table 5: Calculus: Integrals.

Macro	*Result*	*Macro*	*Result*
`\int`	$\int$	`\idotsint`	$\int\cdots\int$
`\iint`	$\iint$	`\pvint`	$⨍$
`\iiint`	$\iiint$	`\oint`	$\oint$
`\iiiint`	$\iiiint$		

Table 6: Linear Algebra and Sets.

Macro	*Example*	*Result*
`\Vector`	`\Vector{V}`	$\mathbf{V}$
`\Matrix`	`\Matrix{M}`	$\mathbf{M}$

3.4 Special Functions

The presentation used for special functions is often rather quirky, both hard to type, and hard to read (at least mechanically; by a parser attempting to recognize the semantics). To simplify typing manuscripts while achieving consistent formatting, and (hopefully) still having a chance of automatic conversion to XML, we have defined LaTeX macros for each of the special functions.

We make a distinction between 'naming' a function, and 'evaluating' it, as in

$$J_\nu \text{ vs. } J_\nu(x).$$

We make a corresponding (if slightly artificial) distinction between a special function's *parameters* (the various sub- and super-scripts and other decorations that help 'name' the function) and its *arguments* (the list of quantities, generally comma separated, that follow the function name). The macro's arguments are the special function's parameters (if any). When simply naming the function, one would write the macro name and the parameters, as in:

`\BesselJ{\nu}` $\rightarrow J_\nu$

When the arguments are also desired, they are introduced by following the name with `@` and then each of the arguments within braces `{}`, as in:

`\BesselJ{\nu}@{x}` $\rightarrow J_\nu(x)$

For a mnemonic, think of the function 'at' or 'applied to' a value.

A few other special cases are covered as well. We might consider the Legendre function P to have an optional parameter, as such:

`\assLegendreP{\nu}@{z}`	$\rightarrow$	$P_\nu(z)$
`\assLegendreP[\mu]{\nu}@{z}`	$\rightarrow$	$P_\nu^\mu(z)$

Often it is preferred to place primes or powers on the function before the argument list. The special function macros accommodate most sensible forms:

`\BesselJ{\nu}`	$\rightarrow$	J_ν
`\BesselJ{\nu}@{z}`	$\rightarrow$	$J_\nu(z)$
`\BesselJ{\nu}'@{z}`	$\rightarrow$	$J'_\nu(z)$
`\BesselJ{\nu}''@{z}`	$\rightarrow$	$J''_\nu(z)$
`\BesselJ{\nu}^2@{z}`	$\rightarrow$	$J^2_\nu(z)$
`\BesselJ{\nu}''^2@{z}`	$\rightarrow$	$J''^2_\nu(z)$
`\BesselJ{\nu}^2''@{z}`	$\rightarrow$	$\left(J^2_\nu\right)''(z)$
`\assLegendreP{\nu}'@{z}`	$\rightarrow$	$P'_\nu(z)$

Note: In the current implementation, functions that have superscripts as part of their base cannot use this feature (TeX will complain about double superscripts).

There are sometimes alternative ways of presenting the argument lists which are selected by using multiple `@` (think of the additional `@`'s as 'alternative'):

`\sin@{x}` $\rightarrow \sin(x)$

`\sin@@{x}` $\rightarrow \sin x$

`\genhyperF{p}{q}@{a_1,\ldots a_p}{b_1,\ldots b_q}{z}`
$\rightarrow {}_pF_q(a_1,\ldots a_p;b_1,\ldots b_q;z)$

`\genhyperF{p}{q}@@{a_1,\ldots a_p}{b_1,\ldots b_q}{z}`
$\rightarrow {}_pF_q\left({a_1,\ldots a_p \atop b_1,\ldots b_q};z\right)$

See Appendix C for a list of the predefined special function macros along with the formats of their argument lists, and alternate forms (Appendix D lists the functions in notational order). See also Appendix B for the rationale in naming macros, which may help to recognize and remember the names.

For any additional functions needed for a chapter, it would be helpful to define a macro for it, and to preserve this distinction between parameters and arguments. The following macro defines a special function:

`\defSpecFun[`*numparams*`]{`*format*`}{`*numargs*`}`

Or for a macro with a single optional parameter

`\defSpecFun[`*numparams*`][`*default*`]{`*format*`}{`*numargs*`}`

For example, the Legendre function `\LegendreP`, is defined (in simplified form) as

`\defSpecFun{LegendreP}[2][]{P^{#1}_{#2}}{1}`

(See the file `DLMFfcns.sty` for further examples). The number of parameters and arguments that the function takes are indicated by *numparams* and *numargs*, which must be non-negative integers. If the arguments should be presented other than the default of a parenthesized list, you should place the argument format in square brackets after `{numargs}`.

Of course, if an important function is missing from the predefined list, please submit it to us so that it may be included.

4 Figures and Tables

The `multicols` package, which gives us flexibility with respect to columns, unfortunately cannot handle floats (figures and tables) in the usual manner. Thus figures and tables need to dealt with in one of the following manners:

`\begin{figure}[H]` places the figure manually, exactly where the markup appears.

`\begin{figure*}` creates a 2-column wide figure which can still float to the top or bottom of the page.

The `graphicx` package is included in the DLMF class, so you may use the following macro to include an image:

```
\begin{figure}
  \centering
  \includegraphics[width=3.0in]{picture}
  \caption{A picture.\label{fig:AI.GR.PIC}}
\end{figure}
```

Providing the image file is of a common type (`eps`, `pdf`, ...), you will not need to explicitly give the filename extension; this allows the driver to choose the most appropriate image file for processing. See Goossens et al. [1997] for more information on its capabilities.

5 Metadata

The macros in the following list are used to provide metadata about sections, subsections, equations, figures and tables. Most produce no directly visible output, but are vital for indexing, searching and 'about pages', and should be used generously. See §10 of the Authors Guide for further information, and the metadata index of the sample chapter for suggestions. The metadata markup should, like `\label`, be placed inside the body of the section, within the equation environment, or within the caption of tables or figures. Since the metadata is associated with the entity's ID, the `\label` command should always precede the metadata.

`\index{`*keyword*`!...}` attaches a (possibly multi-level) indexing keyword at this point; multiple levels are separated by exclamation marks. See [Lamport, 1985, App. A] for more details.

`\index*{`*keyword*`!...}` defines indexing keywords for use online only; these will not be included in the printed index.

`\note{`*text*`}` adds general annotation (can include citations).

`\origref[`*comment*`]{`*label*`}` Records the NBS Handbook reference number, with optional comment.

`\proved[`*comment*`]{`*page/eqnum*`}{`*bibkey*`}` The formula is proved in the given citation.

`\source[`*comment*`]{`*page/eqnum*`}{`*bibkey*`}` The formula is found (but not necessarily proved) in the given citation.

`\authorproof{`*text*`}` The formula can be derived/proved by the method described.

`\methodology[`*comment*`]{`*page/eqnum*`}{`*bibkey*`}` The formula can be derived/proved by the methods found in the given citation.

`\constraint{`*text*`}` Notes a constraint, condition or other restriction on the validity of a formula. Normally, this constraint is printed at the end of the formula, flush right (See §3.2). This should be used inside `equation` and `equationmix` environments, after the last formula, but before the last punctuation (if any) and the `\end{equation}`.

`\constraint*{`*text*`}` Like `\constraint`, but does not display the constraint.

Particularly for equations, at least one of `\proved`, `\source`, or `\authorproof` should be given, in order of preference (`\methodology` should be avoided in new material).

Another useful macro is `\URL{`*url*`}`, which prints a URL that, in electronic media, acts as a hyperlink to the URL. This macro also takes an optional argument which provides text to use as the printed representation of the URL (instead of printing the URL itself). Similarly, the macro `\email{user@host.net}` can be used to provide an email address.

By default, an index and metadata table are appended to the end of the document, but these can be disabled with the `noindex` and `nometa` document class options.

6 Bibliographic Information

6.1 General

Bibliographies should be provided in BibTEX format, containing complete information and avoiding abbreviations. It is convenient to use the American Mathematical Society's free `mrlookup` service to generate BibTEX files; see http://www.ams.org/mrlookup. See [Lamport, 1985, App. B] and Goossens et al. [1994] for more information on BibTEX.

Citation tags, like label ID's, are internal LATEX identifiers. We adopt the scheme used by the BibNet project[1] in which the tag is of the form

```
FirstAuthorLastName:year:key-phrase
```

For example, the bibliographic tag `Abramowitz:1964:HMF` is used for the original NBS Handbook. The `key-phrase` is up to 3 upper case initial letters from the first words in the title, ignoring articles and prepositions. Spaces within an author's last name should be omitted (e.g. `deBoor`), but hyphens should be retained; an acronym (e.g. for an institutional 'author') should be given in upper case. In the rare case where more than one citation has the same key, clashes are resolved by appending a lower case letter, in sequence, to the conflicting tags.

Each chapter will have a References part. Unnumbered sections (using `\section*`) can be placed here. The Airy chapter, for example, contains a brief introductory paragraph along the lines of "The main references are ..." in a section "General References". It also has a section "Sources" containing an itemization (using the `description` environment) of the references used in each section of the body of the chapter (This information duplicates the `\note` metadata given in the individual sections, but will be useful for the print version).

Finally, the references themselves are included by using the `\bibliography` command.

6.2 Citation Macros

The DLMF class incorporates a style (`natbib`) that cites references by giving the author and year. See Table 7 for examples. As a general rule, all `natbib` citation macros take two optional arguments: a single optional argument provides 'post' text, whereas two provide both 'pre' and 'post' text. Additionally, the starred form of the macros inhibits abbreviation of multiple authors. The simpler forms (`\cite`, `\citet` or `\citep`) are generally to be preferred.

7 Acknowledgments

Thanks to Howard Cohl, Daniel Lozier, Barry Schneider, Charles Clark, Bonita Saunders and the DLMF team, generally, for much advice, suggestions and proofreading. Thanks also to the DLMF Associate Editors for advice in naming conventions for the special functions.

References

Michel Goossens, Frank Mittelbach, and Alexander Samarin. *The LATEX Companion*. Addison-Wesley, 1994. ISBN 1-201-54199-8.

Michel Goossens, Sebastian Rahtz, and Frank Mittelbach. *The LATEX Graphics Companion*. Addison-Wesley, 1997. ISBN 1-201-85469-4.

Leslie Lamport. *LATEX A Document Preparation System*. Addison-Wesley, 2nd edition, 1985. ISBN 1-201-52983-1.

A Installing and Using the DLMF style files

You will be supplied with a zip file, which, when unzipped, will yield a directory `dlmf-author` containing

- a set of style files (in subdirectory `texmf/`),
- bibliography (in `bib/DLMF.bib`)
- an executable which may be convenient for processing (in `bin/DLMFtex`), and

[1] ftp://ftp.math.utah.edu/pub/bibnet/faq.html

- subdirectory(s) for any chapter(s) you have been assigned. These are the TEX source for existing chapters, or a template for new ones.

Processing the LATEX files using `DLMFtex` If you are using a command-line version of TEX, the included script `DLMFtex` should be the most convenient way to process files, as it takes care of running `BibTeX`, `makeindex`, etc., and re-processes when needed. For example, to work with chapter *XX*:

```
cd dlmf-author/XX
emacs XX.tex
../bin/DLMFtex XX
view XX.pdf
repeat as needed
```

Of course, use the editor and pdf viewer of your choice. To produce an annotated version to proofread the metadata annotations, use

```
../bin/DLMFtex --annotated XX
```

Processing the LATEX files using other means If `DLMFtex` doesn't work out for some reason, or you have some other system, such as a graphical interface to TEX, you'll have to tell your system where to find things, and what to do.

LATEX style files are in `dlmf-author/texmf`; this typically would be added to the environment variable `TEXINPUTS` using a command like

```
export TEXINPUTS=.:~/dlmf-author/texmf::
```

`makeindex` **styles** are also in `dlmf-author/texmf` (corresponds to `INDEXSTYLE`).

BibTEX styles are also in `dlmf-author/texmf` (corresponds to `BSTINPUTS`).

bibliography is in `dlmf-author/bib/` (corresponds to `BIBINPUTS`).

The usual conventions for processing LATEX documents apply, in that LATEX is followed by `makeindex` and then BibTEX. The commands to process chapter *XX* manually would be

```
pdflatex XX
makeindex -s DLMFnot -o XX.not -t XX.ntl XX.ntx
makeindex -s DLMF -o XX.ind -t XX.ilg XX.idx
bibtex XX
repeat as needed
```

Perhaps your TEX system supports a project description that can simplify this process.

Table 7: Citation markup.

Basic citations	
`\cite{Goossens:1994:LC}`	Goossens et al. [1994]
`\cite[ch. 13]{Goossens:1994:LC}`	[Goossens et al., 1994, ch. 13]
`\cite[See][ch. 13]{Goossens:1994:LC}`	
	[See Goossens et al., 1994, ch. 13]
`\cite*{Goossens:1994:LC}`	Goossens, Mittelbach, and Samarin [1994]
`\cite{Lamport:1985:LDP,Goossens:1994:LC}`	
	Lamport [1985], Goossens et al. [1994]
Textual and parenthetic citations	
`\citet{Goossens:1994:LC}`	Goossens et al. [1994]
`\citep{Goossens:1994:LC}`	[Goossens et al., 1994]
Partial citation forms	
`\citeauthor{Goossens:1994:LC}`	Goossens et al.
`\citeauthor*{Goossens:1994:LC}`	Goossens, Mittelbach, and Samarin
`\citeyear{Goossens:1994:LC}`	1994
`\citeyearpar{Goossens:1994:LC}`	[1994]

B Macro naming conventions

Briefly, the names of the various mathematical function macros are derived from the descriptive 'Proper Name' of the function according to:

$$macro \equiv \backslash prefix^{*}\ name\ coreclass^{?}\ symbol^{?} suffix^{*}$$
$$class \equiv prefix^{*}\ coreclass$$

The *name* is the 'conventional' name or based on the "inventor's" name. The *class* indicates function (generally omitted), integrals, polynomials, and so on. The *symbol* is the latinized form of the notation, upper or lower case as appropriate. The *prefix* modifier includes *all* significant characteristics that may distinguish functions (eg. 'modified Bessel' vs. simply 'Bessel'). The *suffix* generally indicates limitations or special cases regarding arguments. The *prefix*, *class* and *suffix* are abbreviated for brevity, given in Table 10. For predicability, we avoid abbreviating people's names.

Table 8: Function classes for macros

coreclass	*Meaning*
	function (omitted)
char	characteristic
eigval	eigenvalues
eigvec	eigenvectors
int	integral
mod	modulus
number	number
phase	phase (or phase shift)
poly	polynomial
sum	sum
sym	symbol
trans	transform
wave	wavefunction

Table 9: Suffix abbreviations

suffix	*Meaning*
imag	imaginary arg or order
k	elliptic functions of k, modulus
m	elliptic functions of $m = k^2$
mat	matrix argument
real	real arg or order
invar	on invariants (Weierstrass)
latt	on lattice (Weierstrass)
q	functions of q, nome
tau	functions of τ

Table 10: Abbreviations for macro *prefix*'s

prefix	*Meaning*
a	arc, inverse (circular functions)
A	arc, multi-valued-inverse
aff	affine
ass	associated
aux	auxilliary
big	big
canon	canonical
comp	complete
ccomp	complete complementary
cont	continuous
cusp	cuspoid
deriv	derivative(s) of
diff	differential
diffr	diffraction
dil	dilated
disc	discrete
div	dividing
dual	dual
ell	elliptic
env	envelope of
exp	exponential
gen	general | generalized
hyper	hyperbolic | hypergeometric
inc	incomplete
inv	inverse
irreg	irregular
little	little
log	logarithm(ic)
mod	modified (or modular?)
multivar	multivariate
n	number of
norm	normalized or normalization
para	parabolic
per	periodic
q	q-variant of
rad	radial
reg	regular
rest	restricted
sc	scaled
shift	shifted
sph	spherical | spheroidal
sym	symmetric
umb	umbilic
usph	ultraspherical
z	zeros (of)

C Macros sorted by macro name

TEX markup	*Expansion*	*Declared*	*Proper Name*
A			
`\abs{x}`	$\lvert x\rvert$	?	the absolute value of x
`\Acos`	Arccos	(4.23.2)	the multivalued inverse of the cosine function
`\Acos@{z}`	$\mathrm{Arccos}(z)$		
`\Acos@@{z}`	$\mathrm{Arccos}\, z$		
`\acos`	$\arccos$	§4.23(ii)	the inverse of the cosine function
`\acos@{z}`	$\arccos(z)$		
`\acos@@{z}`	$\arccos z$		
`\Acosh`	$\mathrm{Arccosh}$	(4.37.2)	the multivalued inverse of the hyperbolic cosine function
`\Acosh@{z}`	$\mathrm{Arccosh}(z)$		
`\Acosh@@{z}`	$\mathrm{Arccosh}\, z$		
`\acosh`	$\mathrm{arccosh}$	§4.37(ii)	the inverse of the hyperbolic cosine function
`\acosh@{z}`	$\mathrm{arccosh}(z)$		
`\acosh@@{z}`	$\mathrm{arccosh}\, z$		
`\Acot`	Arccot	(4.23.6)	the multivalued inverse of the cotangent function
`\Acot@{z}`	$\mathrm{Arccot}(z)$		
`\Acot@@{z}`	$\mathrm{Arccot}\, z$		
`\acot`	arccot	(4.23.9)	the inverse of the cotangent function
`\acot@{z}`	$\mathrm{arccot}(z)$		
`\acot@@{z}`	$\mathrm{arccot}\, z$		
`\Acoth`	$\mathrm{Arccoth}$	(4.37.6)	the multivalued inverse of the hyperbolic cotangent function
`\Acoth@{z}`	$\mathrm{Arccoth}(z)$		
`\Acoth@@{z}`	$\mathrm{Arccoth}\, z$		
`\acoth`	$\mathrm{arccoth}$	(4.37.9)	the inverse of the hyperbolic cotangent function
`\acoth@{z}`	$\mathrm{arccoth}(z)$		
`\acoth@@{z}`	$\mathrm{arccoth}\, z$		
`\Acsc`	Arccsc	(4.23.4)	the multivalued inverse of the cosecant function
`\Acsc@{z}`	$\mathrm{Arccsc}(z)$		
`\Acsc@@{z}`	$\mathrm{Arccsc}\, z$		
`\acsc`	arccsc	(4.23.7)	the inverse of the cosecant function
`\acsc@{z}`	$\mathrm{arccsc}(z)$		
`\acsc@@{z}`	$\mathrm{arccsc}\, z$		
`\Acsch`	$\mathrm{Arccsch}$	(4.37.4)	the multivalued inverse of the hyperbolic cosecant function
`\Acsch@{z}`	$\mathrm{Arccsch}(z)$		
`\Acsch@@{z}`	$\mathrm{Arccsch}\, z$		
`\acsch`	$\mathrm{arccsch}$	(4.37.7)	the inverse of the hyperbolic cosecant function
`\acsch@{z}`	$\mathrm{arccsch}(z)$		
`\acsch@@{z}`	$\mathrm{arccsch}\, z$		
`\agenJacobiellk{p}{q}`	arcpq	?	the inverse of the generic Jacobian elliptic function pq (of modulus k)
`\agenJacobiellk{p}{q}@{x}{k}`	$\mathrm{arcpq}\left(x,k\right)$		
`\agenJacobiellk{p}{q}@@{x}{k}`	$\mathrm{arcpq}\, x$		
`\AGM`	M	§19.8(i)	arithmetic-geometric mean
`\AGM@{a}{g}`	$M(a,g)$		
`\aGudermannian`	gd^{-1}	(4.23.41)	the inverse of the Gudermannian function
`\aGudermannian@{z}`	$\mathrm{gd}^{-1}(z)$		
`\aGudermannian@@{z}`	$\mathrm{gd}^{-1}\, z$		

continued on next page

TEX markup	Expansion	Declared	Proper Name
`\AiryAi` `\AiryAi@{z}`	Ai $\mathrm{Ai}(z)$	§9.2(i)	the Airy function Ai
`\AiryBi` `\AiryBi@{z}`	Bi $\mathrm{Bi}(z)$	§9.2(i)	the Airy function Bi
`\AirymodderivN` `\AirymodderivN@{z}`	N $N(z)$	(9.8.7)	the modulus of derivatives of Airy functions
`\AirymodM` `\AirymodM@{z}`	M $M(z)$	(9.8.3)	the modulus of Airy functions
`\Airyphasederivphi` `\Airyphasederivphi@{z}`	ϕ $\phi(z)$	(9.8.8)	the phase of derivatives of Airy functions
`\Airyphasetheta` `\Airyphasetheta@{z}`	θ $\theta(z)$	(9.8.4)	the phase of Airy functions
`\aJacobiellcdk` `\aJacobiellcdk@{x}{k}`	arccd $\mathrm{arccd}(x,k)$	§22.15(i)	the inverse of the Jacobian elliptic function cd (of modulus k)
`\aJacobiellcnk` `\aJacobiellcnk@{x}{k}`	arccn $\mathrm{arccn}(x,k)$	§22.15(i)	the inverse of the Jacobian elliptic function cn (of modulus k)
`\aJacobiellcsk` `\aJacobiellcsk@{x}{k}`	arccs $\mathrm{arccs}(x,k)$	§22.15(i)	the inverse of the Jacobian elliptic function cs (of modulus k)
`\aJacobielldck` `\aJacobielldck@{x}{k}`	arcdc $\mathrm{arcdc}(x,k)$	§22.15(i)	the inverse of the Jacobian elliptic function dc (of modulus k)
`\aJacobielldnk` `\aJacobielldnk@{x}{k}`	arcdn $\mathrm{arcdn}(x,k)$	§22.15(i)	the inverse of the Jacobian elliptic function dn (of modulus k)
`\aJacobielldsk` `\aJacobielldsk@{x}{k}`	arcds $\mathrm{arcds}(x,k)$	§22.15(i)	the inverse of the Jacobian elliptic function ds (of modulus k)
`\aJacobiellnck` `\aJacobiellnck@{x}{k}`	arcnc $\mathrm{arcnc}(x,k)$	§22.15(i)	the inverse of the Jacobian elliptic function nc (of modulus k)
`\aJacobiellndk` `\aJacobiellndk@{x}{k}`	arcnd $\mathrm{arcnd}(x,k)$	§22.15(i)	the inverse of the Jacobian elliptic function nd (of modulus k)
`\aJacobiellnsk` `\aJacobiellnsk@{x}{k}`	arcns $\mathrm{arcns}(x,k)$	§22.15(i)	the inverse of the Jacobian elliptic function ns (of modulus k)
`\aJacobiellsck` `\aJacobiellsck@{x}{k}`	arcsc $\mathrm{arcsc}(x,k)$	§22.15(i)	the inverse of the Jacobian elliptic function sc (of modulus k)
`\aJacobiellsdk` `\aJacobiellsdk@{x}{k}`	arcsd $\mathrm{arcsd}(x,k)$	§22.15(i)	the inverse of the Jacobian elliptic function ds (of modulus k)
`\aJacobiellsnk` `\aJacobiellsnk@{x}{k}`	arcsn $\mathrm{arcsn}(x,k)$	§22.15(i)	the inverse of the Jacobian elliptic function sn (of modulus k)
`\AlSalamChiharapolyQ{n}` `\AlSalamChiharapolyQ{n}@{x}{a}{b}{q}`	Q_n $Q_n(x;a,b\,\vert\,q)$	(18.28.7)	the Al-Salam–Chihara polynomial
`\AngerJ{\nu}`	$\mathbf{J}_\nu$	(11.10.1)	the Anger function

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TEX markup	*Expansion*	*Declared*	*Proper Name*
`\AngerJ{\nu}@{z}`	$\mathbf{J}_{\nu}(z)$		
`\AngerWeberA{\nu}` `\AngerWeberA{\nu}@{z}`	$\mathbf{A}_{\nu}$ $\mathbf{A}_{\nu}(z)$	(11.10.4)	the Anger–Weber function
`\AppellF{1}` `\AppellF{1}@{\alpha}{\beta}{\beta'}{\gamma}{x}{y}`	F_1 $F_1(\alpha;\beta,\beta';\gamma;x,y)$	(16.13.1)	the first Appell function
`\AppellF{2}` `\AppellF{2}@{\alpha}{\beta}{\beta'}{\gamma}{\gamma'}{x}{y}`	F_2 $F_2(\alpha;\beta,\beta';\gamma,\gamma';x,y)$	(16.13.2)	the second Appell function
`\AppellF{3}` `\AppellF{3}@{\alpha}{\alpha'}{\beta}{\beta'}{\gamma}{x}{y}`	F_3 $F_3(\alpha,\alpha';\beta,\beta';\gamma;x,y)$	(16.13.3)	the third Appell function
`\AppellF{4}` `\AppellF{4}@{\alpha}{\beta}{\gamma}{\gamma'}{x}{y}`	F_4 $F_4(\alpha,\beta;\gamma,\gamma';x,y)$	(16.13.4)	the fourth Appell function

`\Asec`
`\Asec@{z}`
`\Asec@@{z}`
	Arcsec
	$\mathrm{Arcsec}(z)$
	$\mathrm{Arcsec}\,z$
		(4.23.5)	the multivalued inverse of the secant function

`\asec`
`\asec@{z}`
`\asec@@{z}`
	arcsec
	$\mathrm{arcsec}(z)$
	$\mathrm{arcsec}\,z$
		(4.23.8)	the inverse of the secant function

`\Asech`
`\Asech@{z}`
`\Asech@@{z}`
	Arcsech
	$\mathrm{Arcsech}(z)$
	$\mathrm{Arcsech}\,z$
		(4.37.5)	the multivalued inverse of the hyperbolic secant function

`\asech`
`\asech@{z}`
`\asech@@{z}`
	arcsech
	$\mathrm{arcsech}(z)$
	$\mathrm{arcsech}\,z$
		(4.37.8)	the inverse of the hyperbolic secant function

`\Asin`
`\Asin@{z}`
`\Asin@@{z}`
	Arcsin
	$\mathrm{Arcsin}(z)$
	$\mathrm{Arcsin}\,z$
		(4.23.1)	the multivalued inverse of the sine function

`\asin`
`\asin@{z}`
`\asin@@{z}`
	arcsin
	$\arcsin(z)$
	$\arcsin z$
		§4.23(ii)	the inverse of the sine function

`\Asinh`
`\Asinh@{z}`
`\Asinh@@{z}`
	Arcsinh
	$\mathrm{Arcsinh}(z)$
	$\mathrm{Arcsinh}\,z$
		(4.37.1)	the multivalued inverse of the hyperbolic sine function

