DLMF LATEX Guide

Bruce R. Miller

Email: bruce.miller@nist.gov

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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 T_FX markup.

The complete package of DLMF style files, along with examples and other supplementary materials, is available for download (See Appendix \mathbf{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 IATEX 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 TEXmarkup, 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 $\frac{1}{2}$).

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

2.1 Frontmatter

The Frontmatter commands for establishing author, title, etc. are listed in Table 2 (motivated by the Rev-TeX4 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).

\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:

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.

 $\{text\}$ 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).

\chapter	\label{ch:XX}
\part	\label{pt:XX.PT}
\section	\label{sec:XX.SC}
\subsection	\label{sec:XX.SC.SS}
\begin{equation}	$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $
\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 'toplevel', 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 IATEX 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.

```
\label{eq:AI.AS.A} $$ \operatorname{(1.07)}{0lver:1997:ASF} $$ \operatorname{(2} \asympexp $$ \operatorname{(2expe^{-\zeta}}{2\sqrt{\cpi}z^{1/4}} $$ \operatorname{(k=0)^{\left(infty} $$ \operatorname{(pminus^k\frac{u_k}{\zeta^k} $$ \operatorname{(pminus^k)}{2}} $$ \constraint{$\|\rho\|ase0{z}\|\|eq\cpi-\delta$}, $$ \constraint{$\|\rho\|ase0{z}\|\|eq\cpi-\delta$}, $$ \constraint{$.}
```

produces

$$\operatorname{Ai}(z) \sim \frac{\mathrm{e}^{-\zeta}}{2\sqrt{\pi}z^{1/4}} \sum_{k=0}^{\infty} (-1)^k \frac{u_k}{\zeta^k}, \ |\operatorname{ph}(z)| \le \pi - \delta,$$
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.APO}
  \source{(1.03)}{Olver:1997:ASF}%
  \AiryAi'0{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}
```

$$\begin{split} \mathrm{Ai}(0) &= \frac{1}{3^{2/3}\,\Gamma\!\left(\frac{2}{3}\right)} = 0.35502~80538\ldots, \qquad \textbf{9.2.3} \\ \mathrm{Ai}'(0) &= -\frac{1}{3^{1/3}\,\Gamma\!\left(\frac{1}{3}\right)} = -0.25881~94037\ldots, \quad \textbf{9.2.4} \end{split}$$

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}
    \Delta irymodM^2@{x}\Delta iryphasetheta'@{x}
     = -\cpi^{-1}
  \end{math},
  \begin{math}
    \Lambda irymodderivN^20{x}
       \Airyphasederivphi'0{x}
     =\cpi^{-1}x
  \end{math},
 \begin{math}
    \AirymodderivN@{x}\AirymodderivN'@{x}
     = x \AirymodM@{x}\AirymodM'@{x}
  \end{math},
\end{equationmix}
```

produces

$$M^2(x)\,\theta'(x)=-\pi^{-1}\,,\quad N^2(x)\,\phi'(x)=\pi^{-1}x\,,\quad$$
 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 × 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}	$\frac{a}{b}$
\ifrac	\ifrac{a}{b}	a/b
\cfrac b_0+\cfra	c{a_1}{b_1+\cfra	c{a_2}{b_2+\cdots}}
		$b_0 + \frac{a_1}{b_1 +} \frac{a_2}{b_2 +} \cdots$
\cfracsty	le{d}	01 02
b_0+\cfra	c{a_1}{b_1+\cfrac	c{a_2}{b_2+\cdots}}
		$b_0 + \frac{a_1}{b_1 + \frac{a_2}{b_2 + \dots}}$
\midvert		02 ***
•	ac{A}{B}\midvert	
\midVert		
\left(\fr	$ac{A}{B}\midVert$	$\frac{Q}{R}\right)$
		$\left(\frac{A}{B} \left\ \frac{Q}{R} \right)\right)$
\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 re{}1. For example,

$$\label{localize} $$ \left(\frac{1.234}{5}\right) \Rightarrow a & TSci{1.234}{5} \Rightarrow b & 0.123 \times 10^{-4} \\ b & TSci{0.123}{-4} \Rightarrow b & 0.123 \times 10^{-4} \\ \left(\frac{1.234}{5}\right) & 0.123 \times 10^{-4} \\ \end{array} $$$$

3.4 Special Functions 5

Table 4: Calculus: Derivatives and Differentials..