`\asinh`
`\asinh@{z}`
`\asinh@@{z}`
	arcsinh
	$\mathrm{arcsinh}(z)$
	$\mathrm{arcsinh}\,z$
		§4.37(ii)	the inverse of the hyperbolic sine function

`\AskeyWilsonpolyp{n}` `\AskeyWilsonpolyp{n}@{x}{a}{b}{c}{d}{q}`	p_n $p_n(x;a,b,c,d\,\vert\,q)$	(18.28.1)	the Askey–Wilson polynomial
`\assJacobipolyP{\alpha}{\beta}{n}` `\assJacobipolyP{\alpha}{\beta}{n}@{x}{c}`	$P^{(\alpha,\beta)}_{n}$	(18.30.4)	the associated Jacobi polynomial

continued on next page

TEX markup	Expansion	Declared	Proper Name
	$P^{(\alpha,\beta)}_{n}(x;c)$		
\assLegendreOlverQ{\nu}	$\boldsymbol{Q}_{\nu}$	§14.2(ii)	$=\boldsymbol{Q}^{0}_{\nu}$, shorthand for Olver's associated Legendre function
\assLegendreOlverQ{\nu}@{z}	$\boldsymbol{Q}_{\nu}(z)$		
\assLegendreOlverQ[\mu]{\nu}	$\boldsymbol{Q}^{\mu}_{\nu}$	§14.21(i)	Olver's associated Legendre function
\assLegendreOlverQ[\mu]{\nu}@{z}	$\boldsymbol{Q}^{\mu}_{\nu}(z)$		
\assLegendreP{\nu}	P_{ν}	§14.2(ii)	$=P^{0}_{\nu}$, shorthand for the associated Legendre function of the first kind
\assLegendreP{\nu}@{z}	$P_{\nu}(z)$		
\assLegendreP[\mu]{\nu}	P^{μ}_{ν}	§14.21(i)	the associated Legendre function of the first kind
\assLegendreP[\mu]{\nu}@{z}	$P^{\mu}_{\nu}(z)$		
\assLegendrepoly{n}	P_{n}	(18.30.6)	the associated Legendre polynomial
\assLegendrepoly{n}@{x}{c}	$P_{n}(x;c)$		
\assLegendreQ{\nu}	Q_{ν}	§14.2(ii)	$=Q^{0}_{\nu}$, shorthand for the associated Legendre function of the second kind
\assLegendreQ{\nu}@{z}	$Q_{\nu}(z)$		
\assLegendreQ[\mu]{\nu}	Q^{μ}_{ν}	§14.21(i)	the associated Legendre function of the second kind
\assLegendreQ[\mu]{\nu}@{z}	$Q^{\mu}_{\nu}(z)$		
\asympeq	$\sim$	(2.1.1)	asymptotically equal
\asympexp	$\sim$	§2.1(iii)	asymptotic expansion (the right-hand side is the asymptotic expansion of the left-hand side)
\Atan	Arctan	(4.23.3)	the multivalued inverse of the tangent function
\Atan@{z}	$\mathrm{Arctan}(z)$		
\Atan@@{z}	$\mathrm{Arctan}\, z$		
\atan	arctan	§4.23(ii)	the inverse of the tangent function
\atan@{z}	$\arctan(z)$		
\atan@@{z}	$\arctan z$		
\Atanh	Arctanh	(4.37.3)	the multivalued inverse of the hyperbolic tangent function
\Atanh@{z}	$\mathrm{Arctanh}(z)$		
\Atanh@@{z}	$\mathrm{Arctanh}\, z$		
\atanh	arctanh	§4.37(ii)	the inverse of the hyperbolic tangent function
\atanh@{z}	$\mathrm{arctanh}(z)$		
\atanh@@{z}	$\mathrm{arctanh}\, z$		
\auxFresnelf	f	(7.2.10)	the auxiliary function for Fresnel integrals f
\auxFresnelf@{z}	$\mathrm{f}(z)$		
\auxFresnelg	g	(7.2.11)	the auxiliary function for Fresnel integrals g
\auxFresnelg@{z}	$\mathrm{g}(z)$		
\auxsincosintf	f	(6.2.17)	the auxiliary function for sine and cosine integrals f
\auxsincosintf@{z}	$\mathrm{f}(z)$		
\auxsincosintg	g	(6.2.18)	the auxiliary function for sine and cosine integrals g
\auxsincosintg@{z}	$\mathrm{g}(z)$		
B			
\BarnesG	G	(5.17.1)	the Barne's G-function (or double gamma) function
\BarnesG@{z}	$G(z)$		
\Bellnumber	B	§26.7(i)	the Bell number

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TEX markup	*Expansion*	*Declared*	*Proper Name*
`\Bellnumber@{n}`	$B(n)$		
`\BernoullinumberB{n}`	B_n	§24.2(i)	the Bernoulli number
`\BernoullipolyB{n}` `\BernoullipolyB{n}@{x}`	B_n $B_n(x)$	§24.2(i)	the Bernoulli polynomial
`\BesselAmat{\nu}` `\BesselAmat{\nu}@{\mathbf{T}}`	A_ν $A_\nu(\mathbf{T})$	§35.5(i)	the Bessel function of matrix argument (first kind)
`\BesselBmat{\nu}` `\BesselBmat{\nu}@{\mathbf{T}}`	B_ν $B_\nu(\mathbf{T})$	(35.5.3)	the Bessel function of matrix argument (second kind)
`\BesselC{\nu}` `\BesselC{\nu}@{z}`	$\mathscr{C}_\nu$ $\mathscr{C}_\nu(z)$	§10.2	the Bessel cylinder function
`\BesselJ{\nu}` `\BesselJ{\nu}@{z}`	J_ν $J_\nu(z)$	(10.2.2)	the Bessel function of the first kind
`\BesselJimag{\nu}` `\BesselJimag{\nu}@{x}`	$\widetilde{J}_\nu$ $\widetilde{J}_\nu(x)$	§10.24	the Bessel function of the first kind of imaginary order
`\Besselpolyy{n}` `\Besselpolyy{n}@{x}{a}`	y_n $y_n(x;a)$	(18.34.1)	the Bessel polynomial
`\BesselY{\nu}` `\BesselY{\nu}@{z}`	Y_ν $Y_\nu(z)$	(10.2.3)	the Bessel function of the second kind
`\BesselYimag{\nu}` `\BesselYimag{\nu}@{x}`	$\widetilde{Y}_\nu$ $\widetilde{Y}_\nu(x)$	§10.24	the Bessel function of the second kind of imaginary order
`\BickleyKi{\alpha}` `\BickleyKi{\alpha}@{x}`	Ki_α $\mathrm{Ki}_\alpha(x)$	(10.43.11)	the Bickley function
`\bigO` `\bigO@{x}`	O $O(x)$	(2.1.3)	the order not exceeding
`\bigqJacobipolyP{n}` `\bigqJacobipolyP{n}@{x}{a}{b}{c}{q}`	P_n $P_n(x;a,b,c;q)$	(18.27.5)	the big q-Jacobi polynomial
`\binom{z}{m}`	$\binom{z}{m}$	§1.2(i)	the binomial coefficient
`\Bohrradius`	a_0	CODATA	the Bohr radius
`\BoltzmannConstant`	k	CODATA	the Boltzmann constant
`\Bulirschcompellintcel` `\Bulirschcompellintcel@{k_c}{p}{a}{b}`	cel $\mathrm{cel}(k_c,p,a,b)$	(19.2.11)	Bulirsch's complete elliptic integral
`\Bulirschincellintel{1}` `\Bulirschincellintel{1}@{x}{k_c}`	$\mathrm{el1}$ $\mathrm{el1}(x,k_c)$	(19.2.15)	Bulirsch's incomplete elliptic integral of the first kind
`\Bulirschincellintel{2}` `\Bulirschincellintel{2}@{x}{k_c}{a}{b}`	$\mathrm{el2}$ $\mathrm{el2}(x,k_c,a,b)$	(19.2.12)	Bulirsch's incomplete elliptic integral of the second kind
`\Bulirschincellintel{3}` `\Bulirschincellintel{3}@{x}{k_c}{p}`	$\mathrm{el3}$ $\mathrm{el3}(x,k_c,p)$	(19.2.16)	Bulirsch's incomplete elliptic integral of the third kind
C			

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TEX markup	*Expansion*	*Declared*	*Proper Name*
`\canonint{K}`	Ψ_K	(36.2.4)	the canonical integral function
`\canonint{K}@{x}`	$\Psi_K(x)$		
`\card{x}`	$\lvert x\rvert$	§26.1	the cardinality of a set
`\CarlsonellintRC`	R_C	(19.2.17)	Carlson's elliptic integral combining inverse circular and hyperbolic functions
`\CarlsonellintRC@{x}{y}`	$R_C(x,y)$		
`\CarlsonellintRC@@{x}{y}`	R_C		
`\Carlsonmultivarhyper{-a}`	R_{-a}	(19.16.9)	Carlson's multivariate hypergeometric function
`\Carlsonmultivarhyper{-a}@{b_1,\dots,b_n}{z_1,\dots,z_n}`	$R_{-a}(b_1,\dots,b_n;z_1,\dots,z_n)$		
`\CarlsonsymellintRD`	R_D	(19.16.5)	Carlson's elliptic integral symmetric in only two variables
`\CarlsonsymellintRD@{x}{y}{z}`	$R_D(x,y,z)$		
`\CarlsonsymellintRD@@{x}{y}{z}`	R_D		
`\CarlsonsymellintRF`	R_F	(19.16.1)	Carlson's symmetric elliptic integral of first kind
`\CarlsonsymellintRF@{x}{y}{z}`	$R_F(x,y,z)$		
`\CarlsonsymellintRF@@{x}{y}{z}`	R_F		
`\CarlsonsymellintRG`	R_G	(19.16.3)	Carlson's symmetric elliptic integral of second kind
`\CarlsonsymellintRG@{x}{y}{z}`	$R_G(x,y,z)$		
`\CarlsonsymellintRG@@{x}{y}{z}`	R_G		
`\CarlsonsymellintRJ`	R_J	(19.16.2)	Carlson's symmetric elliptic integral of third kind
`\CarlsonsymellintRJ@{x}{y}{z}{p}`	$R_J(x,y,z,p)$		
`\CarlsonsymellintRJ@@{x}{y}{z}{p}`	R_J		
`\cartprod`	$\times$	§23.1	the Cartesian product operator
`\Catalannumber`	C	(26.5.1)	the Catalan number
`\Catalannumber@{n}`	$C(n)$		
`\ccompellintEk`	E'	(19.2.9)	(Legendre's) complementary complete elliptic integral of the second kind (of modulus k)
`\ccompellintEk@{k}`	$E'(k)$		
`\ccompellintEk@@{k}`	E'		
`\ccompellintKk`	K'	(19.2.9)	(Legendre's) complementary complete elliptic integral of the first kind (of modulus k)
`\ccompellintKk@{k}`	$K'(k)$		
`\ccompellintKk@@{k}`	K'		
`\ceiling{x}`	$\lceil x\rceil$	Intro.	the ceiling of a real number x
`\CharlierpolyC{n}`	C_n	§18.19	the Charlier polynomial
`\CharlierpolyC{n}@{x}{a}`	$C_n(x;a)$		
`\ChebyshevpolyT{n}`	T_n	§18.3	the Chebyshev polynomial of the first kind
`\ChebyshevpolyT{n}@{x}`	$T_n(x)$		
`\ChebyshevpolyU{n}`	U_n	§18.3	the Chebyshev polynomial of the second kind
`\ChebyshevpolyU{n}@{x}`	$U_n(x)$		
`\ChebyshevpolyV{n}`	V_n	§18.3	the Chebyshev polynomial of the third kind
`\ChebyshevpolyV{n}@{x}`	$V_n(x)$		
`\ChebyshevpolyW{n}`	W_n	§18.3	the Chebyshev polynomial of the fourth kind
`\ChebyshevpolyW{n}@{x}`	$W_n(x)$		
`\ChebyshevPsi`	ψ	(25.16.1)	the Chebyshev ψ-function
`\ChebyshevPsi@{x}`	$\psi(x)$		
`\ClebschGordan{j_1}{m_1}{j_2}{m_2}{j_3}{m_3}`	$(j_1\;m_1\;j_2\;m_2\vert j_1\;j_2\;j_3\;m_3)$		

continued on next page

TEX markup	Expansion	Declared	Proper Name
		§34.1	the Clebsch-Gordan coefficients
\compellintDk	D	(19.2.8)	the complete elliptic integral of Janke (of modulus k)
\compellintDk@{k}	$D(k)$		
\compellintDk@@{k}	D		
\compellintEk	E	(19.2.8)	(Legendre's) complete elliptic integral of the second kind (of modulus k)
\compellintEk@{k}	$E(k)$		
\compellintEk@@{k}	E		
\compellintKk	K	(19.2.8)	(Legendre's) complete elliptic integral of the first kind (of modulus k)
\compellintKk@{k}	$K(k)$		
\compellintKk@@{k}	K		
\compellintPik	Π	(19.2.8)	(Legendre's) complete elliptic integral of the third kind (of modulus k)
\compellintPik@{\alpha^2}{k}	$\Pi\left(\alpha^2, k\right)$		
\Complexes	$\mathbb{C}$	Intro.	the set of complex numbers
\conj{z}	$\overline{z}$	(1.9.11)	the complex conjugate of a complex number z
\contdualHahnpolyS{n}	S_n	§18.25	the continuous dual Hahn polynomial
\contdualHahnpolyS{n}@{x^2}{a}{b}{c}	$S_n\left(x^2; a, b, c\right)$		
\contHahnpolyp{n}	p_n	§18.19	the continuous Hahn polynomial
\contHahnpolyp{n}@{x}{a}{b}{\conj{a}}{\conj{b}}	$p_n\left(x; a, b, \overline{a}, \overline{b}\right)$		
\continuous	C	§1.4(ii)	the set of functions continuous on the interval (a, b)
\continuous@{(a,b)}	$C\,(a, b)$		
\continuous[n]	C^n	§1.4	the set of continuous functions n-times differentiable on the interval (a, b)
\continuous[n]@{(a,b)}	$C^n\,(a, b)$		
\contqHermitepolyH{n}	H_n	(18.28.16)	the continuous q-Hermite polynomial
\contqHermitepolyH{n}@{x}{q}	$H_n(x\,\vert\,q)$		
\contqinvHermitepolyh{n}	h_n	(18.28.18)	the continuous q^{-1}-Hermite polynomial
\contqinvHermitepolyh{n}@{x}{q}	$h_n(x\,\vert\,q)$		
\contqultrasphpoly{n}	C_n	(18.28.13)	the continuous q-ultraspherical (or Rogers) polynomial
\contqultrasphpoly{n}@{x}{\beta}{q}	$C_n(x; \beta\,\vert\,q)$		
\cos	cos	(4.14.2)	the cosine function
\cos@{z}	$\cos(z)$		
\cos@@{z}	$\cos z$		
\cosh	cosh	(4.28.2)	the hyperbolic cosine function
\cosh@{z}	$\cosh(z)$		
\cosh@@{z}	$\cosh z$		
\coshint	Chi	(6.2.16)	the hyperbolic cosine integral
\coshint@{z}	$\mathrm{Chi}(z)$		
\cosint	Ci	(6.2.11)	the cosine integral Ci
\cosint@{z}	$\mathrm{Ci}(z)$		
\cosintCin	Cin	(6.2.12)	the cosine integral Cin
\cosintCin@{z}	$\mathrm{Cin}(z)$		

continued on next page

TEX markup	Expansion	Declared	Proper Name
`\cot`	cot	(4.14.7)	the cotangent function
`\cot@{z}`	$\cot(z)$		
`\cot@@{z}`	$\cot z$		
`\coth`	coth	(4.28.7)	the hyperbolic cotangent function
`\coth@{z}`	$\coth(z)$		
`\coth@@{z}`	$\coth z$		
`\Coulombphasesigma{\ell}`	σ_ℓ	(33.2.10)	the phase shift of the irregular Coulomb function $H^{\pm}_\ell$
`\Coulombphasesigma{\ell}@{\eta}`	$\sigma_\ell(\eta)$		
`\Coulombphasetheta{\ell}`	θ_ℓ	(33.2.9)	the phase of the irregular Coulomb function $H^{\pm}_\ell$
`\Coulombphasetheta{\ell}@{\eta}{\rho}`	$\theta_\ell(\eta,\rho)$		
`\Coulombturnr`	r_{tp}	(33.14.3)	the outer turning point for Coulomb (radial) functions (for repulsive interactions)
`\Coulombturnr@{\epsilon}{\ell}`	$r_{\mathrm{tp}}(\epsilon,\ell)$		
`\Coulombturnrho`	ρ_{tp}	(33.2.2)	the outer turning point for Coulomb (radial) functions (for attractive interactions)
`\Coulombturnrho@{\eta}{\ell}`	$\rho_{\mathrm{tp}}(\eta,\ell)$		
`\cpi`	π	(3.12.1)	the ratio of the circumference of a circle to its diameter
`\crossprod`	$\times$	?	the vector cross product operator
`\csc`	csc	(4.14.5)	the cosecant function
`\csc@{z}`	$\csc(z)$		
`\csc@@{z}`	$\csc z$		
`\csch`	csch	(4.28.5)	the hyperbolic cosecant function
`\csch@{z}`	$\operatorname{csch}(z)$		
`\csch@@{z}`	$\operatorname{csch} z$		
`\curl`	curl	(1.6.22)	the curl operator
`\cuspcatastrophe{K}`	Φ_K	(36.2.1)	the cuspoid catastrophe of codimension K
`\cuspcatastrophe{K}@{t}{x}`	$\Phi_K(t;x)$		
D			
`\DawsonsintF`	F	(7.2.5)	Dawson's integral
`\DawsonsintF@{z}`	$F(z)$		
`\Dedekindeta`	η	(27.14.12)	Dedekind's eta function (or modular function)
`\Dedekindeta@{\tau}`	$\eta(\tau)$		
`\diag`	diag	?	the diagonal elements
`\diffd`	d	?	the differential operator
`\diffrcanonint{K}`	Ψ_K	(36.2.10)	the diffraction canonical integral
`\diffrcanonint{K}@{x}{k}`	$\Psi_K(x;k)$		
`\digamma`	ψ	(5.2.2)	the digamma (or psi) function
`\digamma@{z}`	$\psi(z)$		
`\dilChebyshevpolyC{n}`	C_n	(18.1.3)	the dilated Chebyshev polynomial of first kind
`\dilChebyshevpolyC{n}@{x}`	$C_n(x)$		
`\dilChebyshevpolyS{n}`	S_n	(18.1.3)	the dilated Chebyshev polynomial of second kind
`\dilChebyshevpolyS{n}@{x}`	$S_n(x)$		
`\dilHermitepolyHe{n}`	He_n	§18.3	the dilated Hermite polynomial
`\dilHermitepolyHe{n}@{x}`	$He_n(x)$		
`\dilog`	Li_2	(25.12.1)	the dilogarithm
`\dilog@{z}`	$\mathrm{Li}_2(z)$		
`\Diracdelta`	δ	§1.17(i)	the Dirac delta functional (or distribution)
`\Diracdelta@{x}`	$\delta(x)$		

continued on next page

TEX markup	*Expansion*	*Declared*	*Proper Name*
`\Diracdeltaseq{n}`	δ_n	§1.17(i)	the Dirac delta sequence
`\Diracdeltaseq{n}@{x}`	$\delta_n(x)$		
`\Dirichletchar`	χ	§27.8	the Dirichlet character
`\Dirichletchar@{n}{k}`	$\chi(n,k)$		
`\Dirichletchar@@{n}{k}`	$\chi(n)$		
`\Dirichletchar[r]`	χ_r		
`\Dirichletchar[r]@{n}{k}`	$\chi_r(n,k)$		
`\Dirichletchar[r]@@{n}{k}`	$\chi_r(n)$		
`\DirichletL`	L	(25.15.1)	the Dirichlet L-function
`\DirichletL@{s}{\chi}`	$L(s,\chi)$		
`\discqHermitepolyhI{n}`	h_n	(18.27.21)	the discrete q-Hermite I polynomial
`\discqHermitepolyhI{n}@{x}{q}`	$h_n(x;q)$		
`\discqHermitepolyhII{n}`	$\tilde{h}_n$	(18.27.23)	the discrete q-Hermite II polynomial
`\discqHermitepolyhII{n}@{x}{q}`	$\tilde{h}_n(x;q)$		
`\DiscriminantDelta`	Δ	(27.14.16)	the discriminant function
`\DiscriminantDelta@{\tau}`	$\Delta(\tau)$		
`\diskpoly{\alpha}{m}{n}`	$R^{(\alpha)}_{m,n}$	(18.37.1)	the disk polynomial
`\diskpoly{\alpha}{m}{n}@{z}`	$R^{(\alpha)}_{m,n}(z)$		
`\divergence`	div	(1.6.21)	the divergence operator
`\divides`	$\mid$	?	the divides operator operator
`\dotprod`	$\cdot$	?	the vector dot product operator
`\dualHahnpolyR{n}`	R_n	§18.25	the dual Hahn polynomial
`\dualHahnpolyR{n}@{x(x+\gamma+\delta+1)}{\gamma}{\delta}{N}`	$R_n(x(x+\gamma+\delta+1);\gamma,\delta,N)$		
`\DunsterQ{-\mu}{-\tfrac{1}{2}+\iunit\tau}`	$\widehat{\mathsf{Q}}^{-\mu}_{-\frac{1}{2}+\mathrm{i}\tau}$	(14.20.2)	Dunster's conical function
`\DunsterQ{-\mu}{-\tfrac{1}{2}+\iunit\tau}@{x}`	$\widehat{\mathsf{Q}}^{-\mu}_{-\frac{1}{2}+\mathrm{i}\tau}(x)$		
E			
`\electricconst`	ε_0	CODATA	the electric constant or vacuum permitivity
`\ellumbcanonint`	$\Psi^{(\mathrm{E})}$	(36.2.5)	the elliptic umbilic canonical integral function
`\ellumbcanonint@{x}`	$\Psi^{(\mathrm{E})}(x)$		
`\ellumbcatastrophe`	$\Phi^{(\mathrm{E})}$	(36.2.2)	the elliptic umbilic catastrophe
`\ellumbcatastrophe@{s}{t}{x}`	$\Phi^{(\mathrm{E})}(s,t;x)$		
`\ellumbdiffrcanonint`	$\Psi^{(\mathrm{E})}$	(36.2.11)	the elliptic umbilic diffraction canonical integral function
`\ellumbdiffrcanonint@{x}{k}`	$\Psi^{(\mathrm{E})}(x;k)$		
`\env`	env	?	the envelope of a function
`\env@{f}`	env f		
`\envAiryAi`	envAi	§2.8(iii)	the envelope of the Airy function Ai
`\envAiryAi@{z}`	envAi(z)		
`\envAiryBi`	envBi	§2.8(iii)	the envelope of the Airy function Bi
`\envAiryBi@{z}`	envBi(z)		
`\envBesselJ{\nu}`	envJ_ν	§2.8(iv)	the envelope of the Bessel function J_ν
`\envBesselJ{\nu}@{x}`	env$J_\nu(x)$		
`\envBesselY{\nu}`	envY_ν	§2.8(iv)	the envelope of the Bessel function Y_ν
`\envBesselY{\nu}@{x}`	env$Y_\nu(x)$		
`\envCoulumbM{\ell}`	M_ℓ	(33.3.1)	the envelope of the Coulomb function M_ℓ
`\envCoulumbM{\ell}@{\eta}{\rho}`			

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TeX markup	Expansion	Declared	Proper Name
	$M_{\ell}(\eta,\rho)$		
\envparaU	$\mathrm{env}U$	§14.15(v)	the envelope of the parabolic cylinder function U
\envparaU@{c}{x}	$\mathrm{env}U(c,x)$		
\envparaUbar	$\mathrm{env}\overline{U}$	§14.15(v)	the envelope of the parabolic cylinder function $\overline{U}$
\envparaUbar@{c}{x}	$\mathrm{env}\overline{U}(c,x)$		
\erf	erf	(7.2.1)	the error function
\erf@{z}	$\mathrm{erf}(z)$		
\erf@@{z}	$\mathrm{erf}\,z$		
\erfc	erfc	(7.2.2)	the complementary error function erfc
\erfc@{z}	$\mathrm{erfc}(z)$		
\erfc@@{z}	$\mathrm{erfc}\,z$		
\erfw	w	(7.2.3)	the complementary error function w
\erfw@{z}	$w(z)$		
\erfw@@{z}	$w\,z$		
\EulerBeta	B	(5.12.1)	the Euler beta function
\EulerBeta@{a}{b}	$\mathrm{B}(a,b)$		
\EulerConstant	γ	(5.2.3)	the Euler constant
\EulerGamma	Γ	(5.2.1)	the Euler gamma function
\EulerGamma@{z}	$\Gamma(z)$		
\Euleriannumber{n}{k}	$\left\langle {n \atop k} \right\rangle$	§26.14(i)	the Eulerian number
\EulernumberE{n}	E_n	§24.2(ii)	the Euler number
\EulerPhi	f	(27.14.2)	Euler's reciprocal function
\EulerPhi@{x}	$f(x)$		
\EulerpolyE{n}	E_n	§24.2(ii)	the Euler polynomial
\EulerpolyE{n}@{x}	$E_n(x)$		
\EulersumH	H	§25.16(ii)	the Euler sum
\EulersumH@{s}	$H(s)$		
\Eulertotientphi	ϕ	(27.2.7)	Euler's totient, the number of positive integers relatively prime to n, $(\phi = \phi_0)$
\Eulertotientphi@{n}	$\phi(n)$		
\Eulertotientphi[k]	ϕ_k	(27.2.6)	the sum of k^{th} powers of integers relatively prime to n
\Eulertotientphi[k]@{n}	$\phi_k(n)$		
\exp	$\exp$	(4.2.19)	the exponential function
\exp@{z}	$\exp(z)$		
\exp@@{z}	$\exp z$		
\expe	e	(4.2.11)	the exponential base
\expintE	E_1	(6.2.1)	the exponential integral E_1
\expintE@{z}	$E_1(z)$		
\expintEi	Ei	§6.2(i)	the exponential integral Ei
\expintEi@{z}	$\mathrm{Ei}(z)$		
\expintEin	Ein	(6.2.3)	the complementary exponential integral
\expintEin@{z}	$\mathrm{Ein}(z)$		
\exptrace	etr	§35.1	the exponential of the trace
\exptrace@{\mathbf{X}}	$\mathrm{etr}(\mathbf{X})$		
F			
\FerrersP{\nu}	P_{ν}	§14.2(ii)	$= \mathsf{P}^0_{\nu}$, shorthand for the Ferrers function of the first kind
\FerrersP{\nu}@{x}	$\mathsf{P}_{\nu}(x)$		
\FerrersP[\mu]{\nu}	P^{μ}_{ν}	(14.3.1)	the Ferrers function of the first kind
\FerrersP[\mu]{\nu}@{x}	$\mathsf{P}^{\mu}_{\nu}(x)$		
\FerrersQ{\nu}	Q_{ν}	§14.2(ii)	$= \mathsf{Q}^0_{\nu}$, shorthand for the Ferrers function of the second kind

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TEX markup	*Expansion*	*Declared*	*Proper Name*
`\FerrersQ{\nu}@{x}`	$\mathsf{Q}_{\nu}(x)$		
`\FerrersQ[\mu]{\nu}`	Q^{μ}_{ν}	(14.3.2)	the Ferrers function of the second kind
`\FerrersQ[\mu]{\nu}@{x}`	$\mathsf{Q}^{\mu}_{\nu}(x)$		
`\finestructureconst`	α	CODATA	the fine-structure constant
`\FishersHh{n}`	Hh_{n}	(7.18.12)	Fischer's probability function
`\FishersHh{n}@{z}`	$Hh_{n}(z)$		
`\floor{x}`	$\lfloor x \rfloor$	Intro.	the floor of a real number x
`\Fouriercostrans`	$\mathscr{F}_{c}$	?	the Fourier cosine transform of a function
`\Fouriercostrans@{f}`	$\mathscr{F}_{c}\left(f\right)$		
`\Fouriercostrans@@{f}`	$\mathscr{F}_{c}\, f$		
`\Fouriersintrans`	$\mathscr{F}_{s}$	?	the Fourier sine transform of a function
`\Fouriersintrans@{f}`	$\mathscr{F}_{s}\left(f\right)$		
`\Fouriersintrans@@{f}`	$\mathscr{F}_{s}\, f$		
`\Fouriersintrans@{f}@{s}`	$\mathscr{F}_{s}\left(f\right)\left(s\right)$		
`\Fouriersintrans@@{f}@{s}`	$\mathscr{F}_{s}\, f\left(s\right)$		
`\Fouriertrans`	$\mathscr{F}$	?	the Fourier transform of a function
`\Fouriertrans@{f}`	$\mathscr{F}\left(f\right)$		
`\Fouriertrans@@{f}`	$\mathscr{F}\, f$		
`\Fouriertrans@{f}@{s}`	$\mathscr{F}\left(f\right)\left(s\right)$		
`\Fouriertrans@@{f}@{s}`	$\mathscr{F}\, f\left(s\right)$		
`\Fresnelcosint`	C	(7.2.7)	the Fresnel cosine integral
`\Fresnelcosint@{z}`	$C(z)$		
`\FresnelintF`	$\mathcal{F}$	(7.2.6)	the Fresnel integral
`\FresnelintF@{z}`	$\mathcal{F}(z)$		
`\Fresnelsinint`	S	(7.2.8)	the Fresnel sine integral
`\Fresnelsinint@{z}`	$S(z)$		
G			
`\Gausssum`	G	(27.10.9)	the Gauss sum
`\Gausssum@{n}{\Dirichletchar}`	$G(n,\chi)$		
`\genAiryintA{k}`	A_{k}	§9.13(ii)	the generalized Airy function (integral) A_k
`\genAiryintA{k}@{z}{p}`	$A_{k}(z,p)$		
`\genAiryintB{k}`	B_{k}	§9.13(ii)	the generalized Airy function (integral) B_k
`\genAiryintB{k}@{z}{p}`	$B_{k}(z,p)$		
`\genAiryODEA{n}`	A_{n}	§9.13(i)	the generalized Airy function (ODE) A_n
`\genAiryODEA{n}@{z}`	$A_{n}(z)$		
`\genAiryODEB{n}`	B_{n}	§9.13(i)	the generalized Airy function (ODE) B_n
`\genAiryODEB{n}@{z}`	$B_{n}(z)$		
`\genBernoullipolyB{\ell}{n}`	$B^{(\ell)}_{n}$	§24.16	the generalized Bernoulli polynomial
`\genBernoullipolyB{\ell}{n}@{x}`	$B^{(\ell)}_{n}(x)$		
`\genBesselphi`	ϕ	(10.46.1)	the generalized Bessel function
`\genBesselphi@{\rho}{\beta}{z}`	$\phi(\rho,\beta;z)$		
`\gencosint`	Ci	(8.21.2)	the generalized cosine integral
`\gencosint@{a}{z}`	$\mathrm{Ci}(a,z)$		
`\genEulerpolyE{\ell}{n}`	$E^{(\ell)}_{n}$	§24.16	the generalized Euler polynomial
`\genEulerpolyE{\ell}{n}@{x}`	$E^{(\ell)}_{n}(x)$		
`\genEulersumH`	H	§25.16(ii)	the generalized Euler sum
`\genEulersumH@{s}{z}`	$H(s,z)$		
`\genexpintE{p}`	E_{p}	(8.19.1)	the generalized exponential integral
`\genexpintE{p}@{z}`	$E_{p}(z)$		
`\genhyperF{p}{q}`	${}_{p}F_{q}$	§16.2	the generalized hypergeometric function

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TEX markup	Expansion	Declared	Proper Name
`\genhyperF{p}{q}@{a_1,\dots,a_p}{b_1,\dots,b_q}{z}`	${}_{p}F_{q}(a_{1},\dots,a_{p};b_{1},\dots,b_{q};z)$		
`\genhyperF{p}{q}@@{a_1,\dots,a_p}{b_1,\dots,b_q}{z}`	${}_{p}F_{q}\left({a_{1},\dots,a_{p}\atop b_{1},\dots,b_{q}};z\right)$		
`\genhyperF{p}{q}@@@{a_1,\dots,a_p}{b_1,\dots,b_q}{z}`	${}_{p}F_{q}(z)$		
`\genhyperF{1}{1}`	${}_{1}F_{1}$	§16.2	Kummer confluent hypergeometric function, ${}_{1}F_{1}=M$
`\genhyperF{1}{1}@{a}{b}{z}`	${}_{1}F_{1}(a;b;z)$		
`\genhyperF{1}{1}@@{a}{b}{z}`	${}_{1}F_{1}\left({a\atop b};z\right)$		
`\genhyperF{1}{1}@@@{a}{b}{z}`	${}_{1}F_{1}(z)$		
`\genhyperF{2}{1}`	${}_{2}F_{1}$	§16.2	Gauss' hypergeometric function, ${}_{2}F_{1}=F$
`\genhyperF{2}{1}@{a,b}{c}{z}`	${}_{2}F_{1}(a,b;c;z)$		
`\genhyperF{2}{1}@@{a,b}{c}{z}`	${}_{2}F_{1}\left({a,b\atop c};z\right)$		
`\genhyperF{2}{1}@@@{a,b}{c}{z}`	${}_{2}F_{1}(z)$		
`\genhyperH{p}{q}`	${}_{p}H_{q}$	(16.4.16)	the bilateral hypergeometric function
`\genhyperH{p}{q}@{a_1,\dots,a_p}{b_1,\dots,b_q}{z}`	${}_{p}H_{q}(a_{1},\dots,a_{p};b_{1},\dots,b_{q};z)$		
`\genhyperH{p}{q}@@{a_1,\dots,a_p}{b_1,\dots,b_q}{z}`	${}_{p}H_{q}\left({a_{1},\dots,a_{p}\atop b_{1},\dots,b_{q}};z\right)$		
`\genhyperH{p}{q}@@@{a_1,\dots,a_p}{b_1,\dots,b_q}{z}`	${}_{p}H_{q}(z)$		
`\genhyperOlverF{p}{q}`	${}_{p}\mathbf{F}_{q}$	(16.2.5)	Olver's scaled generalized hypergeometric function
`\genhyperOlverF{p}{q}@{a_1,\dots,a_p}{b_1,\dots,b_q}{z}`	${}_{p}\mathbf{F}_{q}(a_{1},\dots,a_{p};b_{1},\dots,b_{q};z)$		
`\genhyperOlverF{p}{q}@@{a_1,\dots,a_p}{b_1,\dots,b_q}{z}`	${}_{p}\mathbf{F}_{q}\left({a_{1},\dots,a_{p}\atop b_{1},\dots,b_{q}};z\right)$		
`\genhyperOlverF{p}{q}@@@{a_1,\dots,a_p}{b_1,\dots,b_q}{z}`	${}_{p}\mathbf{F}_{q}(z)$		
`\genhyperPsimat`	Ψ	(35.6.2)	the confluent hypergeometric function of matrix argument (second kind)
`\genhyperPsimat@{a}{b}{\mathbf{T}}`	$\Psi(a;b;\mathbf{T})$		
`\genJacobiellk{p}{q}`	pq	(22.2.10)	the generic Jacobian elliptic function pq (of modulus k)
`\genJacobiellk{p}{q}@{u}{k}`	$\mathrm{pq}\left(u,k\right)$		
`\genJacobiellk{p}{q}@@{u}{k}`	$\mathrm{pq}\,u$		
`\genlog{a}`	$\log_{a}$	§4.2	the logarithm to general base a
`\genlog{a}@{z}`	$\log_{a}(z)$		
`\genlog{a}@@{z}`	$\log_{a}z$		

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TEX markup	Expansion	Declared	Proper Name
\genshiftcosint	ci	(8.21.1)	the generalized shifted cosine integral
\genshiftcosint@{a}{z}	$\mathrm{ci}(a,z)$		
\genshiftsinint	si	(8.21.1)	the generalized shifted sine integral
\genshiftsinint@{a}{z}	$\mathrm{si}(a,z)$		
\gensinint	Si	(8.21.2)	the generalized sine integral
\gensinint@{a}{z}	$\mathrm{Si}(a,z)$		
\GoodwinStatonint	G	(7.2.12)	the Goodwin–Staton integral
\GoodwinStatonint@{z}	$G(z)$		
\gradient	grad	(1.6.20)	the gradient operator
\Gudermannian	gd	(4.23.39)	the Gudermannian function
\Gudermannian@{z}	$\mathrm{gd}(z)$		
\Gudermannian@@{z}	$\mathrm{gd}\,z$		
H			
\HahnpolyQ{n}	Q_n	§18.19	the Hahn polynomial
\HahnpolyQ{n}@{x}{\alpha}{\beta}{N}	$Q_n(x;\alpha,\beta,N)$		
\HankelH{1}{\nu}	$H^{(1)}_{\nu}$	(10.2.5)	the Hankel function of the first kind(or Bessel function of the third kind)
\HankelH{1}{\nu}@{z}	$H^{(1)}_{\nu}(z)$		
\HankelH{2}{\nu}	$H^{(2)}_{\nu}$	(10.2.6)	the Hankel function of the second kind(or Bessel function of the third kind)
\HankelH{2}{\nu}@{z}	$H^{(2)}_{\nu}(z)$		
\HankelmodderivN{\nu}	N_{ν}	(10.18.2)	the modulus of derivatives of the Hankel function of the first kind
\HankelmodderivN{\nu}@{x}	$N_{\nu}(x)$		
\HankelmodM{\nu}	M_{ν}	(10.18.1)	the modulus of the Hankel function of the first kind
\HankelmodM{\nu}@{x}	$M_{\nu}(x)$		
\Hankelphasederivphi{\nu}	ϕ_{ν}	(10.18.3)	the phase of derivatives of the Hankel function of the first kind
\Hankelphasederivphi{\nu}@{x}	$\phi_{\nu}(x)$		
\Hankelphasetheta{\nu}	θ_{ν}	(10.18.3)	the phase of the Hankel function of the first kind
\Hankelphasetheta{\nu}@{x}	$\theta_{\nu}(x)$		
\HeavisideH	H	(1.16.13)	the Heaviside function
\HeavisideH@{x}	$H(x)$		
\HermitepolyH{n}	H_n	§18.3	the Hermite polynomial
\HermitepolyH{n}@{x}	$H_n(x)$		
\HeunHf{m}{s_1}{s_2}	$(s_1,s_2)Hf_m$	§31.4	the Heun function
\HeunHf{m}{s_1}{s_2}@{a}{q_m}{\alpha}{\beta}{\gamma}{\delta}{z}	$(s_1,s_2)Hf_m(a,q_m;\alpha,\beta,\gamma,\delta;z)$		
\HeunHf{m}{s_1}{s_2}@@{a}{q_m}{\alpha}{\beta}{\gamma}{\delta}{z}	$(s_1,s_2)Hf_m(z)$		
\HeunHf[\nu]{m}{s_1}{s_2}	$(s_1,s_2)Hf^{\nu}_m$		
\HeunHf[\nu]{m}{s_1}{s_2}@{a}{q_m}{\alpha}{\beta}{\gamma}{\delta}{z}	$(s_1,s_2)Hf^{\nu}_m(a,q_m;\alpha,\beta,\gamma,\delta;z)$		
\HeunHf[\nu]{m}{s_1}{s_2}@@{a}{q_m}{\alpha}{\beta}{\gamma}{\delta}{z}	$(s_1,s_2)Hf^{\nu}_m(z)$		
\HeunHl	$H\ell$	(31.3.1)	the (fundamental) Heun function

continued on next page

TeX markup	*Expansion*	*Declared*	*Proper Name*
`\HeunHl@{a}{q}{\alpha}{\beta}{\gamma}{\delta}{z}`	$H\ell(a,q;\alpha,\beta,\gamma,\delta;z)$		
`\HeunHl@@{a}{q}{\alpha}{\beta}{\gamma}{\delta}{z}`	$H\ell(z)$		
`\HeunpolyHp{n}{m}`	$Hp_{n,m}$	(31.5.2)	the Heun polynomial
`\HeunpolyHp{n}{m}@{a}{q_{n,m}}{-n}{\beta}{\gamma}{\delta}{z}`	$Hp_{n,m}(a,q_{n,m};-n,\beta,\gamma,\delta;z)$		
`\HeunpolyHp{n}{m}@@{a}{q_{n,m}}{-n}{\beta}{\gamma}{\delta}{z}`	$Hp_{n,m}(z)$		
`\Hilberttrans`	$\mathcal{H}$	§1.14(v)	the Hilbert transform of a function
`\Hilberttrans@{f}`	$\mathcal{H}\left(f\right)$		
`\Hilberttrans@@{f}`	$\mathcal{H}\,f$		
`\Hilberttrans@{f}@{s}`	$\mathcal{H}\left(f\right)\left(s\right)$		
`\Hilberttrans@@{f}@{s}`	$\mathcal{H}\,f\left(s\right)$		
`\Hurwitzzeta`	ζ	(25.11.1)	the Hurwitz zeta function
`\Hurwitzzeta@{s}{a}`	$\zeta(s,a)$		
`\hyperF`	F	(15.2.1)	(Gauss') hypergeometric function
`\hyperF@{a}{b}{c}{z}`	$F(a,b;c;z)$		
`\hyperF@@{a}{b}{c}{z}`	$F\left({a,b\atop c};z\right)$		
`\hyperF@@@{a}{b}{c}{z}`	$F(z)$		
`\hyperOlverF`	$\mathbf{F}$	(15.2.2)	Olver's scaled hypergeometric function
`\hyperOlverF@{a}{b}{c}{z}`	$\mathbf{F}(a,b;c;z)$		
`\hyperOlverF@@{a}{b}{c}{z}`	$\mathbf{F}\left({a,b\atop c};z\right)$		
`\hyperOlverF@@@{a}{b}{c}{z}`	$\mathbf{F}(z)$		
`\hyperumbcanonint`	$\Psi^{(\mathrm{H})}$	(36.2.5)	the hyperbolic umbilic canonical integral function
`\hyperumbcanonint@{x}`	$\Psi^{(\mathrm{H})}(x)$		
`\hyperumbcatastrophe`	$\Phi^{(\mathrm{H})}$	(36.2.3)	the hyperbolic umbilic catastrophe
`\hyperumbcatastrophe@{s}{t}{x}`	$\Phi^{(\mathrm{H})}(s,t;x)$		
`\hyperumbdiffrcanonint`	$\Psi^{(\mathrm{H})}$	(36.2.11)	the hyperbolic umbilic diffraction canonical integral function
`\hyperumbdiffrcanonint@{x}{k}`	$\Psi^{(\mathrm{H})}(x;k)$		
I			
`\idem`	idem	§17.1	the idem function
`\idem@{\chi_1}{\chi_2\dots\chi_n}`	$\mathrm{idem}(\chi_1;\chi_2\dots\chi_n)$		
`\imagpart`	$\Im$	(1.9.2)	the imaginary part of a complex number z
`\imagpart@{z}`	$\Im\left(z\right)$		
`\imagpart@@{z}`	$\Im\,z$		
`\incBeta{x}`	B_x	(8.17.1)	the incomplete beta function
`\incBeta{x}@{a}{b}`	$\mathrm{B}_x(a,b)$		
`\incellintDk`	D	(19.2.6)	the incomplete elliptic integral of Janke (of modulus k)
`\incellintDk@{\phi}{k}`	$D(\phi,k)$		
`\incellintEk`	E	(19.2.5)	(Legendre's) incomplete elliptic integral of the second kind (of modulus k)
`\incellintEk@{\phi}{k}`	$E(\phi,k)$		
`\incellintFk`	F	(19.2.4)	(Legendre's) incomplete elliptic integral of the first kind (of modulus k)

continued on next page

TEX markup	*Expansion*	*Declared*	*Proper Name*
`\incellintFk@{\phi}{k}`	$F(\phi, k)$		

`\incellintPik`
 	
`\incellintPik@{\phi}{\alpha^2}{k}`
	Π
	
	$\Pi(\phi, \alpha^2, k)$
		(19.2.7)	(Legendre's) incomplete elliptic integral of the third kind (of modulus k)

`\incGamma` `\incGamma@{a}{z}`	Γ $\Gamma(a, z)$	(8.2.2)	the upper incomplete gamma function
`\incgamma` `\incgamma@{a}{z}`	γ $\gamma(a, z)$	(8.2.1)	the lower incomplete gamma function
`\Integers`	$\mathbb{Z}$	Intro.	the set of integers
`\intinnerprod{\Lambda}{\phi}`	$\langle \Lambda, \phi \rangle$	§1.16(i)	the inner-product (by integration)

`\inverf`
`\inverf@{x}`
`\inverf@@{x}`
	inverf
	$\mathrm{inverf}(x)$
	$\mathrm{inverf}\, x$
		(7.17.1)	the inverse error function

`\inverfc`
`\inverfc@{x}`
`\inverfc@@{x}`
	inverfc
	$\mathrm{inverfc}(x)$
	$\mathrm{inverfc}\, x$
		(7.17.1)	the inverse complementary error function

`\irregCoulombc`
 	
`\irregCoulombc@{\epsilon}{\ell}{r}`
	c
	
	$c(\epsilon, \ell; r)$
		(33.14.9)	the irregular Coulomb (radial) function (for attractive interactions) c

`\irregCoulombG{\ell}`
 	
`\irregCoulombG{\ell}@{\eta}{\rho}`
	G_ℓ
	
	$G_\ell(\eta, \rho)$
		(33.2.11)	the irregular Coulomb (radial) function (for repulsive interactions) G_ℓ

`\irregCoulombH{\pm}{\ell}`
 	
`\irregCoulombH{\pm}{\ell}@{\eta}{\rho}`
	$H^{\pm}_{\ell}$
	
	$H^{\pm}_{\ell}(\eta, \rho)$
		(33.2.7)	the irregular Coulomb (radial) function (for repulsive interactions) $H^{\pm}_{\ell}$

`\irregCoulombh`
 	
`\irregCoulombh@{\epsilon}{\ell}{r}`
	h
	
	$h(\epsilon, \ell; r)$
		(33.14.7)	the irregular Coulomb (radial) function (for attractive interactions) h

`\iunit`	i	?	the imaginary unit
J			

`\Jacobiamk`
`\Jacobiamk@{x}{k}`
`\Jacobiamk@@{x}{k}`
	am
	$\mathrm{am}\,(x, k)$
	$\mathrm{am}\, x$
		(22.16.1)	the Jacobi's amplitude function (of modulus k)

`\Jacobiellcdk`
`\Jacobiellcdk@{u}{k}`
`\Jacobiellcdk@@{u}{k}`
	cd
	$\mathrm{cd}\,(u, k)$
	$\mathrm{cd}\, u$
		(22.2.8)	the Jacobian elliptic function cd (of modulus k)

`\Jacobiellcnk`
`\Jacobiellcnk@{u}{k}`
`\Jacobiellcnk@@{u}{k}`
	cn
	$\mathrm{cn}\,(u, k)$
	$\mathrm{cn}\, u$
		(22.2.5)	the Jacobian elliptic function cn (of modulus k)

`\Jacobiellcsk`
`\Jacobiellcsk@{u}{k}`
`\Jacobiellcsk@@{u}{k}`
	cs
	$\mathrm{cs}\,(u, k)$
	$\mathrm{cs}\, u$
		(22.2.9)	the Jacobian elliptic function cs (of modulus k)

`\Jacobielldck`
`\Jacobielldck@{u}{k}`
`\Jacobielldck@@{u}{k}`
	dc
	$\mathrm{dc}\,(u, k)$
	$\mathrm{dc}\, u$
		(22.2.8)	the Jacobian elliptic function dc (of modulus k)

`\Jacobielldnk` `\Jacobielldnk@{u}{k}`	dn $\mathrm{dn}\,(u, k)$	(22.2.6)	the Jacobian elliptic function dn (of modulus k)

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TEX markup	*Expansion*	*Declared*	*Proper Name*
`\Jacobielldnk@@{u}{k}`	$\operatorname{dn} u$		

`\Jacobielldsk`
`\Jacobielldsk@{u}{k}`
`\Jacobielldsk@@{u}{k}`
	ds
	$\operatorname{ds}(u,k)$
	$\operatorname{ds} u$
		(22.2.7)	the Jacobian elliptic function ds (of modulus k)

`\Jacobiellnck`
`\Jacobiellnck@{u}{k}`
`\Jacobiellnck@@{u}{k}`
	nc
	$\operatorname{nc}(u,k)$
	$\operatorname{nc} u$
		(22.2.5)	the Jacobian elliptic function nc (of modulus k)

`\Jacobiellndk`
`\Jacobiellndk@{u}{k}`
`\Jacobiellndk@@{u}{k}`
	nd
	$\operatorname{nd}(u,k)$
	$\operatorname{nd} u$
		(22.2.6)	the Jacobian elliptic function nd (of modulus k)

`\Jacobiellnsk`
`\Jacobiellnsk@{u}{k}`
`\Jacobiellnsk@@{u}{k}`
	ns
	$\operatorname{ns}(u,k)$
	$\operatorname{ns} u$
		(22.2.4)	the Jacobian elliptic function ns (of modulus k)

`\Jacobiellsck`
`\Jacobiellsck@{u}{k}`
`\Jacobiellsck@@{u}{k}`
	sc
	$\operatorname{sc}(u,k)$
	$\operatorname{sc} u$
		(22.2.9)	the Jacobian elliptic function sc (of modulus k)

`\Jacobiellsdk`
`\Jacobiellsdk@{u}{k}`
`\Jacobiellsdk@@{u}{k}`
	sd
	$\operatorname{sd}(u,k)$
	$\operatorname{sd} u$
		(22.2.7)	the Jacobian elliptic function sd (of modulus k)

`\Jacobiellsnk`
`\Jacobiellsnk@{u}{k}`
`\Jacobiellsnk@@{u}{k}`
	sn
	$\operatorname{sn}(u,k)$
	$\operatorname{sn} u$
		(22.2.4)	the Jacobian elliptic function sn (of modulus k)

`\JacobiEpsilonk` `\JacobiEpsilonk@{x}{k}`	$\mathcal{E}$ $\mathcal{E}(x,k)$	(22.16.14)	Jacobi's Epsilon function (of modulus k)
`\Jacobiphi{\alpha}{\beta}{\lambda}` `\Jacobiphi{\alpha}{\beta}{\lambda}@{t}`	$\phi^{(\alpha,\beta)}_{\lambda}$ $\phi^{(\alpha,\beta)}_{\lambda}(t)$	(15.9.11)	the Jacobi function
`\JacobipolyP{\alpha}{\beta}{n}` `\JacobipolyP{\alpha}{\beta}{n}@{x}`	$P^{(\alpha,\beta)}_{n}$ $P^{(\alpha,\beta)}_{n}(x)$	§18.3	the Jacobi polynomial
`\Jacobisym{n}{p}`	$(n\mid p)$	§27.9	the Jacobi symbol
`\Jacobithetacombinedq{n}{m}` `\Jacobithetacombinedq{n}{m}@{z}{q}`	$\varphi_{n,m}$ $\varphi_{n,m}(z,q)$	§20.11(v)	the combined theta function
`\Jacobithetaq{j}` `\Jacobithetaq{j}@{z}{q}`	θ_{j} $\theta_{j}(z,q)$	§20.2(i)	the Jacobi theta function of q
`\Jacobithetatau{j}` `\Jacobithetatau{j}@{z}{\tau}`	θ_{j} $\theta_{j}(z\mid\tau)$	§20.2(i)	the Jacobi theta function of τ
`\JacobiZetak` `\JacobiZetak@{x}{k}`	Z $\mathrm{Z}(x\mid k)$	(22.16.32)	Jacobi's Zeta function (of modulus k)
`\Jonquierephi` `\Jonquierephi@{z}{s}`	ϕ $\phi(z,s)$	§25.12(ii)	Truesdell's notation for polylogarithm
`\JordanJ{k}` `\JordanJ{k}@{n}`	J_{k} $J_{k}(n)$	(27.2.11)	Jordan's function
K			

`\Kelvinbei{\nu}`
`\Kelvinbei{\nu}@{x}`
`\Kelvinbei{\nu}@@{x}`
	bei_{ν}
	$\operatorname{bei}_{\nu}(x)$
	$\operatorname{bei}_{\nu} x$
		(10.61.1)	the Kelvin function bei_{ν}

`\Kelvinber{\nu}` `\Kelvinber{\nu}@{x}`	ber_{ν} $\operatorname{ber}_{\nu}(x)$	(10.61.1)	the Kelvin function ber_{ν}