Macro	Example	Result
\deriv	\deriv{f}{x}	$\frac{\mathrm{d}f}{\mathrm{d}x}$
	${x}$	$\frac{\mathrm{d}}{\mathrm{d}x}$
	$\deriv[n]{f}{x}$	$\frac{\mathrm{d}^n f}{\mathrm{d}x^n}$
\tderiv	$\text{tderiv[n]{f}{x}}$	$\frac{\mathrm{d}^n f}{\mathrm{d}x^n}$
\ideriv	$\left[n\right]_{f}\left[x\right]$	$\mathrm{d}^n f/\mathrm{d} x^n$
\pderiv	$\displaystyle \prod_{f}{x}$	$\frac{\partial^n f}{\partial x^n}$
\tpderiv	$\tpderiv[n]{f}{x}$	$\frac{\partial^n f}{\partial x^n}$
\ipderiv	$\displaystyle \prod_{f}{x}$	$\partial^n f/\partial x^n$
\Deriv	\Deriv{z}	D_z
\qDeriv	\Deriv[n]{z} \qDeriv[n]{q}{z}	$D_z^n \\ D_{q,z}^n$
\diff	\diff{x} \diff[2]{x}	$\frac{\mathrm{d}x}{\mathrm{d}^2x}$
	\int f \diff{x}	$\int f \mathrm{d}x$
\pdiff{x}	\pdiff[2]{x}	$\partial^2 x$
\qdiff	$\displaystyle \left(qdiff[n] \left(q \right) \left(x \right) \right)$	$d_q^n x$
\fDiff	\fDiff[z]	Δ_z
\bDiff	\bDiff[z]	∇_z
\cDiff	\cDiff[z]	δ_z
\Residue	$\label{eq:condition} $$\operatorname{z=a}\f(f)$$$	$\underset{z=a}{\operatorname{res}}\{f\}$

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		\pvint	f
\iiint	\iiint	\oint	\oint
\iiiint			

Table 6: Linear Algebra and Sets.

Macro	Example	Result
\Vector	\Vector{V}	V
\Matrix	\Matrix{M}	${f M}$

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

$$J_{\nu}$$
 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:

$$\BesselJ{
u} o J_{
u}$$

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}
$$o J_{
u}(x)$$

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:

```
\label{eq:local_local_local} $$\operatorname{local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_local_l
```

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

```
\begin{tabular}{ll} & \to & J_{\nu} \\ & \to & J_{\nu}(z) \\ & \to & J_{\nu}(z) \\ & \to & J_{\nu}(z) \\ & \to & J_{\nu}'(z) \\ & \to & J_{\nu}''(z) \\ & \to & J_{\nu}'''(z) \\ & \to & J_{\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'):