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TEX markup	*Expansion*	*Declared*	*Proper Name*
`\Kelvinber{\nu}@@{x}`	$\mathrm{ber}_{\nu} x$		
`\Kelvinkei{\nu}`	kei_{ν}	(10.61.2)	the Kelvin function kei_{ν}
`\Kelvinkei{\nu}@{x}`	$\mathrm{kei}_{\nu}(x)$		
`\Kelvinkei{\nu}@@{x}`	$\mathrm{kei}_{\nu} x$		
`\Kelvinker{\nu}`	ker_{ν}	(10.61.2)	the Kelvin function ker_{ν}
`\Kelvinker{\nu}@{x}`	$\mathrm{ker}_{\nu}(x)$		
`\Kelvinker{\nu}@@{x}`	$\mathrm{ker}_{\nu} x$		
`\KleincompinvarJtau`	J	(23.15.7)	Klein's complete invariant
`\KleincompinvarJtau@{\tau}`	$J(\tau)$		
`\KrawtchoukpolyK{n}`	K_n	§18.19	the Krawtchouk polynomial
`\KrawtchoukpolyK{n}@{x}{p}{N}`	$K_n(x;p,N)$		
`\Kroneckerdelta{j}{k}`	$\delta_{j,k}$	Intro.	the Kronecker delta
`\KummerconfhyperM`	M	(13.2.2)	the Kummer confluent hypergeometric function M
`\KummerconfhyperM@{a}{b}{z}`	$M(a,b,z)$		
`\KummerconfhyperU`	U	(13.2.6)	the Kummer confluent hypergeometric function U
`\KummerconfhyperU@{a}{b}{z}`	$U(a,b,z)$		
L			
`\LaguerrepolyL{n}`	L_n	§18.1	$= L_n^{(0)}$, shorthand for the Laguerre polynomial
`\LaguerrepolyL{n}@{x}`	$L_n(x)$		
`\LaguerrepolyL[\alpha]{n}`	$L_n^{(\alpha)}$	§18.3	the (generalized or associated) Laguerre (or Sonin) polynomial
`\LaguerrepolyL[\alpha]{n}@{x}`	$L_n^{(\alpha)}(x)$		
`\LambertW`	W	(4.13.1)	the Lambert W-function
`\LambertW@{x}`	$W(x)$		
`\LambertWm`	Wm	§4.13	the non-principal branch of the Lambert W-function
`\LambertWm@{x}`	$\mathrm{Wm}(x)$		
`\LambertWp`	Wp	§4.13	the principal branch of the Lambert W-function
`\LambertWp@{x}`	$\mathrm{Wp}(x)$		
`\LameEc{m}{\nu}`	Ec_{ν}^{m}	§29.3(iv)	the Lamé function Ec_{ν}^{m}
`\LameEc{m}{\nu}@{z}{k^2}`	$Ec_{\nu}^{m}\left(z,k^2\right)$		
`\Lameeigvala{n}{\nu}`	a_{ν}^{n}	§29.3(i)	the eigenvalues of Lamé's equation a_{ν}^{n}
`\Lameeigvala{n}{\nu}@{k^2}`	$a_{\nu}^{n}\left(k^2\right)$		
`\Lameeigvalb{n}{\nu}`	b_{ν}^{n}	§29.3(i)	the eigenvalues of Lamé's equation b_{ν}^{n}
`\Lameeigvalb{n}{\nu}@{k^2}`	$b_{\nu}^{n}\left(k^2\right)$		
`\LameEs{m}{\nu}`	Es_{ν}^{m}	§29.3(iv)	the Lamé function Es_{ν}^{m}
`\LameEs{m}{\nu}@{z}{k^2}`	$Es_{\nu}^{m}\left(z,k^2\right)$		
`\LamepolycdE{m}{2n+2}`	cdE_{2n+2}^{m}	(29.12.7)	the Lamé polynomial cdE_{2n+2}^{m}
`\LamepolycdE{m}{2n+2}@{z}{k^2}`	$cdE_{2n+2}^{m}\left(z,k^2\right)$		
`\LamepolycE{m}{2n+1}`	cE_{2n+1}^{m}	(29.12.3)	the Lamé polynomial cE_{2n+1}^{m}
`\LamepolycE{m}{2n+1}@{z}{k^2}`	$cE_{2n+1}^{m}\left(z,k^2\right)$		
`\LamepolydE{m}{2n+1}`	dE_{2n+1}^{m}	(29.12.4)	the Lamé polynomial dE_{2n+1}^{m}
`\LamepolydE{m}{2n+1}@{z}{k^2}`	$dE_{2n+1}^{m}\left(z,k^2\right)$		
`\LamepolyscdE{m}{2n+3}`	$scdE_{2n+3}^{m}$	(29.12.8)	the Lamé polynomial $scdE_{2n+3}^{m}$
`\LamepolyscdE{m}{2n+3}@{z}{k^2}`			
	$scdE_{2n+3}^{m}\left(z,k^2\right)$		
`\LamepolyscE{m}{2n+2}`	scE_{2n+2}^{m}	(29.12.5)	the Lamé polynomial scE_{2n+2}^{m}
`\LamepolyscE{m}{2n+2}@{z}{k^2}`	$scE_{2n+2}^{m}\left(z,k^2\right)$		
`\LamepolysdE{m}{2n+2}`	sdE_{2n+2}^{m}	(29.12.6)	the Lamé polynomial sdE_{2n+2}^{m}
`\LamepolysdE{m}{2n+2}@{z}{k^2}`	$sdE_{2n+2}^{m}\left(z,k^2\right)$		
`\LamepolysE{m}{2n+1}`	sE_{2n+1}^{m}	(29.12.2)	the Lamé polynomial sE_{2n+1}^{m}

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TeX markup	Expansion	Declared	Proper Name
\LamepolysE{m}{2n+1}@{z}{k^2}	$sE^{m}_{2n+1}(z,k^2)$		
\LamepolyuE{m}{2n}	uE^{m}_{2n}	(29.12.1)	the Lamé polynomial uE^{m}_{2n}
\LamepolyuE{m}{2n}@{z}{k^2}	$uE^{m}_{2n}(z,k^2)$		
\Laplacetrans	$\mathscr{L}$	(1.14.17)	the Laplace transform of a function
\Laplacetrans@{f}	$\mathscr{L}(f)$		
\Laplacetrans@@{f}	$\mathscr{L} f$		
\Laplacetrans@{f}@{s}	$\mathscr{L}(f)(s)$		
\Laplacetrans@@{f}@{s}	$\mathscr{L} f(s)$		
\LauricellaFD	F_D	§19.15	Lauricella's (multivariate) hypergeometric function
\LauricellaFD@{x}{y}{z}{p}	$F_D(x;y;z;p)$		
\LegendrepolyP{n}	P_n	§18.3	the Legendre (or spherical) polynomial
\LegendrepolyP{n}@{x}	$P_n(x)$		
\Legendresym{n}{p}	$(n\vert p)$	§27.9	the Legendre symbol
\LerchPhi	Φ	(25.14.1)	Lerch's transcendent
\LerchPhi@{z}{s}{a}	$\Phi(z,s,a)$		
\LeviCivitasym{i}{j}{k}	$\epsilon_{i\,j\,k}$	(1.6.14)	the Levi-Civita symbol
\lightspeed	c	CODATA	the speed of light
\Liouvillelambda	λ	(27.2.13)	the Liouville's function
\Liouvillelambda@{n}	$\lambda(n)$		
\littleo	o	(2.1.2)	the order less than
\littleo@{x}	$o(x)$		
\littleqJacobipolyp{n}	p_n	(18.27.13)	the little q-Jacobi polynomial
\littleqJacobipolyp{n}@{x}{a}{b}{q}	$p_n(x;a,b;q)$		
\Ln	Ln	(4.2.1)	the multivalued logarithm function
\Ln@{z}	$\mathrm{Ln}(z)$		
\Ln@@{z}	$\mathrm{Ln}\, z$		
\ln	ln	(4.2.2)	the principal branch of logarithm function
\ln@{z}	$\ln(z)$		
\ln@@{z}	$\ln z$		
\log	log	§4.2	the logarithm to base 10
\log@{z}	$\log(z)$		
\log@@{z}	$\log z$		
\logint	li	(6.2.8)	the logarithmic integral
\logint@{z}	$\mathrm{li}(z)$		
\LommelS{\mu}{\nu}	$S_{\mu,\nu}$	(11.9.5)	the Lommel function $S_{\mu,\nu}$
\LommelS{\mu}{\nu}@{z}	$S_{\mu,\nu}(z)$		
\Lommels{\mu}{\nu}	$s_{\mu,\nu}$	(11.9.3)	the Lommel function $s_{\mu,\nu}$
\Lommels{\mu}{\nu}@{z}	$s_{\mu,\nu}(z)$		
M			
\MangoldtLambda	Λ	(27.2.14)	Mangoldt's function
\MangoldtLambda@{n}	$\Lambda(n)$		
\Mathieuce{n}	ce_n	§28.2(vi)	the Mathieu function ce_n
\Mathieuce{n}@{z}{q}	$\mathrm{ce}_n(z,q)$		
\Mathieuce{n}@@{z}{q}	$\mathrm{ce}_n(z)$		
\Mathieueigvala{n}	a_n	§28.2(v)	the eigenvalues of the Mathieu's equation a_n
\Mathieueigvala{n}@{q}	$a_n(q)$		
\Mathieueigvala{n}@@{q}	a_n		
\Mathieueigvalb{n}	b_n	§28.2(v)	the eigenvalues of the Mathieu's equation b_n
\Mathieueigvalb{n}@{q}	$b_n(q)$		
\Mathieueigvalb{n}@@{q}	b_n		

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TEX markup	*Expansion*	*Declared*	*Proper Name*

`\Mathieueigvallambda{\nu+2n}`
`\Mathieueigvallambda{\nu+2n}@{q}`
 	
`\Mathieueigvallambda{\nu+2n}@@{q}`
	$\lambda_{\nu+2n}$
	
	$\lambda_{\nu+2n}(q)$
	
	$\lambda_{\nu+2n}$
		§28.12(i)	the eigenvalues of Mathieu's equation $\lambda_{\nu+2n}$

`\Mathieufe{n}`
`\Mathieufe{n}@{z}{q}`
`\Mathieufe{n}@@{z}{q}`
	fe_n
	$\mathrm{fe}_n(z,q)$
	$\mathrm{fe}_n(z)$
		(28.5.1)	the second solution of Mathieu's equation fe_n

`\Mathieuge{n}`
`\Mathieuge{n}@{z}{q}`
`\Mathieuge{n}@@{z}{q}`
	ge_n
	$\mathrm{ge}_n(z,q)$
	$\mathrm{ge}_n(z)$
		(28.5.2)	the second solution of Mathieu's equation ge_n

`\Mathieume{n}`
`\Mathieume{n}@{z}{q}`
`\Mathieume{n}@@{z}{q}`
	me_n
	$\mathrm{me}_n(z,q)$
	$\mathrm{me}_n(z)$
		§28.12(ii)	the Mathieu function me_n

`\Mathieuse{n}`
`\Mathieuse{n}@{z}{q}`
`\Mathieuse{n}@@{z}{q}`
	se_n
	$\mathrm{se}_n(z,q)$
	$\mathrm{se}_n(z)$
		§28.2(vi)	the Mathieu function se_n

`\MeijerG{m}{n}{p}{q}`
`\MeijerG{m}{n}{p}{q}@{z}{a_1\dots,a_p}{b_1,\dots,b_q}`
 	
`\MeijerG{m}{n}{p}{q}@@{z}{a_1\dots,a_p}{b_1,\dots,b_q}`
 	
`\MeijerG{m}{n}{p}{q}@@@{z}{a_1\dots,a_p}{b_1,\dots,b_q}`
	$G^{m,n}_{p,q}$
	
	$G^{m,n}_{p,q}(z;a_1\dots,a_p;b_1,\dots,b_q)$
	
	$G^{m,n}_{p,q}\left(z;{a_1\dots,a_p \atop b_1,\dots,b_q}\right)$
	
	$G^{m,n}_{p,q}(z)$
		(16.17.1)	the Meijer G-function

`\MeixnerPollaczekpolyP{\lambda}{n}`
 	
`\MeixnerPollaczekpolyP{\lambda}{n}@{x}{\phi}`
	
	$P^{(\lambda)}_n$
	
	$P^{(\lambda)}_n(x;\phi)$
		§18.19	the Meixner–Pollaczek polynomial

`\MeixnerpolyM{n}` `\MeixnerpolyM{n}@{x}{\beta}{c}`	M_n $M_n(x;\beta,c)$	§18.19	the Meixner polynomial

`\Mellintrans`
`\Mellintrans@{f}`
`\Mellintrans@@{f}`
`\Mellintrans@{f}@{s}`
`\Mellintrans@@{f}@{s}`
	$\mathscr{M}$
	$\mathscr{M}\left(f\right)$
	$\mathscr{M}\,f$
	$\mathscr{M}\left(f\right)\left(s\right)$
	$\mathscr{M}\,f\left(s\right)$
		(1.14.32)	the Mellin transform of a function

`\MillsM` `\MillsM@{x}`	M $\mathsf{M}(x)$	(7.8.1)	Mill's ratio
`\MittagLefflerE{a}{b}` `\MittagLefflerE{a}{b}@{z}`	$E_{a,b}$ $E_{a,b}(z)$	(10.46.3)	the Mittag-Leffler function
`\modBesselI{\nu}` `\modBesselI{\nu}@{z}`	I_ν $I_\nu(z)$	(10.25.2)	the modified Bessel function of the first kind

`\modBesselIimag{\nu}`
 	
`\modBesselIimag{\nu}@{x}`
	$\widetilde{I}_\nu$
	
	$\widetilde{I}_\nu(x)$
		(10.45.2)	the modified Bessel function of the first kind of imaginary order

`\modBesselK{\nu}` `\modBesselK{\nu}@{z}`	K_ν $K_\nu(z)$	(10.25.3)	the modified Bessel function of the second kind
`\modBesselKimag{\nu}`	$\widetilde{K}_\nu$	(10.45.2)	the modified Bessel function of the second kind of imaginary order

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TEX markup	*Expansion*	*Declared*	*Proper Name*
`\modBesselKimag{\nu}@{x}`	$\widetilde{K}_{\nu}(x)$		
`\modcylinder{\nu}`	$\mathscr{Z}_{\nu}$	§10.25	the modified cylinder function
`\modcylinder{\nu}@{z}`	$\mathscr{Z}_{\nu}(z)$		
`\modMathieuCe{\nu}`	Ce_{ν}	(28.20.3)	the modified Mathieu function Ce_{ν}
`\modMathieuCe{\nu}@{z}{q}`	$\mathrm{Ce}_{\nu}(z,q)$		
`\modMathieuCe{\nu}@@{z}{q}`	$\mathrm{Ce}_{\nu}(z)$		
`\modMathieuD{j}`	D_{j}	(28.28.24)	the cross-products of modified Mathieu functions and their derivatives
`\modMathieuD{j}@{\nu}{\mu}{z}`	$\mathrm{D}_{j}(\nu,\mu,z)$		
`\modMathieuFe{\nu}`	Fe_{ν}	(28.20.6)	the modified Mathieu function Fe_{ν}
`\modMathieuFe{\nu}@{z}{q}`	$\mathrm{Fe}_{\nu}(z,q)$		
`\modMathieuFe{\nu}@@{z}{q}`	$\mathrm{Fe}_{\nu}(z)$		
`\modMathieuGe{\nu}`	Ge_{ν}	(28.20.7)	the modified Mathieu function Ge_{ν}
`\modMathieuGe{\nu}@{z}{q}`	$\mathrm{Ge}_{\nu}(z,q)$		
`\modMathieuGe{\nu}@@{z}{q}`	$\mathrm{Ge}_{\nu}(z)$		
`\modMathieuIe{n}`	Ie_{n}	(28.20.17)	the modified Mathieu function Ie_{n}
`\modMathieuIe{n}@{z}{h}`	$\mathrm{Ie}_{n}(z,h)$		
`\modMathieuIe{n}@@{z}{h}`	$\mathrm{Ie}_{n}(z)$		
`\modMathieuIo{n}`	Io_{n}	(28.20.18)	the modified Mathieu function Io_{n}
`\modMathieuIo{n}@{z}{h}`	$\mathrm{Io}_{n}(z,h)$		
`\modMathieuIo{n}@@{z}{h}`	$\mathrm{Io}_{n}(z)$		
`\modMathieuKe{n}`	Ke_{n}	(28.20.19)	the modified Mathieu function Ke_{n}
`\modMathieuKe{n}@{z}{h}`	$\mathrm{Ke}_{n}(z,h)$		
`\modMathieuKe{n}@@{z}{h}`	$\mathrm{Ke}_{n}(z)$		
`\modMathieuKo{n}`	Ko_{n}	(28.20.20)	the modified Mathieu function Ko_{n}
`\modMathieuKo{n}@{z}{h}`	$\mathrm{Ko}_{n}(z,h)$		
`\modMathieuKo{n}@@{z}{h}`	$\mathrm{Ko}_{n}(z)$		
`\modMathieuM{j}{\nu}`	$\mathrm{M}^{(j)}_{\nu}$	§28.20(iii)	the modified Mathieu function $\mathrm{M}^{(j)}_{\nu}$
`\modMathieuM{j}{\nu}@{z}{h}`	$\mathrm{M}^{(j)}_{\nu}(z,h)$		
`\modMathieuM{j}{\nu}@@{z}{h}`	$\mathrm{M}^{(j)}_{\nu}(z)$		
`\modMathieuMe{\nu}`	Me_{ν}	(28.20.5)	the modified Mathieu function Me_{ν}
`\modMathieuMe{\nu}@{z}{q}`	$\mathrm{Me}_{\nu}(z,q)$		
`\modMathieuMe{\nu}@@{z}{q}`	$\mathrm{Me}_{\nu}(z)$		
`\modMathieuSe{\nu}`	Se_{ν}	(28.20.4)	the modified Mathieu function Se_{ν}
`\modMathieuSe{\nu}@{z}{q}`	$\mathrm{Se}_{\nu}(z,q)$		
`\modMathieuSe{\nu}@@{z}{q}`	$\mathrm{Se}_{\nu}(z)$		
`\modsphBesseli{1}{n}`	$\mathsf{i}^{(1)}_{n}$	(10.47.7)	the modified spherical Bessel function $\mathsf{i}^{(1)}_{n}$
`\modsphBesseli{1}{n}@{z}`	$\mathsf{i}^{(1)}_{n}(z)$		
`\modsphBesseli{2}{n}`	$\mathsf{i}^{(2)}_{n}$	(10.47.8)	the modified spherical Bessel function $\mathsf{i}^{(2)}_{n}$
`\modsphBesseli{2}{n}@{z}`	$\mathsf{i}^{(2)}_{n}(z)$		
`\modsphBesselK{n}`	k_{n}	(10.47.9)	the modified spherical Bessel function k_{n}
`\modsphBesselK{n}@{z}`	$\mathsf{k}_{n}(z)$		
`\modStruveL{\nu}`	$\mathbf{L}_{\nu}$	(11.2.2)	the modified Struve function $\mathbf{L}_{\nu}$
`\modStruveL{\nu}@{z}`	$\mathbf{L}_{\nu}(z)$		
`\modStruveM{\nu}`	$\mathbf{M}_{\nu}$	(11.2.6)	the modified Struve function $\mathbf{M}_{\nu}$
`\modStruveM{\nu}@{z}`	$\mathbf{M}_{\nu}(z)$		
`\modularlambdatau`	λ	(23.15.6)	the elliptic modular function
`\modularlambdatau@{\tau}`	$\lambda(\tau)$		
`\Moebiusmu`	μ	(27.2.12)	the Möbius function
`\Moebiusmu@{n}`	$\mu(n)$		

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TEX markup	*Expansion*	*Declared*	*Proper Name*
`\multinomial{n}{n_1,n_2,\ldots,n_k}`	$\binom{n}{n_1,n_2,\ldots,n_k}$	§26.4(i)	the multinomial coefficient
`\multivarEulerBeta{m}`	B_m	(35.3.3)	multivariate beta function
`\multivarEulerBeta{m}@{a}{b}`	$\mathrm{B}_m(a,b)$		
`\multivarEulerGamma{m}`	Γ_m	§35.3(i)	the multivariate gamma function
`\multivarEulerGamma{m}@{a}`	$\Gamma_m(a)$		
N			
`\natNumbers`	$\mathbb{N}$	Intro.	the set of 'natural' numbers (positive integers)
`\ncompositions`	c	§26.11	the number of compositions of n
`\ncompositions@{n}`	$c(n)$		
`\ncompositions[m]`	c_m		the number of compositions of n into exactly m parts
`\ncompositions[m]@{n}`	$c_m(n)$		
`\ndivisors`	d	§27.2(i)	the number of divisors of n (divisor function)
`\ndivisors@{n}`	$d(n)$		
`\ndivisors[k]`	d_k		the number of ways of expressing n as product of k factors
`\ndivisors[k]@{n}`	$d_k(n)$		
`\NeumannpolyO{n}`	O_n	(10.23.12)	Neumann's polynomial
`\NeumannpolyO{n}@{x}`	$O_n(x)$		
`\normCoulombC{\ell}`	C_ℓ	(33.2.5)	the normalizing constant for Coulomb (radial) function
`\normCoulombC{\ell}@{\eta}`	$C_\ell(\eta)$		
`\normincBetaI{x}`	I_x	(8.17.2)	the normalized incomplete beta function
`\normincBetaI{x}@{a}{b}`	$I_x(a,b)$		
`\normincGammaP`	P	(8.2.4)	the normalized incomplete gamma function P
`\normincGammaP@{a}{z}`	$P(a,z)$		
`\normincGammaQ`	Q	(8.2.4)	the normalized incomplete gamma function Q
`\normincGammaQ@{a}{z}`	$Q(a,z)$		
`\npartitions`	p	§26.2	the total number of partitions of n
`\npartitions@{n}`	$p(n)$		
`\npartitions[m]`	p_m	§26.9(i)	the total number of partitions of n into at most m parts
`\npartitions[m]@{n}`	$p_m(n)$		
`\npermutations{n}`	$\mathfrak{S}_n$	§26.13	the number of permutations of n
`\nplanepartitions`	pp	§26.12(i)	the number of plane partitions of n
`\nplanepartitions@{n}`	$\mathrm{pp}(n)$		
`\nprimes`	π	(27.2.2)	the number of primes not exceeding x
`\nprimes@{x}`	$\pi(x)$		
`\nprimesdiv`	ν	§27.2(i)	the number of distinct primes dividing n
`\nprimesdiv@{n}`	$\nu(n)$		
`\nrestcompositions`	c	§26.11	the restricted number of compositions of n into exactly m parts
`\nrestcompositions@{\mathrm{condition}}{n}`	$c(\mathrm{condition},n)$		
`\nrestpartitions`	p	§26.10(i)	the restricted number of partitions of n
`\nrestpartitions@{\mathrm{condition}}{n}`	$p(\mathrm{condition},n)$		
`\nrestpartitions[m]`	p_m	§26.9(i)	the restricted number of partitions of n into at most m parts

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TEX markup	*Expansion*	*Declared*	*Proper Name*
\nrestpartitions[m]@{\mathrm{condition}}{n}	$p_m(\mathrm{condition},n)$		
\nsquares{k} \nsquares{k}@{n}	r_k $r_k(n)$	§27.13(iv)	the number of squares
O			
\OlverconfhyperM \OlverconfhyperM@{a}{b}{z}	$\mathbf{M}$ $\mathbf{M}(a,b,z)$	(13.2.3)	Olver's confluent hypergeometric function
P			
\Pade{p}{q}{f} \Pade{p}{q}{f}@{z}	$[p/q]_f$ $[p/q]_f(z)$	§3.11(iv)	the Padé approximant
\paraU \paraU@{a}{z}	U $U(a,z)$	§12.2(i)	the parabolic cylinder (or Weber) function U
\paraUbar \paraUbar@{a}{x}	$\overline{U}$ $\overline{U}(a,x)$	§12.2(vi)	the parabolic cylinder (or Weber) function $\overline{U}$
\paraV \paraV@{a}{z}	V $V(a,z)$	§12.2(i)	the parabolic cylinder (or Weber) function V
\paraW \paraW@{a}{x}	W $W(a,x)$	§12.14(i)	the parabolic cylinder (or Weber) function W
\perBernoulliB{n} \perBernoulliB{n}@{x}	$\widetilde{B}_n$ $\widetilde{B}_n(x)$	§24.2(iii)	the periodic Bernoulli function
\perEulerE{n} \perEulerE{n}@{x}	$\widetilde{E}_n$ $\widetilde{E}_n(x)$	§24.2(iii)	the periodic Euler function
\perZeta \perZeta@{x}{s}	F $F(x,s)$	(25.13.1)	the periodic zeta function
\pgcd{a_1,\ldots,a_n}	$(a_1,\ldots,a_n)$	§27.1	the greatest common divisor
\phase \phase@{z} \phase@@{z}	ph $\mathrm{ph}(z)$ $\mathrm{ph}\,z$	(1.9.7)	the phase of a complex number z
\Pochhammersym{a}{n}	$(a)_n$	§5.2(iii)	the Pochhammer symbol (or shifted factorial)
\PollaczekpolyP{\lambda}{n} \PollaczekpolyP{\lambda}{n}@{x}{a}{b}	$P^{(\lambda)}_n$ $P^{(\lambda)}_n(x;a,b)$	(18.35.4)	the Pollaczek polynomial
\polygamma{n} \polygamma{n}@{z}	$\psi^{(n)}$ $\psi^{(n)}(z)$	§5.15	the polygamma function
\polylog{s} \polylog{s}@{z}	Li_s $\mathrm{Li}_s(z)$	(25.12.10)	the polylogarithm
Q			
\qAppellPhi{1} \qAppellPhi{1}@{a}{b}{b'}{c}{q}{x}{y}	$\Phi^{(1)}$ $\Phi^{(1)}(a;b,b';c;q;x,y)$	(17.4.5)	the first q-Appell function
\qAppellPhi{2} \qAppellPhi{2}@{a}{b}{b'}{c}{c'}{q}{x}{y}	$\Phi^{(2)}$ $\Phi^{(2)}(a;b,b';c,c';q;x,y)$	(17.4.6)	the second q-Appell function
\qAppellPhi{3} \qAppellPhi{3}@{a}{a'}{b}{b'}{c}{q}{x}{y}	$\Phi^{(3)}$ $\Phi^{(3)}(a,a';b,b';c;q;x,y)$	(17.4.7)	the third q-Appell function
\qAppellPhi{4}	$\Phi^{(4)}$	(17.4.8)	the fourth q-Appell function

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TEX markup	*Expansion*	*Declared*	*Proper Name*
`\qAppellPhi{4}@{a}{b}{c}{c'}{q}{x}{y}`	$\Phi^{(4)}(a,b;c,c';q;x,y)$		
`\qBernoullipolybeta{n}`	β_n	(17.3.7)	the q-Bernoulli polynomial
`\qBernoullipolybeta{n}@{x}{q}`	$\beta_n(x,q)$		
`\qBeta{q}`	B_q	(5.18.11)	the q-Beta function
`\qBeta{q}@{a}{b}`	$\mathrm{B}_q(a,b)$		
`\qbinom{n}{m}{q}`	$\begin{bmatrix} n \\ m \end{bmatrix}_q$	(17.2.27)	the q-binomial coefficient
`\qCos{q}`	Cos_q	(17.3.6)	the q-cosine function Cos_q
`\qCos{q}@{x}`	$\mathrm{Cos}_q(x)$		
`\qcos{q}`	$\cos_q$	(17.3.5)	the q-cosine function $\cos_q$
`\qcos{q}@{x}`	$\cos_q(x)$		
`\qDigamma{q}`	ψ_q	?	the q-digamma function
`\qDigamma{q}@{z}`	$\psi_q(z)$		
`\qEulernumberA{m}{s}`	$A_{m,s}$	(17.3.8)	the q-Euler number
`\qEulernumberA{m}{s}@{q}`	$A_{m,s}(q)$		
`\qExp{q}`	E_q	(17.3.2)	the q-exponential function E_q
`\qExp{q}@{x}`	$E_q(x)$		
`\qexp{q}`	e_q	(17.3.1)	the q-exponential function e_q
`\qexp{q}@{x}`	$e_q(x)$		
`\qfactorial{n}{q}`	$n!_q$	(5.18.2)	the q-factorial
`\qGamma{q}`	Γ_q	(5.18.4)	the q-gamma function
`\qGamma{q}@{z}`	$\Gamma_q(z)$		
`\qgenhyperphi{r+1}{s}`	${}_{r+1}\phi_s$	(17.4.1)	the q-hypergeometric (or basic hypergeometric) function
`\qgenhyperphi{r+1}{s}@{a_0,\dots,a_r}{b_1,\dots,b_s}{q}{z}`	${}_{r+1}\phi_s(a_0,\dots,a_r;b_1,\dots,b_s;q,z)$		
`\qgenhyperphi{r+1}{s}@@{a_0,\dots,a_r}{b_1,\dots,b_s}{q}{z}`	${}_{r+1}\phi_s\left({a_0,\dots,a_r \atop b_1,\dots,b_s};q,z\right)$		
`\qgenhyperphi{r+1}{s}@@@{a_0,\dots,a_r}{b_1,\dots,b_s}{q}{z}`	${}_{r+1}\phi_s(q,z)$		
`\qgenhyperpsi{r}{s}`	${}_{r}\psi_s$	(17.4.3)	the bilateral q-hypergeometric (or bilateral basic hypergeometric) function
`\qgenhyperpsi{r}{s}@{a_0,\dots,a_r}{b_1,\dots,b_s}{q}{z}`	${}_{r}\psi_s(a_0,\dots,a_r;b_1,\dots,b_s;q,z)$		
`\qgenhyperpsi{r}{s}@@{a_0,\dots,a_r}{b_1,\dots,b_s}{q}{z}`	${}_{r}\psi_s\left({a_0,\dots,a_r \atop b_1,\dots,b_s};q,z\right)$		
`\qgenhyperpsi{r}{s}@@@{a_0,\dots,a_r}{b_1,\dots,b_s}{q}{z}`	${}_{r}\psi_s(q,z)$		
`\qHahnpolyQ{n}`	Q_n	(18.27.3)	the q-Hahn polynomial
`\qHahnpolyQ{n}@{x}{\alpha}{\beta}{N}{q}`	$Q_n(x;\alpha,\beta,N;q)$		
`\qinvAlSalamChiharapolyQ{n}`	Q_n	(18.28.9)	the q^{-1}-Al-Salam–Chihara polynomial
`\qinvAlSalamChiharapolyQ{n}@{x}{a}{b}{q^{-1}}`	$Q_n\left(x;a,b\,\middle|\,q^{-1}\right)$		

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TEX markup	Expansion	Declared	Proper Name
`\qLaguerrepolyL{\alpha}{n}`	$L_n^{(\alpha)}$	(18.27.15)	the q-Laguerre polynomial
`\qLaguerrepolyL{\alpha}{n}@{x}{q}`	$L_n^{(\alpha)}(x;q)$		
`\qmultinomial{n}{n_1,n_2,\ldots,n_3}{q}`	$\begin{bmatrix} n \\ n_1,n_2,\ldots,n_3 \end{bmatrix}_q$	§26.16	the q-multinomial coefficient
`\qmultiPochhammersym{a_1,a_2,\ldots,a_k}{q}{n}`	$(a_1,a_2,\ldots,a_k;q)_n$	§17.2(i)	the q-multiple Pochhammer symbol
`\qPochhammer{a}{q}{n}`	$(a;q)_n$	§17.2(i)	the q-Pochhammer symbol (or q-shifted factorial)
`\qpolygamma{n}{q}`	$\psi_q^{(n)}$	?	the q-polygamma function
`\qpolygamma{n}{q}@{z}`	$\psi_q^{(n)}(z)$		
`\qRacahpolyR{n}`	R_n	(18.28.19)	the q-Racah polynomial
`\qRacahpolyR{n}@{x}{\alpha}{\beta}{\gamma}{\delta}{q}`	$R_n(x;\alpha,\beta,\gamma,\delta\,\vert\,q)$		
`\qSin{q}`	Sin_q	(17.3.4)	the q-sine function Sin_q
`\qSin{q}@{x}`	$\mathrm{Sin}_q(x)$		
`\qsin{q}`	$\sin_q$	(17.3.3)	the q-sine function $\sin_q$
`\qsin{q}@{x}`	$\sin_q(x)$		
`\qStirlingnumbera{m}{s}`	$a_{m,s}$	(17.3.9)	the q-Stirling number
`\qStirlingnumbera{m}{s}@{q}`	$a_{m,s}(q)$		
R			
`\RacahpolyR{n}`	R_n	§18.25	the Racah polynomial
`\RacahpolyR{n}@{x(x+\gamma+\delta+1)}{\alpha}{\beta}{\gamma}{\delta}`	$R_n(x(x+\gamma+\delta+1);\alpha,\beta,\gamma,\delta)$		
`\radMathieuDc{j}`	Dc_j	(28.28.39)	the cross-products of radial Mathieu functions and their derivatives Dc_j
`\radMathieuDc{j}@{n}{m}{z}`	$\mathrm{Dc}_j(n,m,z)$		
`\radMathieuDs{j}`	Ds_j	(28.28.35)	the cross-products of radial Mathieu functions and their derivatives Ds_j
`\radMathieuDs{j}@{n}{m}{z}`	$\mathrm{Ds}_j(n,m,z)$		
`\radMathieuDsc{j}`	Dsc_j	(28.28.40)	the cross-products of radial Mathieu functions and their derivatives Dsc_j
`\radMathieuDsc{j}@{n}{m}{z}`	$\mathrm{Dsc}_j(n,m,z)$		
`\radMathieuMc{j}{n}`	$\mathrm{Mc}_n^{(j)}$	(28.20.15)	the radial Mathieu function $\mathrm{Mc}_n^{(j)}$
`\radMathieuMc{j}{n}@{z}{h}`	$\mathrm{Mc}_n^{(j)}(z,h)$		
`\radMathieuMc{j}{n}@@{z}{h}`	$\mathrm{Mc}_n^{(j)}(z)$		
`\radMathieuMs{j}{n}`	$\mathrm{Ms}_n^{(j)}$	(28.20.16)	the radial Mathieu function $\mathrm{Ms}_n^{(j)}$
`\radMathieuMs{j}{n}@{z}{h}`	$\mathrm{Ms}_n^{(j)}(z,h)$		
`\radMathieuMs{j}{n}@@{z}{h}`	$\mathrm{Ms}_n^{(j)}(z)$		
`\radsphwaveS{m}{j}{n}`	$S_n^{m(j)}$	(30.11.3)	the radial spheroidal wave function
`\radsphwaveS{m}{j}{n}@{z}{\gamma}`	$S_n^{m(j)}(z,\gamma)$		
`\Ramanujansum{k}`	c_k	(27.10.4)	Ramanujan's sum
`\Ramanujansum{k}@{n}`	$c_k(n)$		
`\Ramanujantau`	τ	(27.14.18)	Ramanujan's tau function
`\Ramanujantau@{n}`	$\tau(n)$		

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TEX markup	Expansion	Declared	Proper Name
`\Rationals`	$\mathbb{Q}$	Intro.	the set of rational numbers
`\Rayleighsigma{n}` `\Rayleighsigma{n}@{\nu}`	σ_n $\sigma_n(\nu)$	(10.21.55)	the Rayleigh function

`\realpart`
`\realpart@{z}`
`\realpart@@{z}`
	$\Re$
	$\Re(z)$
	$\Re z$
		(1.9.2)	the real part of a complex number z

`\Reals`	$\mathbb{R}$	Intro.	the set of real numbers
`\regCoulombF{\ell}` `\regCoulombF{\ell}@{\eta}{\rho}`	F_ℓ $F_\ell(\eta,\rho)$	(33.2.3)	the regular Coulomb (radial) function (for repulsive interactions) F_ℓ
`\regCoulombf` `\regCoulombf@{\epsilon}{\ell}{r}`	f $f(\epsilon,\ell;r)$	(33.14.4)	the regular Coulomb (radial) function (for attractive interactions) f
`\regCoulombs` `\regCoulombs@{\epsilon}{\ell}{r}`	s $s(\epsilon,\ell;r)$	(33.14.9)	the regular Coulomb (radial) function (for attractive interactions) s
`\repinterfc{n}` `\repinterfc{n}@{z}`	$\mathrm{i}^n\mathrm{erfc}$ $\mathrm{i}^n\mathrm{erfc}(z)$	(7.18.2)	the repeated integrals of complementary error function
`\RiemannsymP` `\RiemannsymP@{\begin{Bmatrix} a & b & c & \\ a_1 & b_1 & c_1 & z \\ a_2 & b_2 & c_2 & \end{Bmatrix}}`	P $P\begin{Bmatrix} a & b & c & \\ a_1 & b_1 & c_1 & z \\ a_2 & b_2 & c_2 & \end{Bmatrix}$	(15.11.3)	Riemann's P-symbol for solutions of the generalized hypergeometric differential equation
`\Riemanntheta` `\Riemanntheta@{z}{\Omega}`	θ $\theta(z\|\Omega)$	(21.2.1)	the Riemann theta function
`\Riemannthetachar{\alpha}{\beta}` `\Riemannthetachar{\alpha}{\beta}@{z}{\Omega}`	$\theta\genfrac{[}{]}{0pt}{}{\alpha}{\beta}$ $\theta\genfrac{[}{]}{0pt}{}{\alpha}{\beta}(z\|\Omega)$	(21.2.5)	the Riemann theta function with characteristics
`\Riemannxi` `\Riemannxi@{s}`	ξ $\xi(s)$	(25.4.4)	the Riemann ξ function
`\Riemannzeta` `\Riemannzeta@{s}`	ζ $\zeta(s)$	(25.2.1)	the Riemann zeta function
`\Rydbergconst`	R_∞	CODATA	the Rydberg constant
S			
`\scbigqJacobipolyP{\alpha}{\beta}{n}` `\scbigqJacobipolyP{\alpha}{\beta}{n}@{x}{c}{d}{q}`	$P_n^{(\alpha,\beta)}$ $P_n^{(\alpha,\beta)}(x;c,d;q)$	(18.27.6)	the scaled big q-Jacobi polynomial
`\Schwarzian{z}{\zeta}`	$\{z,\zeta\}$	(1.13.20)	the Schwarzian
`\scincgamma` `\scincgamma@{a}{z}`	γ^* $\gamma^*(a,z)$	(8.2.6)	the scaled incomplete gamma function
`\ScorerGi`	Gi	(9.12.4)	the Scorer (or inhomogeneous Airy) function Gi

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TEX markup	Expansion	Declared	Proper Name
`\ScorerGi@{z}`	$\mathrm{Gi}(z)$		
`\ScorerHi` `\ScorerHi@{z}`	Hi $\mathrm{Hi}(z)$	(9.12.5)	the Scorer (or inhomogeneous Airy) function Hi
`\scRiemanntheta` `\scRiemanntheta@{z}{\Omega}`	$\hat{\theta}$ $\hat{\theta}(z\|\Omega)$	(21.2.2)	the scaled Riemann theta function (or oscillatory part of the theta function)

`\sec`
`\sec@{z}`
`\sec@@{z}`
	$\sec$
	$\sec(z)$
	$\sec z$
		(4.14.6)	the secant function

`\sech`
`\sech@{z}`
`\sech@@{z}`
	sech
	$\mathrm{sech}(z)$
	$\mathrm{sech}\, z$
		(4.28.6)	the hyperbolic secant function

`\setmod`	$/$	§21.1	the set modulus operator
`\shiftChebyshevpolyT{n}` `\shiftChebyshevpolyT{n}@{x}`	T^*_n $T^*_n(x)$	§18.3	the shifted Chebyshev polynomial of the first kind
`\shiftChebyshevpolyU{n}` `\shiftChebyshevpolyU{n}@{x}`	U^*_n $U^*_n(x)$	§18.3	the shifted Chebyshev polynomial of the second kind
`\shiftfactorial{a}{k}`	$[a]_k$	(35.4.1)	the partitional shifted factorial
`\shiftJacobipolyG{n}` `\shiftJacobipolyG{n}@{p}{q}{x}`	G_n $G_n(p,q,x)$	(18.1.2)	the shifted Jacobi polynomial
`\shiftLegendrepolyP{n}` `\shiftLegendrepolyP{n}@{x}`	P^*_n $P^*_n(x)$	§18.3	the shifted Legendre polynomial
`\shiftsinint` `\shiftsinint@{z}`	si $\mathrm{si}(z)$	(6.2.10)	the shifted sine integral

`\sign`
`\sign@{x}`
`\sign@@{x}`
	sign
	$\mathrm{sign}(x)$
	$\mathrm{sign}\, x$
		Intro.	the sign of a number x

`\sin`
`\sin@{z}`
`\sin@@{z}`
	$\sin$
	$\sin(z)$
	$\sin z$
		(4.14.1)	the sine function

`\sinh`
`\sinh@{z}`
`\sinh@@{z}`
	$\sinh$
	$\sinh(z)$
	$\sinh z$
		(4.28.1)	the hyperbolic sine function

`\sinhint` `\sinhint@{z}`	Shi $\mathrm{Shi}(z)$	(6.2.15)	the hyperbolic sine integral
`\sinint` `\sinint@{z}`	Si $\mathrm{Si}(z)$	(6.2.9)	the sine integral Si
`\sphBesselJ{n}` `\sphBesselJ{n}@{z}`	j_n $\mathsf{j}_n(z)$	(10.47.3)	the spherical Bessel function of the first kind
`\sphBesselY{n}` `\sphBesselY{n}@{z}`	y_n $\mathsf{y}_n(z)$	(10.47.4)	the spherical Bessel function of the second kind
`\spheigvalLambda{m}{n}` `\spheigvalLambda{m}{n}@{\gamma^2}`	λ^m_n $\lambda^m_n(\gamma^2)$	§30.3(i)	the eigenvalues of the spheroidal differential equation
`\sphHankelh{1}{n}` `\sphHankelh{1}{n}@{z}`	$\mathsf{h}^{(1)}_n$ $\mathsf{h}^{(1)}_n(z)$	(10.47.5)	the spherical Hankel function of the first kind
`\sphHankelh{2}{n}` `\sphHankelh{2}{n}@{z}`	$\mathsf{h}^{(2)}_n$ $\mathsf{h}^{(2)}_n(z)$	(10.47.6)	the spherical Hankel function of the second kind
`\sphharmonicY{l}{m}`	$Y_{l,m}$	(14.30.1)	the spherical harmonic

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TEX markup	*Expansion*	*Declared*	*Proper Name*
`\sphharmonicY{l}{m}@{\theta}{\phi}`	$Y_{l,m}(\theta,\phi)$		
`\sphwavePs{m}{n}` `\sphwavePs{m}{n}@{z}{\gamma^2}`	Ps^{m}_{n} $\mathit{Ps}^{m}_{n}\left(z,\gamma^{2}\right)$	§30.6	the spheroidal wave function of complex argument
`\sphwavePsreal{m}{n}` `\sphwavePsreal{m}{n}@{x}{\gamma^2}`	Ps^{m}_{n} $\mathsf{Ps}^{m}_{n}\left(x,\gamma^{2}\right)$	§30.4(i)	the spheroidal wave function of first kind
`\sphwaveQs{m}{n}` `\sphwaveQs{m}{n}@{z}{\gamma^2}`	Qs^{m}_{n} $\mathit{Qs}^{m}_{n}\left(z,\gamma^{2}\right)$	§30.6	the spheroidal wave function of complex argument
`\sphwaveQsreal{m}{n}` `\sphwaveQsreal{m}{n}@{x}{\gamma^2}`	Qs^{m}_{n} $\mathsf{Qs}^{m}_{n}\left(x,\gamma^{2}\right)$	§30.5	the spheroidal wave function of second kind

`\Stieltjestrans`
`\Stieltjestrans@{f}`
`\Stieltjestrans@@{f}`
`\Stieltjestrans@{f}@{s}`
`\Stieltjestrans@@{f}@{s}`
	$\mathcal{S}$
	$\mathcal{S}\left(f\right)$
	$\mathcal{S}\,f$
	$\mathcal{S}\left(f\right)\left(s\right)$
	$\mathcal{S}\,f\left(s\right)$
		(1.14.47)	the Stieltjes transform of a function

`\StieltjesWigertpolyS{n}` `\StieltjesWigertpolyS{n}@{x}{q}`	S_{n} $S_{n}(x;q)$	(18.27.18)	the Stieltjes–Wigert polynomial
`\StirlingnumberS` `\StirlingnumberS@{n}{k}`	S $S(n,k)$	§26.8(i)	the Stirling number of the second kind
`\Stirlingnumbers` `\Stirlingnumbers@{n}{k}`	s $s(n,k)$	§26.8(i)	the Stirling number of the first kind
`\StruveH{\nu}` `\StruveH{\nu}@{z}`	$\mathbf{H}_{\nu}$ $\mathbf{H}_{\nu}(z)$	(11.2.1)	the Struve function $\mathbf{H}_{\nu}$
`\StruveK{\nu}` `\StruveK{\nu}@{z}`	$\mathbf{K}_{\nu}$ $\mathbf{K}_{\nu}(z)$	(11.2.5)	the Struve function $\mathbf{K}_{\nu}$
`\sumdivisors{\alpha}` `\sumdivisors{\alpha}@{n}`	σ_{α} $\sigma_{\alpha}(n)$	(27.2.10)	the sum of powers of divisors of n
`\surfharmonicY{l}{m}` `\surfharmonicY{l}{m}@{\theta}{\phi}`	Y^{m}_{l} $Y^{m}_{l}(\theta,\phi)$	(14.30.2)	the surface harmonic of the first kind
T			

`\tan`
`\tan@{z}`
`\tan@@{z}`
	$\tan$
	$\tan(z)$
	$\tan z$
		(4.14.4)	the tangent function

`\tanh`
`\tanh@{z}`
`\tanh@@{z}`
	$\tanh$
	$\tanh(z)$
	$\tanh z$
		(4.28.4)	the hyperbolic tangent function

`\terminant{p}` `\terminant{p}@{z}`	F_{p} $F_{p}(z)$	(2.11.11)	the terminant function
`\trace`	tr	Intro.	the trace of a matrix
`\transpose{\mathbf{X}}`	$\mathbf{X}^{\mathrm{T}}$	?	the transpose of a matrix
`\trianglepoly{\alpha}{\beta}{\gamma}{m}{n}` `\trianglepoly{\alpha}{\beta}{\gamma}{m}{n}@{x}{y}`	$P^{\alpha,\beta,\gamma}_{m,n}$ $P^{\alpha,\beta,\gamma}_{m,n}(x,y)$	(18.37.7)	the triangle polynomial
U			
`\ultrasphpoly{\lambda}{n}` `\ultrasphpoly{\lambda}{n}@{x}`	$C^{(\lambda)}_{n}$ $C^{(\lambda)}_{n}(x)$	§18.3	the ultraspherical (or Gegenbauer) polynomial

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TEX markup	*Expansion*	*Declared*	*Proper Name*
\umbcanonint	$\Psi^{(\mathrm{U})}$	(36.2.5)	the umbilic canonical integral function
\umbcanonint@{x}	$\Psi^{(\mathrm{U})}(x)$		
\umbcatastrophe	$\Phi^{(\mathrm{U})}$	§36.2	the umbilic catastrophe
\umbcatastrophe@{s}{t}{x}	$\Phi^{(\mathrm{U})}(s,t;x)$		
\umbdiffrcanonint	$\Psi^{(\mathrm{U})}$	(36.2.11)	the umbilic diffraction canonical integral function
\umbdiffrcanonint@{x}{k}	$\Psi^{(\mathrm{U})}(x;k)$		
V			
\variation	$\mathcal{V}$	(1.4.33)	the total variation of a function
\variation@{f}	$\mathcal{V}(f)$		
\variation[a,b]	$\mathcal{V}_{a,b}$		the total variation of a function on an interval
\variation[a,b]@{f}	$\mathcal{V}_{a,b}(f)$		
\VoigtH	H	(7.19.4)	the line broadening function
\VoigtH@{a}{u}	$H(a,u)$		
\VoigtU	U	(7.19.1)	the Voigt function U
\VoigtU@{x}{t}	$\mathsf{U}(x,t)$		
\VoigtV	V	(7.19.2)	the Voigt function V
\VoigtV@{x}{t}	$\mathsf{V}(x,t)$		
W			
\WaringG	G	§27.13(iii)	Waring's function G
\WaringG@{k}	$G(k)$		
\Waringg	g	§27.13(iii)	Waring's function g
\Waringg@{k}	$g(k)$		
\WeberE{\nu}	$\mathbf{E}_{\nu}$	(11.10.2)	the Weber function
\WeberE{\nu}@{z}	$\mathbf{E}_{\nu}(z)$		
\Weierstrasspinvar	$\wp$	(23.3.8)	the Weierstrass $\wp$-function (on invariants)
\Weierstrasspinvar@{z}{g_2}{g_3}	$\wp(z;g_2,g_3)$		
\Weierstrasspinvar@@{z}{g_2}{g_3}	$\wp(z)$		
\Weierstrassplatt	$\wp$	(23.2.4)	the Weierstrass $\wp$-function (on Lattice)
\Weierstrassplatt@{z}{L}	$\wp(z\|L)$		
\Weierstrassplatt@@{z}{L}	$\wp(z)$		
\Weierstrasssigmainvar	σ	§23.3(i)	the Weierstrass sigma function σ (on invariants)
\Weierstrasssigmainvar@{z}{g_2}{g_3}	$\sigma(z;g_2,g_3)$		
\Weierstrasssigmainvar@@{z}{g_2}{g_3}	$\sigma(z)$		
\Weierstrasssigmalatt	σ	(23.2.6)	the Weierstrass sigma function σ (on Lattice)
\Weierstrasssigmalatt@{z}{L}	$\sigma(z\|L)$		
\Weierstrasssigmalatt@@{z}{L}	$\sigma(z)$		
\Weierstrasszetainvar	ζ	§23.3(i)	the Weierstrass zeta function ζ (on invariants)
\Weierstrasszetainvar@{z}{g_2}{g_3}	$\zeta(z;g_2,g_3)$		
\Weierstrasszetainvar@@{z}{g_2}{g_3}	$\zeta(z)$		
\Weierstrasszetalatt	ζ	(23.2.5)	the Weierstrass zeta function ζ (on Lattice)
\Weierstrasszetalatt@{z}{L}	$\zeta(z\|L)$		
\Weierstrasszetalatt@@{z}{L}	$\zeta(z)$		
\WhittakerconfhyperM{\kappa}{\mu}	$M_{\kappa,\mu}$	(13.14.2)	the Whittaker confluent hypergeometric function $M_{\kappa,\mu}$

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TEX markup	*Expansion*	*Declared*	*Proper Name*
`\WhittakerconfhyperM{\kappa}{\mu}@{z}`	$M_{\kappa,\mu}(z)$		
`\WhittakerconfhyperW{\kappa}{\mu}`	$W_{\kappa,\mu}$	(13.14.3)	the Whittaker confluent hypergeometric function $W_{\kappa,\mu}$
`\WhittakerconfhyperW{\kappa}{\mu}@{z}`	$W_{\kappa,\mu}(z)$		
`\WhittakerparaD{\nu}`	D_{ν}	§12.1	Whittaker's notation for the parabolic cylinder function
`\WhittakerparaD{\nu}@{z}`	$D_{\nu}(z)$		
`\Wignerninejsym`	$9j$	(34.6.1)	the Wigner $9j$ symbol
`\Wignerninejsym@{j_{11}}{j_{12}}{j_{13}}{j_{21}}{j_{22}}{j_{23}}{j_{31}}{j_{32}}{j_{33}}`	$\begin{Bmatrix} j_{11} & j_{12} & j_{13} \\ j_{21} & j_{22} & j_{23} \\ j_{31} & j_{32} & j_{33} \end{Bmatrix}$		
`\Wignersixjsym`	$6j$	(34.4.1)	the Wigner $6j$ symbol
`\Wignersixjsym@{j_1}{j_2}{j_3}{l_1}{l_2}{l_3}`	$\begin{Bmatrix} j_1 & j_2 & j_3 \\ l_1 & l_2 & l_3 \end{Bmatrix}$		
`\Wignerthreejsym`	$3j$	(34.2.4)	the Wigner $3j$ symbol
`\Wignerthreejsym@{j_1}{j_2}{j_3}{m_1}{m_2}{m_3}`	$\begin{pmatrix} j_1 & j_2 & j_3 \\ m_1 & m_2 & m_3 \end{pmatrix}$		
`\WilsonpolyW{n}`	W_n	§18.25	the Wilson polynomial
`\WilsonpolyW{n}@{x^2}{a}{b}{c}{d}`	$W_n\left(x^2; a, b, c, d\right)$		
`\Wronskian`	$\mathscr{W}$	(1.13.4)	the Wronskian
`\Wronskian@{w_1,w_2}`	$\mathscr{W}\left\{w_1, w_2\right\}$		
Z			
`\zAirya{k}`	a_k	§9.9(i)	the k^{th} zero of Airy Ai
`\zAiryb{k}`	b_k	§9.9(i)	the k^{th} zero of Airy Bi
`\zAirybeta{k}`	β_k	§9.9(i)	the k^{th} complex zero of Airy Bi
`\zBesselj{\nu}{m}`	$j_{\nu,m}$	§10.21(i)	the m^{th} zero of the Bessel function of the first kind J_{ν}
`\zBessely{\nu}{m}`	$y_{\nu,m}$	§10.21(i)	the m^{th} zero of the Bessel function of the second kind Y_{ν}
`\zderivAirya{k}`	a'_k	§9.9(i)	the k^{th} zero of Airy Ai′
`\zderivAiryb{k}`	b'_k	§9.9(i)	the k^{th} zero of Airy Bi′
`\zderivAirybeta{k}`	β'_k	§9.9(i)	the k^{th} complex zero of Airy Bi′
`\zderivBesselj{\nu}{m}`	$j'_{\nu,m}$	§10.21(i)	the m^{th} zero of the derivative of the Bessel function of the first kind J'_{ν}
`\zderivBessely{\nu}{m}`	$y'_{\nu,m}$	§10.21(i)	the m^{th} zero of the derivative of the Bessel function of the second kind Y'_{ν}
`\zonalpolyZ{\kappa}`	Z_{κ}	§35.4(i)	the zonal polynomial
`\zonalpolyZ{\kappa}@{\mathbf{T}}`	$Z_{\kappa}(\mathbf{T})$		

continued on next page

TEX markup	*Expansion*	*Declared*	*Proper Name*

D Macros sorted by notation

Expansion	*TEX markup*	*Declared*	*Proper Name*
*			
$\overline{z}$	`\conj{z}`	(1.9.11)	the complex conjugate of a complex number z
$n!_q$	`\qfactorial{n}{q}`	(5.18.2)	the q-factorial
$\cdot$	`\dotprod`	?	the vector dot product operator
$/$	`\setmod`	§21.1	the set modulus operator
$\times$	`\cartprod`	§23.1	the Cartesian product operator
$\times$	`\crossprod`	?	the vector cross product operator
$\sim$	`\asympeq`	(2.1.1)	asymptotically equal
$\sim$	`\asympexp`	§2.1(iii)	asymptotic expansion (the right-hand side is the asymptotic expansion of the left-hand side)
$\vert$	`\divides`	?	the divides operator operator
$\lvert x\rvert$	`\abs{x}`		the absolute value of x
$\lvert x\rvert$	`\card{x}`	§26.1	the cardinality of a set
$\lceil x\rceil$	`\ceiling{x}`	Intro.	the ceiling of a real number x
$\lfloor x\rfloor$	`\floor{x}`		the floor of a real number x
$[a]_k$	`\shiftfactorial{a}{k}`	(35.4.1)	the partitional shifted factorial
$[p/q]_f(z)$	`\Pade{p}{q}{f}@{z}`	§3.11(iv)	the Padé approximant
$\left[{n \atop m}\right]_q$	`\qbinom{n}{m}{q}`	(17.2.27)	the q-binomial coefficient
$\left[{n \atop n_1,n_2,\ldots,n_3}\right]_q$	`\qmultinomial{n}{n_1,n_2,\ldots,n_3}{q}`	§26.16	the q-multinomial coefficient
$(a)_n$	`\Pochhammersym{a}{n}`	§5.2(iii)	the Pochhammer symbol (or shifted factorial)
$(a_1,\ldots,a_n)$	`\pgcd{a_1,\ldots,a_n}`	§27.1	the greatest common divisor
$(n\vert p)$	`\Jacobisym{n}{p}`	§27.9	the Jacobi symbol
$(n\vert p)$	`\Legendresym{n}{p}`	§27.9	the Legendre symbol
$(a;q)_n$	`\qPochhammer{a}{q}{n}`	§17.2(i)	the q-Pochhammer symbol (or q-shifted factorial)
$(a_1,a_2,\ldots,a_k;q)_n$	`\qmultiPochhammersym{a_1,a_2,\ldots,a_k}{q}{n}`		the q-multiple Pochhammer symbol
$(j_1\;m_1\;j_2\;m_2\vert j_1\;j_2\;j_3\;m_3)$	`\ClebschGordan{j_1}{m_1}{j_2}{m_2}{j_3}{m_3}`	§34.1	the Clebsch-Gordan coefficients
$\binom{z}{m}$	`\binom{z}{m}`	§1.2(i)	the binomial coefficient
$\binom{n}{n_1,n_2,\ldots,n_k}$	`\multinomial{n}{n_1,n_2,\ldots,n_k}`	§26.4(i)	the multinomial coefficient
$\begin{pmatrix} j_1 & j_2 & j_3 \\ m_1 & m_2 & m_3 \end{pmatrix}$	`\Wignerthreejsym@{j_1}{j_2}{j_3}{m_1}{m_2}{m_3}`	(34.2.4)	the Wigner $3j$ symbol
$\{z,\zeta\}$	`\Schwarzian{z}{\zeta}`	(1.13.20)	the Schwarzian
$\begin{Bmatrix} j_1 & j_2 & j_3 \\ l_1 & l_2 & l_3 \end{Bmatrix}$	`\Wignersixjsym@{j_1}{j_2}{j_3}{l_1}{l_2}{l_3}`	(34.4.1)	the Wigner $6j$ symbol
$\begin{Bmatrix} j_{11} & j_{12} & j_{13} \\ j_{21} & j_{22} & j_{23} \\ j_{31} & j_{32} & j_{33} \end{Bmatrix}$			

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Expansion	TEX markup	Declared	Proper Name
\Wignerninejsym@{j_{11}}{j_{12}}{j_{13}}{j_{21}}{j_{22}}{j_{23}}{j_{31}}{j_{32}}{j_{33}}			
		(34.6.1)	the Wigner $9j$ symbol
$\langle\Lambda,\phi\rangle$	\intinnerprod{\Lambda}{\phi}	§1.16(i)	the inner-product (by integration)
$\left\langle{n \atop k}\right\rangle$	\Euleriannumber{n}{k}	§26.14(i)	the Eulerian number
A			
a_0	\Bohrradius	CODATA	the Bohr radius
a_k	\zAirya{k}	§9.9(i)	the k^{th} zero of Airy Ai
a'_k	\zderivAirya{k}		the k^{th} zero of Airy Ai′
$\mathbf{A}_\nu(z)$	\AngerWeberA{\nu}@{z}	(11.10.4)	the Anger–Weber function
$A_\nu(\mathbf{T})$	\BesselAmat{\nu}@{\mathbf{T}}	§35.5(i)	the Bessel function of matrix argument (first kind)
$a_n(q)$	\Mathieueigvala{n}@{q}	§28.2(v)	the eigenvalues of the Mathieu's equation a_n
$A_n(z)$	\genAiryODEA{n}@{z}	§9.13(i)	the generalized Airy function (ODE) A_n
$A_{m,s}(q)$	\qEulernumberA{m}{s}@{q}	(17.3.8)	the q-Euler number
$a_{m,s}(q)$	\qStirlingnumbera{m}{s}@{q}	(17.3.9)	the q-Stirling number
$a^n_\nu(k^2)$	\Lameeigvala{n}{\nu}@{k^2}	§29.3(i)	the eigenvalues of Lamé's equation a^n_ν
$A_k(z,p)$	\genAiryintA{k}@{z}{p}	§9.13(ii)	the generalized Airy function (integral) A_k
$\mathrm{Ai}(z)$	\AiryAi@{z}	§9.2(i)	the Airy function Ai
α	\finestructureconst	CODATA	the fine-structure constant
$\mathrm{am}\,(x,k)$	\Jacobiamk@{x}{k}	(22.16.1)	the Jacobi's amplitude function (of modulus k)
$\mathrm{arccd}(x,k)$	\aJacobiellcdk@{x}{k}	§22.15(i)	the inverse of the Jacobian elliptic function cd (of modulus k)
$\mathrm{arccn}(x,k)$	\aJacobiellcnk@{x}{k}		the inverse of the Jacobian elliptic function cn (of modulus k)
$\arccos(z)$	\acos@{z}	§4.23(ii)	the inverse of the cosine function
$\mathrm{Arccos}(z)$	\Acos@{z}	(4.23.2)	the multivalued inverse of the cosine function
$\mathrm{arccosh}(z)$	\acosh@{z}	§4.37(ii)	the inverse of the hyperbolic cosine function
$\mathrm{Arccosh}(z)$	\Acosh@{z}	(4.37.2)	the multivalued inverse of the hyperbolic cosine function
$\mathrm{arccot}(z)$	\acot@{z}	(4.23.9)	the inverse of the cotangent function
$\mathrm{Arccot}(z)$	\Acot@{z}	(4.23.6)	the multivalued inverse of the cotangent function
$\mathrm{arccoth}(z)$	\acoth@{z}	(4.37.9)	the inverse of the hyperbolic cotangent function
$\mathrm{Arccoth}(z)$	\Acoth@{z}	(4.37.6)	the multivalued inverse of the hyperbolic cotangent function
$\mathrm{arccs}(x,k)$	\aJacobiellcsk@{x}{k}	§22.15(i)	the inverse of the Jacobian elliptic function cs (of modulus k)
$\mathrm{arccsc}(z)$	\acsc@{z}	(4.23.7)	the inverse of the cosecant function
$\mathrm{Arccsc}(z)$	\Acsc@{z}	(4.23.4)	the multivalued inverse of the cosecant function
$\mathrm{arccsch}(z)$	\acsch@{z}	(4.37.7)	the inverse of the hyperbolic cosecant function
$\mathrm{Arccsch}(z)$	\Acsch@{z}	(4.37.4)	the multivalued inverse of the hyperbolic cosecant function
$\mathrm{arcdc}(x,k)$	\aJacobielldck@{x}{k}	§22.15(i)	the inverse of the Jacobian elliptic function dc (of modulus k)
$\mathrm{arcdn}(x,k)$	\aJacobielldnk@{x}{k}		the inverse of the Jacobian elliptic function dn (of modulus k)
$\mathrm{arcds}(x,k)$	\aJacobielldsk@{x}{k}		the inverse of the Jacobian elliptic function ds (of modulus k)
$\mathrm{arcnc}(x,k)$	\aJacobiellnck@{x}{k}		the inverse of the Jacobian elliptic function nc (of modulus k)
$\mathrm{arcnd}(x,k)$	\aJacobiellndk@{x}{k}		the inverse of the Jacobian elliptic function nd (of modulus k)
$\mathrm{arcns}(x,k)$	\aJacobiellnsk@{x}{k}		the inverse of the Jacobian elliptic function ns (of modulus k)

continued on next page

Expansion	*TeX markup*	*Declared*	*Proper Name*
$\operatorname{arcpq}(x,k)$	`\agenJacobiellk{p}{q}@{x}{k}`	?	the inverse of the generic Jacobian elliptic function pq (of modulus k)
$\operatorname{arcsc}(x,k)$	`\aJacobiellsck@{x}{k}`	§22.15(i)	the inverse of the Jacobian elliptic function sc (of modulus k)
$\operatorname{arcsd}(x,k)$	`\aJacobiellsdk@{x}{k}`		the inverse of the Jacobian elliptic function ds (of modulus k)
$\operatorname{arcsec}(z)$	`\asec@{z}`	(4.23.8)	the inverse of the secant function
$\operatorname{Arcsec}(z)$	`\Asec@{z}`	(4.23.5)	the multivalued inverse of the secant function
$\operatorname{arcsech}(z)$	`\asech@{z}`	(4.37.8)	the inverse of the hyperbolic secant function
$\operatorname{Arcsech}(z)$	`\Asech@{z}`	(4.37.5)	the multivalued inverse of the hyperbolic secant function
$\arcsin(z)$	`\asin@{z}`	§4.23(ii)	the inverse of the sine function
$\operatorname{Arcsin}(z)$	`\Asin@{z}`	(4.23.1)	the multivalued inverse of the sine function
$\operatorname{arcsinh}(z)$	`\asinh@{z}`	§4.37(ii)	the inverse of the hyperbolic sine function
$\operatorname{Arcsinh}(z)$	`\Asinh@{z}`	(4.37.1)	the multivalued inverse of the hyperbolic sine function
$\operatorname{arcsn}(x,k)$	`\aJacobiellsnk@{x}{k}`	§22.15(i)	the inverse of the Jacobian elliptic function sn (of modulus k)
$\arctan(z)$	`\atan@{z}`	§4.23(ii)	the inverse of the tangent function
$\operatorname{Arctan}(z)$	`\Atan@{z}`	(4.23.3)	the multivalued inverse of the tangent function
$\operatorname{arctanh}(z)$	`\atanh@{z}`	§4.37(ii)	the inverse of the hyperbolic tangent function
$\operatorname{Arctanh}(z)$	`\Atanh@{z}`	(4.37.3)	the multivalued inverse of the hyperbolic tangent function
B			
b_k	`\zAiryb{k}`	§9.9(i)	the k^{th} zero of Airy Bi
b'_k	`\zderivAiryb{k}`		the k^{th} zero of Airy Bi′
$B(n)$	`\Bellnumber@{n}`	§26.7(i)	the Bell number
$B_n(x)$	`\BernoullipolyB{n}@{x}`	§24.2(i)	the Bernoulli polynomial
$B_\nu(\mathbf{T})$	`\BesselBmat{\nu}@{\mathbf{T}}`	(35.5.3)	the Bessel function of matrix argument (second kind)
$b_n(q)$	`\Mathieueigvalb{n}@{q}`	§28.2(v)	the eigenvalues of the Mathieu's equation b_n
$B_n(z)$	`\genAiryODEB{n}@{z}`	§9.13(i)	the generalized Airy function (ODE) B_n
$\widetilde{B}_n(x)$	`\perBernoulliB{n}@{x}`	§24.2(iii)	the periodic Bernoulli function
$b^n_\nu(k^2)$	`\Lameeigvalb{n}{\nu}@{k^2}`	§29.3(i)	the eigenvalues of Lamé's equation b^n_ν
$B^{(\ell)}_n(x)$	`\genBernoullipolyB{\ell}{n}@{x}`	§24.16	the generalized Bernoulli polynomial
B_n	`\BernoullinumberB{n}`	§24.2(i)	the Bernoulli number
$\mathrm{B}(a,b)$	`\EulerBeta@{a}{b}`	(5.12.1)	the Euler beta function
$\mathrm{B}_m(a,b)$	`\multivarEulerBeta{m}@{a}{b}`	(35.3.3)	multivariate beta function
$\mathrm{B}_q(a,b)$	`\qBeta{q}@{a}{b}`	(5.18.11)	the q-Beta function
$B_k(z,p)$	`\genAiryintB{k}@{z}{p}`	§9.13(ii)	the generalized Airy function (integral) B_k
$\mathrm{B}_x(a,b)$	`\incBeta{x}@{a}{b}`	(8.17.1)	the incomplete beta function
$\operatorname{bei}_\nu(x)$	`\Kelvinbei{\nu}@{x}`	(10.61.1)	the Kelvin function bei_ν
$\operatorname{ber}_\nu(x)$	`\Kelvinber{\nu}@{x}`		the Kelvin function ber_ν
β_k	`\zAirybeta{k}`	§9.9(i)	the k^{th} complex zero of Airy Bi
β'_k	`\zderivAirybeta{k}`		the k^{th} complex zero of Airy Bi′
$\beta_n(x,q)$	`\qBernoullipolybeta{n}@{x}{q}`	(17.3.7)	the q-Bernoulli polynomial
$\mathrm{Bi}(z)$	`\AiryBi@{z}`	§9.2(i)	the Airy function Bi
C			
$\mathbb{C}$	`\Complexes`	Intro.	the set of complex numbers
c	`\lightspeed`	CODATA	the speed of light

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Expansion	*TEX markup*	*Declared*	*Proper Name*
$C(n)$	`\Catalannumber@{n}`	(26.5.1)	the Catalan number
$C(z)$	`\Fresnelcosint@{z}`	(7.2.7)	the Fresnel cosine integral
$c_k(n)$	`\Ramanujansum{k}@{n}`	(27.10.4)	Ramanujan's sum
$\mathscr{C}_\nu(z)$	`\BesselC{\nu}@{z}`	§10.2	the Bessel cylinder function
$C_n(x)$	`\dilChebyshevpolyC{n}@{x}`	(18.1.3)	the dilated Chebyshev polynomial of first kind
$C_\ell(\eta)$	`\normCoulombC{\ell}@{\eta}`	(33.2.5)	the normalizing constant for Coulomb (radial) function
$c(n)$	`\ncompositions@{n}`	§26.11	the number of compositions of n
$c_m(n)$	`\ncompositions[m]@{n}`		the number of compositions of n into exactly m parts
$C(a,b)$	`\continuous@{(a,b)}`	§1.4(ii)	the set of functions continuous on the interval (a,b)
$C^n(a,b)$	`\continuous[n]@{(a,b)}`	§1.4	the set of continuous functions n-times differentiable on the interval (a,b)
$C^{(\lambda)}_n(x)$	`\ultrasphpoly{\lambda}{n}@{x}`	§18.3	the ultraspherical (or Gegenbauer) polynomial
$c(\mathrm{condition},n)$	`\nrestcompositions@{\mathrm{condition}}{n}`	§26.11	the restricted number of compositions of n into exactly m parts
$C_n(x;a)$	`\CharlierpolyC{n}@{x}{a}`	§18.19	the Charlier polynomial
$c(\epsilon,\ell;r)$	`\irregCoulombc@{\epsilon}{\ell}{r}`	(33.14.9)	the irregular Coulomb (radial) function (for attractive interactions) c
$C_n(x;\beta\,\|\,q)$	`\contqultrasphpoly{n}@{x}{\beta}{q}`	(18.28.13)	the continuous q-ultraspherical (or Rogers) polynomial
$\mathrm{cd}(u,k)$	`\Jacobiellcdk@{u}{k}`	(22.2.8)	the Jacobian elliptic function cd (of modulus k)
$\mathit{cdE}^m_{2n+2}(z,k^2)$	`\LamepolycdE{m}{2n+2}@{z}{k^2}`	(29.12.7)	the Lamé polynomial cdE^m_{2n+2}
$\mathrm{ce}_n(z,q)$	`\Mathieuce{n}@{z}{q}`	§28.2(vi)	the Mathieu function ce_n
$\mathrm{Ce}_\nu(z,q)$	`\modMathieuCe{\nu}@{z}{q}`	(28.20.3)	the modified Mathieu function Ce_ν
$\mathit{cE}^m_{2n+1}(z,k^2)$	`\LamepolycE{m}{2n+1}@{z}{k^2}`	(29.12.3)	the Lamé polynomial cE^m_{2n+1}
$\mathrm{cel}(k_c,p,a,b)$	`\Bulirschcompellintcel@{k_c}{p}{a}{b}`	(19.2.11)	Bulirsch's complete elliptic integral
$\mathrm{Chi}(z)$	`\coshint@{z}`	(6.2.16)	the hyperbolic cosine integral
$\chi(n,k)$	`\Dirichletchar@{n}{k}`	§27.8	the Dirichlet character
$\chi_r(n,k)$	`\Dirichletchar[r]@{n}{k}`		
$\mathrm{Ci}(z)$	`\cosint@{z}`	(6.2.11)	the cosine integral Ci
$\mathrm{Ci}(a,z)$	`\gencosint@{a}{z}`	(8.21.2)	the generalized cosine integral
$\mathrm{ci}(a,z)$	`\genshiftcosint@{a}{z}`	(8.21.1)	the generalized shifted cosine integral
$\mathrm{Cin}(z)$	`\cosintCin@{z}`	(6.2.12)	the cosine integral Cin
$\mathrm{cn}(u,k)$	`\Jacobiellcnk@{u}{k}`	(22.2.5)	the Jacobian elliptic function cn (of modulus k)
$\cos(z)$	`\cos@{z}`	(4.14.2)	the cosine function
$\mathrm{Cos}_q(x)$	`\qCos{q}@{x}`	(17.3.6)	the q-cosine function Cos_q
$\cos_q(x)$	`\qcos{q}@{x}`	(17.3.5)	the q-cosine function $\cos_q$
$\cosh(z)$	`\cosh@{z}`	(4.28.2)	the hyperbolic cosine function
$\cot(z)$	`\cot@{z}`	(4.14.7)	the cotangent function
$\coth(z)$	`\coth@{z}`	(4.28.7)	the hyperbolic cotangent function
$\mathrm{cs}(u,k)$	`\Jacobiellcsk@{u}{k}`	(22.2.9)	the Jacobian elliptic function cs (of modulus k)
$\csc(z)$	`\csc@{z}`	(4.14.5)	the cosecant function
$\mathrm{csch}(z)$	`\csch@{z}`	(4.28.5)	the hyperbolic cosecant function
curl	`\curl`	(1.6.22)	the curl operator

D

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Expansion	*TEX markup*	*Declared*	*Proper Name*
d	`\diffd`	?	the differential operator
$D(k)$	`\compellintDk@{k}`	(19.2.8)	the complete elliptic integral of Janke (of modulus k)
$d(n)$	`\ndivisors@{n}`	§27.2(i)	the number of divisors of n (divisor function)
$d_k(n)$	`\ndivisors[k]@{n}`		the number of ways of expressing n as product of k factors
$D_\nu(z)$	`\WhittakerparaD{\nu}@{z}`	§12.1	Whittaker's notation for the parabolic cylinder function
$D(\phi,k)$	`\incellintDk@{\phi}{k}`	(19.2.6)	the incomplete elliptic integral of Janke (of modulus k)
$\mathrm{D}_j(\nu,\mu,z)$	`\modMathieuD{j}@{\nu}{\mu}{z}`	(28.28.24)	the cross-products of modified Mathieu functions and their derivatives
$\mathrm{dc}\,(u,k)$	`\Jacobielldck@{u}{k}`	(22.2.8)	the Jacobian elliptic function dc (of modulus k)
$\mathrm{Dc}_j(n,m,z)$	`\radMathieuDc{j}@{n}{m}{z}`	(28.28.39)	the cross-products of radial Mathieu functions and their derivatives Dc_j
$dE^m_{2n+1}(z,k^2)$	`\LamepolydE{m}{2n+1}@{z}{k^2}`	(29.12.4)	the Lamé polynomial dE^m_{2n+1}
$\delta_{j,k}$	`\Kroneckerdelta{j}{k}`	Intro.	the Kronecker delta
$\Delta(\tau)$	`\DiscriminantDelta@{\tau}`	(27.14.16)	the discriminant function
$\delta(x)$	`\Diracdelta@{x}`	§1.17(i)	the Dirac delta functional (or distribution)
$\delta_n(x)$	`\Diracdeltaseq{n}@{x}`		the Dirac delta sequence
diag	`\diag`	?	the diagonal elements
div	`\divergence`	(1.6.21)	the divergence operator
$\mathrm{dn}\,(u,k)$	`\Jacobielldnk@{u}{k}`	(22.2.6)	the Jacobian elliptic function dn (of modulus k)
$\mathrm{ds}\,(u,k)$	`\Jacobielldsk@{u}{k}`	(22.2.7)	the Jacobian elliptic function ds (of modulus k)
$\mathrm{Ds}_j(n,m,z)$	`\radMathieuDs{j}@{n}{m}{z}`	(28.28.35)	the cross-products of radial Mathieu functions and their derivatives Ds_j
$\mathrm{Dsc}_j(n,m,z)$	`\radMathieuDsc{j}@{n}{m}{z}`	(28.28.40)	the cross-products of radial Mathieu functions and their derivatives Dsc_j
E			
e	`\expe`	(4.2.11)	the exponential base
$E(k)$	`\compellintEk@{k}`	(19.2.8)	(Legendre's) complete elliptic integral of the second kind (of modulus k)
$E_q(x)$	`\qExp{q}@{x}`	(17.3.2)	the q-exponential function E_q
$e_q(x)$	`\qexp{q}@{x}`	(17.3.1)	the q-exponential function e_q
$E_n(x)$	`\EulerpolyE{n}@{x}`	§24.2(ii)	the Euler polynomial
$E_1(z)$	`\expintE@{z}`	(6.2.1)	the exponential integral E_1
$E_p(z)$	`\genexpintE{p}@{z}`	(8.19.1)	the generalized exponential integral
$\mathbf{E}_\nu(z)$	`\WeberE{\nu}@{z}`	(11.10.2)	the Weber function
$E_{a,b}(z)$	`\MittagLefflerE{a}{b}@{z}`	(10.46.3)	the Mittag-Leffler function
$E'(k)$	`\ccompellintEk@{k}`	(19.2.9)	(Legendre's) complementary complete elliptic integral of the second kind (of modulus k)
$\widetilde{E}_n(x)$	`\perEulerE{n}@{x}`	§24.2(iii)	the periodic Euler function
$E^{(\ell)}_n(x)$	`\genEulerpolyE{\ell}{n}@{x}`	§24.16	the generalized Euler polynomial
E_n	`\EulernumberE{n}`	§24.2(ii)	the Euler number
$E(\phi,k)$	`\incellintEk@{\phi}{k}`	(19.2.5)	(Legendre's) incomplete elliptic integral of the second kind (of modulus k)
$\mathcal{E}(x,k)$	`\JacobiEpsilonk@{x}{k}`	(22.16.14)	Jacobi's Epsilon function (of modulus k)
$Ec^m_\nu(z,k^2)$	`\LameEc{m}{\nu}@{z}{k^2}`	§29.3(iv)	the Lamé function Ec^m_ν
$\mathrm{Ei}(z)$	`\expintEi@{z}`	§6.2(i)	the exponential integral Ei
$\mathrm{Ein}(z)$	`\expintEin@{z}`	(6.2.3)	the complementary exponential integral
$\mathrm{el1}(x,k_c)$	`\Bulirschincellintel{1}@{x}{k_c}`		

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Expansion	*TEX markup*	*Declared*	*Proper Name*
		(19.2.15)	Bulirsch's incomplete elliptic integral of the first kind
$\mathrm{el2}(x, k_c, a, b)$	`\Bulirschincellintel{2}@{x}{k_c}{a}{b}`	(19.2.12)	Bulirsch's incomplete elliptic integral of the second kind
$\mathrm{el3}(x, k_c, p)$	`\Bulirschincellintel{3}@{x}{k_c}{p}`	(19.2.16)	Bulirsch's incomplete elliptic integral of the third kind
$\mathrm{env}\, f$	`\env@{f}`	?	the envelope of a function
$\mathrm{envAi}(z)$	`\envAiryAi@{z}`	§2.8(iii)	the envelope of the Airy function Ai
$\mathrm{envBi}(z)$	`\envAiryBi@{z}`		the envelope of the Airy function Bi
$\mathrm{env}J_\nu(x)$	`\envBesselJ{\nu}@{x}`	§2.8(iv)	the envelope of the Bessel function J_ν
$\mathrm{env}U(c, x)$	`\envparaU@{c}{x}`	§14.15(v)	the envelope of the parabolic cylinder function U
$\mathrm{env}\overline{U}(c, x)$	`\envparaUbar@{c}{x}`		the envelope of the parabolic cylinder function $\overline{U}$
$\mathrm{env}Y_\nu(x)$	`\envBesselY{\nu}@{x}`	§2.8(iv)	the envelope of the Bessel function Y_ν
ε_0	`\electricconst`	CODATA	the electric constant or vacuum permitivity
$\epsilon_{i\,j\,k}$	`\LeviCivitasym{i}{j}{k}`	(1.6.14)	the Levi-Civita symbol
$\mathrm{erf}(z)$	`\erf@{z}`	(7.2.1)	the error function
$\mathrm{erfc}(z)$	`\erfc@{z}`	(7.2.2)	the complementary error function erfc
$w(z)$	`\erfw@{z}`	(7.2.3)	the complementary error function w
$Es^m_\nu(z, k^2)$	`\LameEs{m}{\nu}@{z}{k^2}`	§29.3(iv)	the Lamé function Es^m_ν
$\eta(\tau)$	`\Dedekindeta@{\tau}`	(27.14.12)	Dedekind's eta function (or modular function)
$\mathrm{etr}(\mathbf{X})$	`\exptrace@{\mathbf{X}}`	§35.1	the exponential of the trace
$\exp(z)$	`\exp@{z}`	(4.2.19)	the exponential function
F			
$F(z)$	`\DawsonsintF@{z}`	(7.2.5)	Dawson's integral
$f(x)$	`\EulerPhi@{x}`	(27.14.2)	Euler's reciprocal function
$\mathrm{f}(z)$	`\auxFresnelf@{z}`	(7.2.10)	the auxiliary function for Fresnel integrals f
$\mathrm{f}(z)$	`\auxsincosintf@{z}`	(6.2.17)	the auxiliary function for sine and cosine integrals f
$\mathscr{F}(f)$	`\Fouriertrans@{f}`	?	the Fourier transform of a function
$\mathcal{F}(z)$	`\FresnelintF@{z}`	(7.2.6)	the Fresnel integral
$\mathscr{F}_c(f)$	`\Fouriercostrans@{f}`	?	the Fourier cosine transform of a function
$\mathscr{F}_s(f)$	`\Fouriersintrans@{f}`		the Fourier sine transform of a function
$F_p(z)$	`\terminant{p}@{z}`	(2.11.11)	the terminant function
$F(\phi, k)$	`\incellintFk@{\phi}{k}`	(19.2.4)	(Legendre's) incomplete elliptic integral of the first kind (of modulus k)
$F(x, s)$	`\perZeta@{x}{s}`	(25.13.1)	the periodic zeta function
$F_\ell(\eta, \rho)$	`\regCoulombF{\ell}@{\eta}{\rho}`	(33.2.3)	the regular Coulomb (radial) function (for repulsive interactions) F_ℓ
$f(\epsilon, \ell; r)$	`\regCoulombf@{\epsilon}{\ell}{r}`	(33.14.4)	the regular Coulomb (radial) function (for attractive interactions) f
${}_2F_1(a, b; c; z)$	`\genhyperF{2}{1}@{a,b}{c}{z}`	§16.2	Gauss' hypergeometric function, ${}_2F_1 = F$
${}_1F_1(a; b; z)$	`\genhyperF{1}{1}@{a}{b}{z}`		Kummer confluent hypergeometric function, ${}_1F_1 = M$
${}_p\mathbf{F}_q(a_1, \dots, a_p; b_1, \dots, b_q; z)$	`\genhyperOlverF{p}{q}@{a_1,\dots,a_p}{b_1,\dots,b_q}{z}`	(16.2.5)	Olver's scaled generalized hypergeometric function

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Expansion	*TeX markup*	*Declared*	*Proper Name*
${}_pF_q(a_1,\dots,a_p;b_1,\dots,b_q;z)$	`\genhyperF{p}{q}@{a_1,\dots,a_p}{b_1,\dots,b_q}{z}`	§16.2	the generalized hypergeometric function
$F(a,b;c;z)$	`\hyperF@{a}{b}{c}{z}`	(15.2.1)	(Gauss') hypergeometric function
$\mathbf{F}(a,b;c;z)$	`\hyperOlverF@{a}{b}{c}{z}`	(15.2.2)	Olver's scaled hypergeometric function
$F_1(\alpha;\beta,\beta';\gamma;x,y)$	`\AppellF{1}@{\alpha}{\beta}{\beta'}{\gamma}{x}{y}`	(16.13.1)	the first Appell function
$F_2(\alpha;\beta,\beta';\gamma,\gamma';x,y)$	`\AppellF{2}@{\alpha}{\beta}{\beta'}{\gamma}{\gamma'}{x}{y}`	(16.13.2)	the second Appell function
$F_3(\alpha,\alpha';\beta,\beta';\gamma;x,y)$	`\AppellF{3}@{\alpha}{\alpha'}{\beta}{\beta'}{\gamma}{x}{y}`	(16.13.3)	the third Appell function
$F_4(\alpha,\beta;\gamma,\gamma';x,y)$	`\AppellF{4}@{\alpha}{\beta}{\gamma}{\gamma'}{x}{y}`	(16.13.4)	the fourth Appell function
$F_D(x;y;z;p)$	`\LauricellaFD@{x}{y}{z}{p}`	§19.15	Lauricella's (multivariate) hypergeometric function
$\mathrm{Fe}_\nu(z,q)$	`\modMathieuFe{\nu}@{z}{q}`	(28.20.6)	the modified Mathieu function Fe_ν
$\mathrm{fe}_n(z,q)$	`\Mathieufe{n}@{z}{q}`	(28.5.1)	the second solution of Mathieu's equation fe_n
G			
$\mathrm{g}(z)$	`\auxFresnelg@{z}`	(7.2.11)	the auxiliary function for Fresnel integrals g
$\mathrm{g}(z)$	`\auxsincosintg@{z}`	(6.2.18)	the auxiliary function for sine and cosine integrals g
$G(z)$	`\BarnesG@{z}`	(5.17.1)	the Barne's G-function (or double gamma) function
$G(z)$	`\GoodwinStatonint@{z}`	(7.2.12)	the Goodwin–Staton integral
$G(k)$	`\WaringG@{k}`	§27.13(iii)	Waring's function G
$g(k)$	`\Waringg@{k}`		Waring's function g
$G(n,\chi)$	`\Gausssum@{n}{\Dirichletchar}`	(27.10.9)	the Gauss sum
$G_\ell(\eta,\rho)$	`\irregCoulombG{\ell}@{\eta}{\rho}`	(33.2.11)	the irregular Coulomb (radial) function (for repulsive interactions) G_ℓ
$G_n(p,q,x)$	`\shiftJacobipolyG{n}@{p}{q}{x}`	(18.1.2)	the shifted Jacobi polynomial
$G^{m,n}_{p,q}(z;a_1\dots,a_p;b_1,\dots,b_q)$	`\MeijerG{m}{n}{p}{q}@{z}{a_1\dots,a_p}{b_1,\dots,b_q}`	(16.17.1)	the Meijer G-function
γ	`\EulerConstant`	(5.2.3)	the Euler constant
$\Gamma(z)$	`\EulerGamma@{z}`	(5.2.1)	the Euler gamma function
$\Gamma_q(z)$	`\qGamma{q}@{z}`	(5.18.4)	the q-gamma function
$\Gamma_m(a)$	`\multivarEulerGamma{m}@{a}`	§35.3(i)	the multivariate gamma function
$\gamma(a,z)$	`\incgamma@{a}{z}`	(8.2.1)	the lower incomplete gamma function
$\Gamma(a,z)$	`\incGamma@{a}{z}`	(8.2.2)	the upper incomplete gamma function
$\gamma^*(a,z)$	`\scincgamma@{a}{z}`	(8.2.6)	the scaled incomplete gamma function
$\mathrm{gd}(z)$	`\Gudermannian@{z}`	(4.23.39)	the Gudermannian function
$\mathrm{gd}^{-1}(z)$	`\aGudermannian@{z}`	(4.23.41)	the inverse of the Gudermannian function
$\mathrm{Ge}_\nu(z,q)$	`\modMathieuGe{\nu}@{z}{q}`	(28.20.7)	the modified Mathieu function Ge_ν
$\mathrm{ge}_n(z,q)$	`\Mathieuge{n}@{z}{q}`	(28.5.2)	the second solution of Mathieu's equation ge_n
$\mathrm{Gi}(z)$	`\ScorerGi@{z}`	(9.12.4)	the Scorer (or inhomogeneous Airy) function Gi
grad	`\gradient`	(1.6.20)	the gradient operator
H			

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Expansion	*TEX markup*	*Declared*	*Proper Name*
$H(s)$	`\EulersumH@{s}`	§25.16(ii)	the Euler sum
$H(x)$	`\HeavisideH@{x}`	(1.16.13)	the Heaviside function
$\mathcal{H}(f)$	`\Hilberttrans@{f}`	§1.14(v)	the Hilbert transform of a function
$H_n(x)$	`\HermitepolyH{n}@{x}`	§18.3	the Hermite polynomial
$\mathbf{H}_\nu(z)$	`\StruveH{\nu}@{z}`	(11.2.1)	the Struve function $\mathbf{H}_\nu$
$H_\nu^{(1)}(z)$	`\HankelH{1}{\nu}@{z}`	(10.2.5)	the Hankel function of the first kind(or Bessel function of the third kind)
$H_\nu^{(2)}(z)$	`\HankelH{2}{\nu}@{z}`	(10.2.6)	the Hankel function of the second kind(or Bessel function of the third kind)
$\mathsf{h}_n^{(1)}(z)$	`\sphHankelh{1}{n}@{z}`	(10.47.5)	the spherical Hankel function of the first kind
$\mathsf{h}_n^{(2)}(z)$	`\sphHankelh{2}{n}@{z}`	(10.47.6)	the spherical Hankel function of the second kind
$H(s,z)$	`\genEulersumH@{s}{z}`	§25.16(ii)	the generalized Euler sum
$H(a,u)$	`\VoigtH@{a}{u}`	(7.19.4)	the line broadening function
$h_n(x \mid q)$	`\contqinvHermitepolyh{n}@{x}{q}`	(18.28.18)	the continuous q^{-1}-Hermite polynomial
$H_n(x \mid q)$	`\contqHermitepolyH{n}@{x}{q}`	(18.28.16)	the continuous q-Hermite polynomial
$h_n(x;q)$	`\discqHermitepolyhI{n}@{x}{q}`	(18.27.21)	the discrete q-Hermite I polynomial
$\tilde{h}_n(x;q)$	`\discqHermitepolyhII{n}@{x}{q}`	(18.27.23)	the discrete q-Hermite II polynomial
$H_\ell^{\pm}(\eta,\rho)$	`\irregCoulombH{\pm}{\ell}@{\eta}{\rho}`	(33.2.7)	the irregular Coulomb (radial) function (for repulsive interactions) $H_\ell^{\pm}$
$h(\epsilon,\ell;r)$	`\irregCoulombh@{\epsilon}{\ell}{r}`	(33.14.7)	the irregular Coulomb (radial) function (for attractive interactions) h
${}_pH_q(a_1,\dots,a_p;b_1,\dots,b_q;z)$	`\genhyperH{p}{q}@{a_1,\dots,a_p}{b_1,\dots,b_q}{z}`	(16.4.16)	the bilateral hypergeometric function
$He_n(x)$	`\dilHermitepolyHe{n}@{x}`	§18.3	the dilated Hermite polynomial
$(s_1,s_2)Hf_m(a,q_m;\alpha,\beta,\gamma,\delta;z)$	`\HeunHf{m}{s_1}{s_2}@{a}{q_m}{\alpha}{\beta}{\gamma}{\delta}{z}`	§31.4	the Heun function
$(s_1,s_2)Hf_m^\nu(a,q_m;\alpha,\beta,\gamma,\delta;z)$	`\HeunHf[\nu]{m}{s_1}{s_2}@{a}{q_m}{\alpha}{\beta}{\gamma}{\delta}{z}`		
$Hh_n(z)$	`\FishersHh{n}@{z}`	(7.18.12)	Fischer's probability function
$\mathrm{Hi}(z)$	`\ScorerHi@{z}`	(9.12.5)	the Scorer (or inhomogeneous Airy) function Hi
$H\ell(a,q;\alpha,\beta,\gamma,\delta;z)$	`\HeunHl@{a}{q}{\alpha}{\beta}{\gamma}{\delta}{z}`	(31.3.1)	the (fundamental) Heun function
$Hp_{n,m}(a,q_{n,m};-n,\beta,\gamma,\delta;z)$	`\HeunpolyHp{n}{m}@{a}{q_{n,m}}{-n}{\beta}{\gamma}{\delta}{z}`	(31.5.2)	the Heun polynomial
I			
i	`\iunit`	?	the imaginary unit
$I_\nu(z)$	`\modBesselI{\nu}@{z}`	(10.25.2)	the modified Bessel function of the first kind
$\widetilde{I}_\nu(x)$	`\modBesselIimag{\nu}@{x}`	(10.45.2)	the modified Bessel function of the first kind of imaginary order
$\mathsf{i}_n^{(1)}(z)$	`\modsphBesseli{1}{n}@{z}`	(10.47.7)	the modified spherical Bessel function $\mathsf{i}_n^{(1)}$
$\mathsf{i}_n^{(2)}(z)$	`\modsphBesseli{2}{n}@{z}`	(10.47.8)	the modified spherical Bessel function $\mathsf{i}_n^{(2)}$
$I_x(a,b)$	`\normincBetaI{x}@{a}{b}`	(8.17.2)	the normalized incomplete beta function
$\mathrm{Ie}_n(z,h)$	`\modMathieuIe{n}@{z}{h}`	(28.20.17)	the modified Mathieu function Ie_n

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Expansion	*TEX markup*	*Declared*	*Proper Name*
$\mathrm{i}^n\mathrm{erfc}(z)$	`\repinterfc{n}@{z}`	(7.18.2)	the repeated integrals of complementary error function
$\Im(z)$	`\imagpart@{z}`	(1.9.2)	the imaginary part of a complex number z
$\mathrm{inverf}(x)$	`\inverf@{x}`	(7.17.1)	the inverse error function
$\mathrm{inverfc}(x)$	`\inverfc@{x}`		the inverse complementary error function
$\mathrm{Io}_n(z,h)$	`\modMathieuIo{n}@{z}{h}`	(28.20.18)	the modified Mathieu function Io_n
$\mathrm{idem}(\chi_1;\chi_2\dots\chi_n)$	`\idem@{\chi_1}{\chi_2\dots\chi_n}`	§17.1	the idem function
J			
$j_{\nu,m}$	`\zBesselj{\nu}{m}`	§10.21(i)	the m^{th} zero of the Bessel function of the first kind J_ν
$j'_{\nu,m}$	`\zderivBesselj{\nu}{m}`		the m^{th} zero of the derivative of the Bessel function of the first kind J'_ν
$J(\tau)$	`\KleincompinvarJtau@{\tau}`	(23.15.7)	Klein's complete invariant
$J_k(n)$	`\JordanJ{k}@{n}`	(27.2.11)	Jordan's function
$\mathbf{J}_\nu(z)$	`\AngerJ{\nu}@{z}`	(11.10.1)	the Anger function
$J_\nu(z)$	`\BesselJ{\nu}@{z}`	(10.2.2)	the Bessel function of the first kind
$\mathsf{j}_n(z)$	`\sphBesselJ{n}@{z}`	(10.47.3)	the spherical Bessel function of the first kind
$\widetilde{J}_\nu(x)$	`\BesselJimag{\nu}@{x}`	§10.24	the Bessel function of the first kind of imaginary order
K			
k	`\BoltzmannConstant`	CODATA	the Boltzmann constant
$\widetilde{K}_\nu(x)$	`\modBesselKimag{\nu}@{x}`	(10.45.2)	the modified Bessel function of the second kind of imaginary order
$K_\nu(z)$	`\modBesselK{\nu}@{z}`	(10.25.3)	the modified Bessel function of the second kind
$\mathsf{k}_n(z)$	`\modsphBesselK{n}@{z}`	(10.47.9)	the modified spherical Bessel function k_n
$\mathbf{K}_\nu(z)$	`\StruveK{\nu}@{z}`	(11.2.5)	the Struve function $\mathbf{K}_\nu$
$K'(k)$	`\ccompellintKk@{k}`	(19.2.9)	(Legendre's) complementary complete elliptic integral of the first kind (of modulus k)
$K(k)$	`\compellintKk@{k}`	(19.2.8)	(Legendre's) complete elliptic integral of the first kind (of modulus k)
$K_n(x;p,N)$	`\KrawtchoukpolyK{n}@{x}{p}{N}`	§18.19	the Krawtchouk polynomial
$\mathrm{Ke}_n(z,h)$	`\modMathieuKe{n}@{z}{h}`	(28.20.19)	the modified Mathieu function Ke_n
$\mathrm{kei}_\nu(x)$	`\Kelvinkei{\nu}@{x}`	(10.61.2)	the Kelvin function kei_ν
$\mathrm{ker}_\nu(x)$	`\Kelvinker{\nu}@{x}`		the Kelvin function ker_ν
$\mathrm{Ki}_\alpha(x)$	`\BickleyKi{\alpha}@{x}`	(10.43.11)	the Bickley function
$\mathrm{Ko}_n(z,h)$	`\modMathieuKo{n}@{z}{h}`	(28.20.20)	the modified Mathieu function Ko_n
L			
$\mathscr{L}(f)$	`\Laplacetrans@{f}`	(1.14.17)	the Laplace transform of a function
$\mathbf{L}_\nu(z)$	`\modStruveL{\nu}@{z}`	(11.2.2)	the modified Struve function $\mathbf{L}_\nu$
$L_n(x)$	`\LaguerrepolyL{n}@{x}`	§18.1	$=L_n^{(0)}$, shorthand for the Laguerre polynomial
$L_n^{(\alpha)}(x)$	`\LaguerrepolyL[\alpha]{n}@{x}`	§18.3	the (generalized or associated) Laguerre (or Sonin) polynomial
$L(s,\chi)$	`\DirichletL@{s}{\chi}`	(25.15.1)	the Dirichlet L-function
$L_n^{(\alpha)}(x;q)$	`\qLaguerrepolyL{\alpha}{n}@{x}{q}`	(18.27.15)	the q-Laguerre polynomial
$\lambda(\tau)$	`\modularlambdatau@{\tau}`	(23.15.6)	the elliptic modular function
$\lambda(n)$	`\Liouvillelambda@{n}`	(27.2.13)	the Liouville's function
$\lambda_{\nu+2n}(q)$	`\Mathieueigvallambda{\nu+2n}@{q}`	§28.12(i)	the eigenvalues of Mathieu's equation $\lambda_{\nu+2n}$

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Expansion	*TEX markup*	*Declared*	*Proper Name*
$\lambda_n^m(\gamma^2)$	`\spheigvalLambda{m}{n}@{\gamma^2}`	§30.3(i)	the eigenvalues of the spheroidal differential equation
$\Lambda(n)$	`\MangoldtLambda@{n}`	(27.2.14)	Mangoldt's function
$\mathrm{Li}_2(z)$	`\dilog@{z}`	(25.12.1)	the dilogarithm
$\mathrm{li}(z)$	`\logint@{z}`	(6.2.8)	the logarithmic integral
$\mathrm{Li}_s(z)$	`\polylog{s}@{z}`	(25.12.10)	the polylogarithm
$\mathrm{Ln}(z)$	`\Ln@{z}`	(4.2.1)	the multivalued logarithm function
$\ln(z)$	`\ln@{z}`	(4.2.2)	the principal branch of logarithm function
$\log(z)$	`\log@{z}`	§4.2	the logarithm to base 10
$\log_a(z)$	`\genlog{a}@{z}`		the logarithm to general base a
M			
$\mathsf{M}(x)$	`\MillsM@{x}`	(7.8.1)	Mill's ratio
$\mathscr{M}(f)$	`\Mellintrans@{f}`	(1.14.32)	the Mellin transform of a function
$M(z)$	`\AirymodM@{z}`	(9.8.3)	the modulus of Airy functions
$\mathbf{M}_\nu(z)$	`\modStruveM{\nu}@{z}`	(11.2.6)	the modified Struve function $\mathbf{M}_\nu$
$M_\nu(x)$	`\HankelmodM{\nu}@{x}`	(10.18.1)	the modulus of the Hankel function of the first kind
$M_{\kappa,\mu}(z)$	`\WhittakerconfhyperM{\kappa}{\mu}@{z}`	(13.14.2)	the Whittaker confluent hypergeometric function $M_{\kappa,\mu}$
$M(a,g)$	`\AGM@{a}{g}`	§19.8(i)	arithmetic-geometric mean
$M_\ell(\eta,\rho)$	`\envCoulumbM{\ell}@{\eta}{\rho}`	(33.3.1)	the envelope of the Coulomb function M_ℓ
$\mathrm{M}_\nu^{(j)}(z,h)$	`\modMathieuM{j}{\nu}@{z}{h}`	§28.20(iii)	the modified Mathieu function $\mathrm{M}_\nu^{(j)}$
$\mathbf{M}(a,b,z)$	`\OlverconfhyperM@{a}{b}{z}`	(13.2.3)	Olver's confluent hypergeometric function
$M(a,b,z)$	`\KummerconfhyperM@{a}{b}{z}`	(13.2.2)	the Kummer confluent hypergeometric function M
$M_n(x;\beta,c)$	`\MeixnerpolyM{n}@{x}{\beta}{c}`	§18.19	the Meixner polynomial
$\mathrm{Mc}_n^{(j)}(z,h)$	`\radMathieuMc{j}{n}@{z}{h}`	(28.20.15)	the radial Mathieu function $\mathrm{Mc}_n^{(j)}$
$\mathrm{me}_n(z,q)$	`\Mathieume{n}@{z}{q}`	§28.12(ii)	the Mathieu function me_n
$\mathrm{Me}_\nu(z,q)$	`\modMathieuMe{\nu}@{z}{q}`	(28.20.5)	the modified Mathieu function Me_ν
$\mathrm{Ms}_n^{(j)}(z,h)$	`\radMathieuMs{j}{n}@{z}{h}`	(28.20.16)	the radial Mathieu function $\mathrm{Ms}_n^{(j)}$
$\mu(n)$	`\Moebiusmu@{n}`	(27.2.12)	the Möbius function
N			
$\mathbb{N}$	`\natNumbers`	Intro.	the set of 'natural' numbers (positive integers)
$N(z)$	`\AirymodderivN@{z}`	(9.8.7)	the modulus of derivatives of Airy functions
$N_\nu(x)$	`\HankelmodderivN{\nu}@{x}`	(10.18.2)	the modulus of derivatives of the Hankel function of the first kind
$\mathrm{nc}(u,k)$	`\Jacobiellnck@{u}{k}`	(22.2.5)	the Jacobian elliptic function nc (of modulus k)
$\mathrm{nd}(u,k)$	`\Jacobiellndk@{u}{k}`	(22.2.6)	the Jacobian elliptic function nd (of modulus k)
$\mathrm{ns}(u,k)$	`\Jacobiellnsk@{u}{k}`	(22.2.4)	the Jacobian elliptic function ns (of modulus k)
$\nu(n)$	`\nprimesdiv@{n}`	§27.2(i)	the number of distinct primes dividing n
O			
$o(x)$	`\littleo@{x}`	(2.1.2)	the order less than
$O(x)$	`\bigO@{x}`	(2.1.3)	the order not exceeding
$O_n(x)$	`\NeumannpolyO{n}@{x}`	(10.23.12)	Neumann's polynomial
P			
$P_n(x)$	`\LegendrepolyP{n}@{x}`	§18.3	the Legendre (or spherical) polynomial
$p(n)$	`\npartitions@{n}`	§26.2	the total number of partitions of n
$p_m(n)$	`\npartitions[m]@{n}`	§26.9(i)	the total number of partitions of n into at most m parts
$P_n^*(x)$	`\shiftLegendrepolyP{n}@{x}`	§18.3	the shifted Legendre polynomial

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Expansion	*TEX markup*	*Declared*	*Proper Name*
$P_{\nu}(z)$	`\assLegendreP{\nu}@{z}`	§14.2(ii)	$=P^{0}_{\nu}$, shorthand for the associated Legendre function of the first kind
$P^{\mu}_{\nu}(z)$	`\assLegendreP[\mu]{\nu}@{z}`	§14.21(i)	the associated Legendre function of the first kind
$\mathsf{P}_{\nu}(x)$	`\FerrersP{\nu}@{x}`	§14.2(ii)	$=\mathsf{P}^{0}_{\nu}$, shorthand for the Ferrers function of the first kind
$\mathsf{P}^{\mu}_{\nu}(x)$	`\FerrersP[\mu]{\nu}@{x}`	(14.3.1)	the Ferrers function of the first kind
$P^{(\alpha,\beta)}_{n}(x)$	`\JacobipolyP{\alpha}{\beta}{n}@{x}`	§18.3	the Jacobi polynomial
$P\begin{Bmatrix} a & b & c & \\ a_1 & b_1 & c_1 & z \\ a_2 & b_2 & c_2 & \end{Bmatrix}$	`\RiemannsymP@{\begin{Bmatrix} a & b & c & \\ a_1 & b_1 & c_1 & z \\ a_2 & b_2 & c_2 & \end{Bmatrix}}`	(15.11.3)	Riemann's P-symbol for solutions of the generalized hypergeometric differential equation
$P(a,z)$	`\normincGammaP@{a}{z}`	(8.2.4)	the normalized incomplete gamma function P
$\wp(z\vert L)$	`\Weierstrassplatt@{z}{L}`	(23.2.4)	the Weierstrass $\wp$-function (on Lattice)
$P_{n}(x;c)$	`\assLegendrepoly{n}@{x}{c}`	(18.30.6)	the associated Legendre polynomial
$p(\mathrm{condition},n)$	`\nrestpartitions@{\mathrm{condition}}{n}`	§26.10(i)	the restricted number of partitions of n
$p_{m}(\mathrm{condition},n)$	`\nrestpartitions[m]@{\mathrm{condition}}{n}`	§26.9(i)	the restricted number of partitions of n into at most m parts
$P^{(\lambda)}_{n}(x;\phi)$	`\MeixnerPollaczekpolyP{\lambda}{n}@{x}{\phi}`	§18.19	the Meixner–Pollaczek polynomial
$P^{(\alpha,\beta)}_{n}(x;c)$	`\assJacobipolyP{\alpha}{\beta}{n}@{x}{c}`	(18.30.4)	the associated Jacobi polynomial
$P^{\alpha,\beta,\gamma}_{m,n}(x,y)$	`\trianglepoly{\alpha}{\beta}{\gamma}{m}{n}@{x}{y}`	(18.37.7)	the triangle polynomial
$\wp(z;g_2,g_3)$	`\Weierstrasspinvar@{z}{g_2}{g_3}`	(23.3.8)	the Weierstrass $\wp$-function (on invariants)
$P^{(\lambda)}_{n}(x;a,b)$	`\PollaczekpolyP{\lambda}{n}@{x}{a}{b}`	(18.35.4)	the Pollaczek polynomial
$p_{n}(x;a,b;q)$	`\littleqJacobipolyp{n}@{x}{a}{b}{q}`	(18.27.13)	the little q-Jacobi polynomial
$P^{(\alpha,\beta)}_{n}(x;c,d;q)$	`\scbigqJacobipolyP{\alpha}{\beta}{n}@{x}{c}{d}{q}`	(18.27.6)	the scaled big q-Jacobi polynomial
$p_{n}\left(x;a,b,\overline{a},\overline{b}\right)$	`\contHahnpolyp{n}@{x}{a}{b}{\conj{a}}{\conj{b}}`	§18.19	the continuous Hahn polynomial
$P_{n}(x;a,b,c;q)$	`\bigqJacobipolyP{n}@{x}{a}{b}{c}{q}`	(18.27.5)	the big q-Jacobi polynomial
$p_{n}(x;a,b,c,d\,\vert\,q)$	`\AskeyWilsonpolyp{n}@{x}{a}{b}{c}{d}{q}`	(18.28.1)	the Askey–Wilson polynomial
$\mathrm{ph}(z)$	`\phase@{z}`	(1.9.7)	the phase of a complex number z

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Expansion	*TEX markup*	*Declared*	*Proper Name*
$\phi(z)$	`\Airyphasederivphi@{z}`	(9.8.8)	the phase of derivatives of Airy functions
$\phi_\nu(x)$	`\Hankelphasederivphi{\nu}@{x}`	(10.18.3)	the phase of derivatives of the Hankel function of the first kind
$\phi(n)$	`\Eulertotientphi@{n}`	(27.2.7)	Euler's totient, the number of positive integers relatively prime to n, ($\phi = \phi_0$)
$\phi_k(n)$	`\Eulertotientphi[k]@{n}`	(27.2.6)	the sum of k^{th} powers of integers relatively prime to n
$\phi^{(\alpha,\beta)}_\lambda(t)$	`\Jacobiphi{\alpha}{\beta}{\lambda}@{t}`	(15.9.11)	the Jacobi function
$\phi(z, s)$	`\Jonquierephi@{z}{s}`	§25.12(ii)	Truesdell's notation for polylogarithm
$\Phi_K(t; x)$	`\cuspcatastrophe{K}@{t}{x}`	(36.2.1)	the cuspoid catastrophe of codimension K
$\varphi_{n,m}(z, q)$	`\Jacobithetacombinedq{n}{m}@{z}{q}`	§20.11(v)	the combined theta function
$\Phi(z, s, a)$	`\LerchPhi@{z}{s}{a}`	(25.14.1)	Lerch's transcendent
$\phi(\rho, \beta; z)$	`\genBesselphi@{\rho}{\beta}{z}`	(10.46.1)	the generalized Bessel function
$\Phi^{(\mathrm{E})}(s, t; x)$	`\ellumbcatastrophe@{s}{t}{x}`	(36.2.2)	the elliptic umbilic catastrophe
$\Phi^{(\mathrm{H})}(s, t; x)$	`\hyperumbcatastrophe@{s}{t}{x}`	(36.2.3)	the hyperbolic umbilic catastrophe
$\Phi^{(\mathrm{U})}(s, t; x)$	`\umbcatastrophe@{s}{t}{x}`	§36.2	the umbilic catastrophe
${}_{r+1}\phi_s(a_0, \dots, a_r; b_1, \dots, b_s; q, z)$	`\qgenhyperphi{r+1}{s}@{a_0,\dots,a_r}{b_1,\dots,b_s}{q}{z}`	(17.4.1)	the q-hypergeometric (or basic hypergeometric) function
$\Phi^{(1)}(a; b, b'; c; q; x, y)$	`\qAppellPhi{1}@{a}{b}{b'}{c}{q}{x}{y}`	(17.4.5)	the first q-Appell function
$\Phi^{(2)}(a; b, b'; c, c'; q; x, y)$	`\qAppellPhi{2}@{a}{b}{b'}{c}{c'}{q}{x}{y}`	(17.4.6)	the second q-Appell function
$\Phi^{(3)}(a, a'; b, b'; c; q; x, y)$	`\qAppellPhi{3}@{a}{a'}{b}{b'}{c}{q}{x}{y}`	(17.4.7)	the third q-Appell function
$\Phi^{(4)}(a, b; c, c'; q; x, y)$	`\qAppellPhi{4}@{a}{b}{c}{c'}{q}{x}{y}`	(17.4.8)	the fourth q-Appell function
π	`\cpi`	(3.12.1)	the ratio of the circumference of a circle to its diameter
$\pi(x)$	`\nprimes@{x}`	(27.2.2)	the number of primes not exceeding x
$\Pi(\alpha^2, k)$	`\compellintPik@{\alpha^2}{k}`	(19.2.8)	(Legendre's) complete elliptic integral of the third kind (of modulus k)
$\Pi(\phi, \alpha^2, k)$	`\incellintPik@{\phi}{\alpha^2}{k}`	(19.2.7)	(Legendre's) incomplete elliptic integral of the third kind (of modulus k)
$\mathrm{pp}(n)$	`\nplanepartitions@{n}`	§26.12(i)	the number of plane partitions of n
$\mathrm{pq}\left(u, k\right)$	`\genJacobiellk{p}{q}@{u}{k}`	(22.2.10)	the generic Jacobian elliptic function pq (of modulus k)
$Ps^m_n(z, \gamma^2)$	`\sphwavePs{m}{n}@{z}{\gamma^2}`	§30.6	the spheroidal wave function of complex argument
$\mathsf{Ps}^m_n(x, \gamma^2)$	`\sphwavePsreal{m}{n}@{x}{\gamma^2}`	§30.4(i)	the spheroidal wave function of first kind
$\psi(x)$	`\ChebyshevPsi@{x}`	(25.16.1)	the Chebyshev ψ-function
$\psi(z)$	`\digamma@{z}`	(5.2.2)	the digamma (or psi) function
$\psi_q(z)$	`\qDigamma{q}@{z}`	?	the q-digamma function

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Expansion	*TEX markup*	*Declared*	*Proper Name*
$\Psi_{K}(x)$	`\canonint{K}@{x}`	(36.2.4)	the canonical integral function
$\Psi^{(\mathrm{E})}(x)$	`\ellumbcanonint@{x}`	(36.2.5)	the elliptic umbilic canonical integral function
$\Psi^{(\mathrm{H})}(x)$	`\hyperumbcanonint@{x}`		the hyperbolic umbilic canonical integral function
$\Psi^{(\mathrm{U})}(x)$	`\umbcanonint@{x}`		the umbilic canonical integral function
$\psi^{(n)}(z)$	`\polygamma{n}@{z}`	§5.15	the polygamma function
$\psi_{q}^{(n)}(z)$	`\qpolygamma{n}{q}@{z}`	?	the q-polygamma function
$\Psi_{K}(x;k)$	`\diffrcanonint{K}@{x}{k}`	(36.2.10)	the diffraction canonical integral
$\Psi^{(\mathrm{E})}(x;k)$	`\ellumbdiffrcanonint@{x}{k}`	(36.2.11)	the elliptic umbilic diffraction canonical integral function
$\Psi^{(\mathrm{H})}(x;k)$	`\hyperumbdiffrcanonint@{x}{k}`		the hyperbolic umbilic diffraction canonical integral function
$\Psi^{(\mathrm{U})}(x;k)$	`\umbdiffrcanonint@{x}{k}`		the umbilic diffraction canonical integral function
$\Psi(a;b;\mathbf{T})$	`\genhyperPsimat@{a}{b}{\mathbf{T}}`	(35.6.2)	the confluent hypergeometric function of matrix argument (second kind)
${}_{r}\psi_{s}(a_0,\dots,a_r;b_1,\dots,b_s;q,z)$	`\qgenhyperpsi{r}{s}@{a_0,\dots,a_r}{b_1,\dots,b_s}{q}{z}`	(17.4.3)	the bilateral q-hypergeometric (or bilateral basic hypergeometric) function
Q			
$\mathbb{Q}$	`\Rationals`	Intro.	the set of rational numbers
$\boldsymbol{Q}_{\nu}(z)$	`\assLegendreOlverQ{\nu}@{z}`	§14.2(ii)	$=\boldsymbol{Q}_{\nu}^{0}$, shorthand for Olver's associated Legendre function
$\boldsymbol{Q}_{\nu}^{\mu}(z)$	`\assLegendreOlverQ[\mu]{\nu}@{z}`	§14.21(i)	Olver's associated Legendre function
$Q_{\nu}(z)$	`\assLegendreQ{\nu}@{z}`	§14.2(ii)	$=Q_{\nu}^{0}$, shorthand for the associated Legendre function of the second kind
$Q_{\nu}^{\mu}(z)$	`\assLegendreQ[\mu]{\nu}@{z}`	§14.21(i)	the associated Legendre function of the second kind
$\mathsf{Q}_{\nu}(x)$	`\FerrersQ{\nu}@{x}`	§14.2(ii)	$=\mathsf{Q}_{\nu}^{0}$, shorthand for the Ferrers function of the second kind
$\mathsf{Q}_{\nu}^{\mu}(x)$	`\FerrersQ[\mu]{\nu}@{x}`	(14.3.2)	the Ferrers function of the second kind
$\widehat{\mathsf{Q}}^{-\mu}_{-\frac{1}{2}+\mathrm{i}\tau}(x)$	`\DunsterQ{-\mu}{-\tfrac{1}{2}+\iunit\tau}@{x}`	(14.20.2)	Dunster's conical function
$Q(a,z)$	`\normincGammaQ@{a}{z}`	(8.2.4)	the normalized incomplete gamma function Q
$Q_{n}\left(x;a,b\,\middle\vert\,q^{-1}\right)$	`\qinvAlSalamChiharapolyQ{n}@{x}{a}{b}{q^{-1}}`	(18.28.9)	the q^{-1}-Al-Salam–Chihara polynomial
$Q_{n}(x;a,b\,\vert\,q)$	`\AlSalamChiharapolyQ{n}@{x}{a}{b}{q}`	(18.28.7)	the Al-Salam–Chihara polynomial
$Q_{n}(x;\alpha,\beta,N)$	`\HahnpolyQ{n}@{x}{\alpha}{\beta}{N}`	§18.19	the Hahn polynomial
$Q_{n}(x;\alpha,\beta,N;q)$	`\qHahnpolyQ{n}@{x}{\alpha}{\beta}{N}{q}`	(18.27.3)	the q-Hahn polynomial
$Qs_{n}^{m}\left(z,\gamma^{2}\right)$	`\sphwaveQs{m}{n}@{z}{\gamma^2}`	§30.6	the spheroidal wave function of complex argument
$\mathsf{Qs}_{n}^{m}\left(x,\gamma^{2}\right)$	`\sphwaveQsreal{m}{n}@{x}{\gamma^2}`	§30.5	the spheroidal wave function of second kind
R			
$\mathbb{R}$	`\Reals`	Intro.	the set of real numbers
R_{∞}	`\Rydbergconst`	CODATA	the Rydberg constant

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Expansion	*TEX markup*	*Declared*	*Proper Name*
$r_k(n)$	`\nsquares{k}@{n}`	§27.13(iv)	the number of squares
$R^{(\alpha)}_{m,n}(z)$	`\diskpoly{\alpha}{m}{n}@{z}`	(18.37.1)	the disk polynomial
$r_{\mathrm{tp}}(\epsilon,\ell)$	`\Coulombturnr@{\epsilon}{\ell}`	(33.14.3)	the outer turning point for Coulomb (radial) functions (for repulsive interactions)
$R_{-a}(b_1,\dots,b_n;z_1,\dots,z_n)$	`\Carlsonmultivarhyper{-a}@{b_1,\dots,b_n}{z_1,\dots,z_n}`	(19.16.9)	Carlson's multivariate hypergeometric function
$R_n(x(x+\gamma+\delta+1);\gamma,\delta,N)$	`\dualHahnpolyR{n}@{x(x+\gamma+\delta+1)}{\gamma}{\delta}{N}`	§18.25	the dual Hahn polynomial
$R_n(x(x+\gamma+\delta+1);\alpha,\beta,\gamma,\delta)$	`\RacahpolyR{n}@{x(x+\gamma+\delta+1)}{\alpha}{\beta}{\gamma}{\delta}`	§18.25	the Racah polynomial
$R_n(x;\alpha,\beta,\gamma,\delta\,\vert\,q)$	`\qRacahpolyR{n}@{x}{\alpha}{\beta}{\gamma}{\delta}{q}`	(18.28.19)	the q-Racah polynomial
$R_C(x,y)$	`\CarlsonellintRC@{x}{y}`	(19.2.17)	Carlson's elliptic integral combining inverse circular and hyperbolic functions
$R_D(x,y,z)$	`\CarlsonsymellintRD@{x}{y}{z}`	(19.16.5)	Carlson's elliptic integral symmetric in only two variables
$\Re(z)$	`\realpart@{z}`	(1.9.2)	the real part of a complex number z
$R_F(x,y,z)$	`\CarlsonsymellintRF@{x}{y}{z}`	(19.16.1)	Carlson's symmetric elliptic integral of first kind
$R_G(x,y,z)$	`\CarlsonsymellintRG@{x}{y}{z}`	(19.16.3)	Carlson's symmetric elliptic integral of second kind
$\rho_{\mathrm{tp}}(\eta,\ell)$	`\Coulombturnrho@{\eta}{\ell}`	(33.2.2)	the outer turning point for Coulomb (radial) functions (for attractive interactions)
$R_J(x,y,z,p)$	`\CarlsonsymellintRJ@{x}{y}{z}{p}`	(19.16.2)	Carlson's symmetric elliptic integral of third kind
S			
$\mathfrak{S}_n$	`\npermutations{n}`	§26.13	the number of permutations of n
$S(z)$	`\Fresnelsinint@{z}`	(7.2.8)	the Fresnel sine integral
$\mathcal{S}(f)$	`\Stieltjestrans@{f}`	(1.14.47)	the Stieltjes transform of a function
$S_n(x)$	`\dilChebyshevpolyS{n}@{x}`	(18.1.3)	the dilated Chebyshev polynomial of second kind
$S_{\mu,\nu}(z)$	`\LommelS{\mu}{\nu}@{z}`	(11.9.5)	the Lommel function $S_{\mu,\nu}$
$s_{\mu,\nu}(z)$	`\Lommels{\mu}{\nu}@{z}`	(11.9.3)	the Lommel function $s_{\mu,\nu}$
$s(n,k)$	`\Stirlingnumbers@{n}{k}`	§26.8(i)	the Stirling number of the first kind
$S(n,k)$	`\StirlingnumberS@{n}{k}`	§26.8(i)	the Stirling number of the second kind
$S_n(x;q)$	`\StieltjesWigertpolyS{n}@{x}{q}`	(18.27.18)	the Stieltjes–Wigert polynomial
$S^{m(j)}_n(z,\gamma)$	`\radsphwaveS{m}{j}{n}@{z}{\gamma}`	(30.11.3)	the radial spheroidal wave function
$s(\epsilon,\ell;r)$	`\regCoulombs@{\epsilon}{\ell}{r}`	(33.14.9)	the regular Coulomb (radial) function (for attractive interactions) s
$S_n(x^2;a,b,c)$	`\contdualHahnpolyS{n}@{x^2}{a}{b}{c}`	§18.25	the continuous dual Hahn polynomial
$\mathrm{sc}(u,k)$	`\Jacobiellsck@{u}{k}`	(22.2.9)	the Jacobian elliptic function sc (of modulus k)
$scdE^m_{2n+3}(z,k^2)$	`\LamepolyscdE{m}{2n+3}@{z}{k^2}`	(29.12.8)	the Lamé polynomial $scdE^m_{2n+3}$
$scE^m_{2n+2}(z,k^2)$	`\LamepolyscE{m}{2n+2}@{z}{k^2}`	(29.12.5)	the Lamé polynomial scE^m_{2n+2}
$\mathrm{sd}(u,k)$	`\Jacobiellsdk@{u}{k}`	(22.2.7)	the Jacobian elliptic function sd (of modulus k)

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Expansion	*TEX markup*	*Declared*	*Proper Name*
$sdE^{m}_{2n+2}(z,k^2)$	`\LamepolysdE{m}{2n+2}@{z}{k^2}`	(29.12.6)	the Lamé polynomial sdE^{m}_{2n+2}
$\mathrm{se}_n(z,q)$	`\Mathieuse{n}@{z}{q}`	§28.2(vi)	the Mathieu function se_n
$\mathrm{Se}_\nu(z,q)$	`\modMathieuSe{\nu}@{z}{q}`	(28.20.4)	the modified Mathieu function Se_ν
$sE^{m}_{2n+1}(z,k^2)$	`\LamepolysE{m}{2n+1}@{z}{k^2}`	(29.12.2)	the Lamé polynomial sE^{m}_{2n+1}
$\sec(z)$	`\sec@{z}`	(4.14.6)	the secant function
$\mathrm{sech}(z)$	`\sech@{z}`	(4.28.6)	the hyperbolic secant function
$\mathrm{Shi}(z)$	`\sinhint@{z}`	(6.2.15)	the hyperbolic sine integral
$\mathrm{si}(z)$	`\shiftsinint@{z}`	(6.2.10)	the shifted sine integral
$\mathrm{Si}(z)$	`\sinint@{z}`	(6.2.9)	the sine integral Si
$\mathrm{si}(a,z)$	`\genshiftsinint@{a}{z}`	(8.21.1)	the generalized shifted sine integral
$\mathrm{Si}(a,z)$	`\gensinint@{a}{z}`	(8.21.2)	the generalized sine integral
$\sigma_\ell(\eta)$	`\Coulombphasesigma{\ell}@{\eta}`	(33.2.10)	the phase shift of the irregular Coulomb function $H^{\pm}_{\ell}$
$\sigma_n(\nu)$	`\Rayleighsigma{n}@{\nu}`	(10.21.55)	the Rayleigh function
$\sigma_\alpha(n)$	`\sumdivisors{\alpha}@{n}`	(27.2.10)	the sum of powers of divisors of n
$\sigma(z\mid L)$	`\Weierstrasssigmalatt@{z}{L}`	(23.2.6)	the Weierstrass sigma function σ (on Lattice)
$\sigma(z;g_2,g_3)$	`\Weierstrasssigmainvar@{z}{g_2}{g_3}`	§23.3(i)	the Weierstrass sigma function σ (on invariants)
$\mathrm{sign}(x)$	`\sign@{x}`	Intro.	the sign of a number x
$\sin(z)$	`\sin@{z}`	(4.14.1)	the sine function
$\mathrm{Sin}_q(x)$	`\qSin{q}@{x}`	(17.3.4)	the q-sine function Sin_q
$\sin_q(x)$	`\qsin{q}@{x}`	(17.3.3)	the q-sine function $\sin_q$
$\sinh(z)$	`\sinh@{z}`	(4.28.1)	the hyperbolic sine function
$\mathrm{sn}\,(u,k)$	`\Jacobiellsnk@{u}{k}`	(22.2.4)	the Jacobian elliptic function sn (of modulus k)
T			
$\mathbf{X}^{\mathrm{T}}$	`\transpose{\mathbf{X}}`	?	the transpose of a matrix
$T_n(x)$	`\ChebyshevpolyT{n}@{x}`	§18.3	the Chebyshev polynomial of the first kind
$T^{*}_n(x)$	`\shiftChebyshevpolyT{n}@{x}`	§18.3	the shifted Chebyshev polynomial of the first kind
$\tan(z)$	`\tan@{z}`	(4.14.4)	the tangent function
$\tanh(z)$	`\tanh@{z}`	(4.28.4)	the hyperbolic tangent function
$\tau(n)$	`\Ramanujantau@{n}`	(27.14.18)	Ramanujan's tau function
$\theta(z)$	`\Airyphasetheta@{z}`	(9.8.4)	the phase of Airy functions
$\theta_\nu(x)$	`\Hankelphasetheta{\nu}@{x}`	(10.18.3)	the phase of the Hankel function of the first kind
$\theta(z\mid\Omega)$	`\Riemanntheta@{z}{\Omega}`	(21.2.1)	the Riemann theta function
$\theta\left[\begin{smallmatrix}\alpha\\ \beta\end{smallmatrix}\right](z\mid\Omega)$	`\Riemannthetachar{\alpha}{\beta}@{z}{\Omega}`	(21.2.5)	the Riemann theta function with characteristics
$\theta_j(z\mid\tau)$	`\Jacobithetatau{j}@{z}{\tau}`	§20.2(i)	the Jacobi theta function of τ
$\theta_j(z,q)$	`\Jacobithetaq{j}@{z}{q}`		the Jacobi theta function of q
$\theta_\ell(\eta,\rho)$	`\Coulombphasetheta{\ell}@{\eta}{\rho}`	(33.2.9)	the phase of the irregular Coulomb function $H^{\pm}_{\ell}$
$\hat{\theta}(z\mid\Omega)$	`\scRiemanntheta@{z}{\Omega}`	(21.2.2)	the scaled Riemann theta function (or oscillatory part of the theta function)
tr	`\trace`	Intro.	the trace of a matrix
U			
$U_n(x)$	`\ChebyshevpolyU{n}@{x}`	§18.3	the Chebyshev polynomial of the second kind
$U^{*}_n(x)$	`\shiftChebyshevpolyU{n}@{x}`	§18.3	the shifted Chebyshev polynomial of the second kind
$U(a,z)$	`\paraU@{a}{z}`	§12.2(i)	the parabolic cylinder (or Weber) function U
$\mathsf{U}(x,t)$	`\VoigtU@{x}{t}`	(7.19.1)	the Voigt function U
$\overline{U}(a,x)$	`\paraUbar@{a}{x}`	§12.2(vi)	the parabolic cylinder (or Weber) function $\overline{U}$
$U(a,b,z)$	`\KummerconfhyperU@{a}{b}{z}`	(13.2.6)	the Kummer confluent hypergeometric function U

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Expansion	*TeX markup*	*Declared*	*Proper Name*
$uE^{m}_{2n}\left(z,k^2\right)$	`\LamepolyuE{m}{2n}@{z}{k^2}`	(29.12.1)	the Lamé polynomial uE^{m}_{2n}
V			
$\mathcal{V}(f)$	`\variation@{f}`	(1.4.33)	the total variation of a function
$\mathcal{V}_{a,b}(f)$	`\variation[a,b]@{f}`		the total variation of a function on an interval
$V_n(x)$	`\ChebyshevpolyV{n}@{x}`	§18.3	the Chebyshev polynomial of the third kind
$V(a,z)$	`\paraV@{a}{z}`	§12.2(i)	the parabolic cylinder (or Weber) function V
$\mathsf{V}(x,t)$	`\VoigtV@{x}{t}`	(7.19.2)	the Voigt function V
W			
$W(x)$	`\LambertW@{x}`	(4.13.1)	the Lambert W-function
$\mathscr{W}\left\{w_1,w_2\right\}$	`\Wronskian@{w_1,w_2}`	(1.13.4)	the Wronskian
$W_n(x)$	`\ChebyshevpolyW{n}@{x}`	§18.3	the Chebyshev polynomial of the fourth kind
$W_{\kappa,\mu}(z)$	`\WhittakerconfhyperW{\kappa}{\mu}@{z}`	(13.14.3)	the Whittaker confluent hypergeometric function $W_{\kappa,\mu}$
$W(a,x)$	`\paraW@{a}{x}`	§12.14(i)	the parabolic cylinder (or Weber) function W
$W_n\left(x^2;a,b,c,d\right)$	`\WilsonpolyW{n}@{x^2}{a}{b}{c}{d}`	§18.25	the Wilson polynomial
$\mathrm{Wm}(x)$	`\LambertWm@{x}`	§4.13	the non-principal branch of the Lambert W-function
$\mathrm{Wp}(x)$	`\LambertWp@{x}`		the principal branch of the Lambert W-function
X			
$\xi(s)$	`\Riemannxi@{s}`	(25.4.4)	the Riemann ξ function
Y			
$y_{\nu,m}$	`\zBessely{\nu}{m}`	§10.21(i)	the m^{th} zero of the Bessel function of the second kind Y_ν
$y'_{\nu,m}$	`\zderivBessely{\nu}{m}`		the m^{th} zero of the derivative of the Bessel function of the second kind Y'_ν
$Y_\nu(z)$	`\BesselY{\nu}@{z}`	(10.2.3)	the Bessel function of the second kind
$\mathsf{y}_n(z)$	`\sphBesselY{n}@{z}`	(10.47.4)	the spherical Bessel function of the second kind
$\widetilde{Y}_\nu(x)$	`\BesselYimag{\nu}@{x}`	§10.24	the Bessel function of the second kind of imaginary order
$y_n(x;a)$	`\Besselpolyy{n}@{x}{a}`	(18.34.1)	the Bessel polynomial
$Y_{l,m}(\theta,\phi)$	`\sphharmonicY{l}{m}@{\theta}{\phi}`	(14.30.1)	the spherical harmonic
$Y_l^{m}(\theta,\phi)$	`\surfharmonicY{l}{m}@{\theta}{\phi}`	(14.30.2)	the surface harmonic of the first kind
Z			
$\mathbb{Z}$	`\Integers`	Intro.	the set of integers
$\mathscr{Z}_\nu(z)$	`\modcylinder{\nu}@{z}`	§10.25	the modified cylinder function
$Z_\kappa(\mathbf{T})$	`\zonalpolyZ{\kappa}@{\mathbf{T}}`	§35.4(i)	the zonal polynomial
$\mathrm{Z}(x\mid k)$	`\JacobiZetak@{x}{k}`	(22.16.32)	Jacobi's Zeta function (of modulus k)
$\zeta(s)$	`\Riemannzeta@{s}`	(25.2.1)	the Riemann zeta function
$\zeta(s,a)$	`\Hurwitzzeta@{s}{a}`	(25.11.1)	the Hurwitz zeta function
$\zeta(z\mid L)$	`\Weierstrasszetalatt@{z}{L}`	(23.2.5)	the Weierstrass zeta function ζ (on Lattice)
$\zeta(z;g_2,g_3)$	`\Weierstrasszetainvar@{z}{g_2}{g_3}`	§23.3(i)	the Weierstrass zeta function ζ (on invariants)