```
\label{eq:control_sin_q} $$ \sin(x) $$ \sin(x) + \sin x $$ \operatorname{p}_{q}(a_1, \ldots a_p; b_1, \ldots b_q; z) $$ \operatorname{pF}_q(a_1, \ldots a_p; b_1, \ldots b_q; z) $$ \operatorname{pF}_q(a_1, \ldots a_p; b_1, \ldots b_q; z) $$ \to {}_pF_q\left(a_1, \ldots a_p; b_1, \ldots b_q; z\right) $$ \to {}_pF_q\left(a_1, \ldots a_p; b_1, \ldots b_q; z\right) $$
```

6 5 METADATA

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:

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 IATEX identifiers. We adopt the scheme used by the BibNet project¹ 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 proof-reading. 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

¹ftp://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 T_EX , 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).

BibT_EX 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]
                                       Goossens, Mittelbach, and Samarin [1994]
   \cite*{Goossens:1994:LC}
   \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:

 $macro \equiv \langle prefix^* \ name \ coreclass^? \ symbol^? suffix^*$ $class \equiv prefix^* \ coreclass$

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 $m = k^2$
$_{\mathrm{mat}}$	matrix argument
real	real arg or order
invar	on invariants (Weierstrass)
latt	on lattice (Weierstrass)
\mathbf{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 restricted
rest	scaled
$\frac{\text{sc}}{\text{shift}}$	shifted
_	spherical spheroidal
sph	symmetric
$_{ m umb}$	umbilic
	ultraspherical
$_{ m z}^{ m usph}$	zeros (of)
	20103 (01)

C Macros sorted by macro name

$T_{E\!X}\ markup$	Expansion	Declared	Proper Name
A			
\abs{x}	x	?	the absolute value of x
\Acos	Arccos	(4.23.2)	the multivalued inverse of the cosine function
$\Lambda\cos(z)$	Arccos(z)	,	
$\Lambda\cos 00{z}$	$\operatorname{Arccos} z$		
\acos	arccos	§4.23(ii)	the inverse of the cosine function
$\acos@{z}$	$\arccos(z)$		
$\acos@{z}$	$\arccos z$		
\Acosh	Arccosh	(4.37.2)	the multivalued inverse of the hyperbolic cosine function
$\Lambda cosh(z)$	Arccosh(z)		
$\Lambda cosh@@{z}$	$\operatorname{Arccosh} z$		
\acosh	arccosh	§4.37(ii)	the inverse of the hyperbolic cosine function
$\acosh0{z}$	$\operatorname{arccosh}(z)$	9 ()	•
$\acosh@{z}$	$\operatorname{arccosh} z$		
\Acot	Arccot	(4.23.6)	the multivalued inverse of the cotangent function
$\Lambda \cot (z)$	$\operatorname{Arccot}(z)$,	
$\Lambda \cot @\{z\}$	$\operatorname{Arccot} z$		
\acot	arccot	(4.23.9)	the inverse of the cotangent function
$\acot0{z}$	$\operatorname{arccot}(z)$,	Ü
$\acot@{z}$	$\operatorname{arccot} z$		
\Acoth	Arccoth	(4.37.6)	the multivalued inverse of the hyperbolic cotangent function
\Acoth@{z}	Arccoth(z)		
$\Lambda = \Lambda $	$\operatorname{Arccoth} z$		
\acoth	arccoth	(4.37.9)	the inverse of the hyperbolic cotangent function
$\acoth @{z}$	$\operatorname{arccoth}(z)$, ,	
$\acoth@@{z}$	$\operatorname{arccoth} z$		
\Acsc	Arccsc	(4.23.4)	the multivalued inverse of the cosecant function
$\Acsc@{z}$	$\operatorname{Arccsc}(z)$, ,	
$\Acsc@0{z}$	$\operatorname{Arccsc} z$		
\acsc	arccsc	(4.23.7)	the inverse of the cosecant function
$\acsc@{z}$	$\operatorname{arccsc}(z)$		
$\acsc@0{z}$	$\operatorname{arccsc} z$		
\Acsch	Arccsch	(4.37.4)	the multivalued inverse of the hyperbolic cosecant function
$\Acsch0{z}$	$\operatorname{Arccsch}(z)$		
$\Lambda csch@0{z}$	$\operatorname{Arccsch} z$		
\acsch	arccsch	(4.37.7)	the inverse of the hyperbolic cosecant function
$\acsch0{z}$	$\operatorname{arccsch}(z)$		
$\acsch@0{z}$	$\operatorname{arccsch} z$		
$\label{localization} $$ \agenJacobiellk{p}{q}$$	arcpq	?	the inverse of the generic Jacobian elliptic function pq (of modulus k)
lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	$\operatorname{arcpq}\left(x,k\right)$		
lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	$\operatorname{arcpq} x$		
\AGM	M	§19.8(i)	arithmetic-geometric mean
$\AGMQ{a}{g}$	M(a,g)		
\aGudermannian	gd^{-1}	(4.23.41)	the inverse of the Gudermannian function
$\aggreen{a} \aggreen{a} \agg$	$\operatorname{gd}^{-1}(z)$		
\aGudermannian@@{z}	$\operatorname{gd}^{-1}z$		
			continued on next page

$T_{EX} markup$	Expansion	Declared	Proper Name
\AiryAi	Ai	§9.2(i)	the Airy function Ai
\AiryAi@{z}	$\operatorname{Ai}(z)$		
\AiryBi	Bi	$\S 9.2(i)$	the Airy function Bi
\AiryBi@{z}	$\operatorname{Bi}(z)$	()	
\AirymodderivN	N	(9.8.7)	the modulus of derivatives of Airy functions
\AirymodderivN@{z}	N(z)	(0.0.0)	
\AirymodM \AirymodM@{z}	M	(9.8.3)	the modulus of Airy functions
\Airyphasederivphi	$M(z) = \phi$	(9.8.8)	the phase of derivatives of Airy functions
\Airyphasederivphi@{z}	$\phi \ \phi(z)$	(9.6.6)	the phase of derivatives of Arry functions
\Airyphasetheta	θ	(9.8.4)	the phase of Airy functions
\Airyphasetheta@{z}	$\theta(z)$	(0.0.1)	the phase of this functions
\aJacobiellcdk	arccd	§22.15(i)	the inverse of the Jacobian elliptic function cd (of
•		3 -()	modulus k)
$\adjacobiellcdk@{x}{k}$	$\operatorname{arccd}(x,k)$,
\aJacobiellcnk	arccn	§22.15(i)	the inverse of the Jacobian elliptic function cn (of
			modulus k)
$\ag{x}{k}$	$\operatorname{arccn}(x,k)$		
\aJacobiellcsk	arccs	§22.15(i)	the inverse of the Jacobian elliptic function cs (of
	(1)		modulus k)
\aJacobiellcsk@{x}{k}	arccs(x,k)	000 15(1)	
\aJacobielldck	arcdc	§22.15(i)	the inverse of the Jacobian elliptic function dc (of
\aJacobielldck@{x}{k}	$\operatorname{arcdc}(x,k)$		modulus k)
\aJacobielldnk	arcdn	§22.15(i)	the inverse of the Jacobian elliptic function dn (of
(dodeobicitalik	arcan	322.10(1)	modulus k)
$\aggreen a Jacobielldnk@{x}{k}$	$\operatorname{arcdn}(x,k)$		
\aJacobielldsk	arcds	§22.15(i)	the inverse of the Jacobian elliptic function ds (of
		,	modulus k)
$\adjacobielldsk@{x}{k}$	arcds(x, k)		
\aJacobiellnck	arcnc	§22.15(i)	the inverse of the Jacobian elliptic function nc (of
	(1)		modulus k)
\aJacobiellnck@{x}{k}	$\operatorname{arcnc}(x,k)$	000 15(1)	
\aJacobiellndk	arcnd	§22.15(i)	the inverse of the Jacobian elliptic function nd (of
\aJacobiellndk@{x}{k}	$\operatorname{arcnd}(x,k)$		modulus k)
\aJacobiellnsk	archa(x, k)	§22.15(i)	the inverse of the Jacobian elliptic function ns (of
\aJacobieiinsk	archs	322.10(1)	a modulus a
$\ag{x}{k}$	arcns(x,k)		modulus N)
\aJacobiellsck	arcsc	§22.15(i)	the inverse of the Jacobian elliptic function sc (of
•		0 ()	modulus k)
$\adjacobiellsck0{x}{k}$	arcsc(x,k)		,
\aJacobiellsdk	arcsd	§22.15(i)	the inverse of the Jacobian elliptic function ds (of
			modulus k)
$\adjacobiellsdk@{x}{k}$	$\operatorname{arcsd}(x,k)$		
\aJacobiellsnk	arcsn	§22.15(i)	the inverse of the Jacobian elliptic function sn (of
\	amagn (1.)		modulus k)
\aJacobiellsnk@{x}{k}	$\arcsin(x,k)$	(10 00 7)	the Al Colom Chihava nol-marrial
\AlSalamChiharapolyQ{n} \AlSalamChiharapolyQ{n}@{x}	Q_n	(18.28.7)	the Al-Salam–Chihara polynomial
/vrsaramoningrahorAmsinlass)	$Q_n(x;a,b q)$		
\AngerJ{\nu}	$\mathbf{J}_{ u}$	(11 10 1)	the Anger function
/	υ,	(11.10.1)	continued on next page

$T_{EX} markup$	Expansion	Declared	Proper Name
\AngerJ{\nu}@{z}	${f J}_ u(z)$		
\AngerWeberA{\nu} \AngerWeberA{\nu}@{z}	$egin{aligned} \mathbf{A}_{ u} \ \mathbf{A}_{ u}(z) \end{aligned}$	(11.10.4)	the Anger–Weber function
$\Lambda = 17$	F_1	(16.13.1)	the first Appell function
\AppellF{2} \AppellF{2}@{\alpha}{\beta}{	$F_2 $$ F_2(\alpha;\beta,\beta';\gamma,\gamma';x,y) $$$		the second Appell function
\AppellF{3} \AppellF{3}@{\alpha}{\alpha	F_3 }{\beta}{\beta'}{\gamm} $F_3(\alpha,\alpha';\beta,\beta';\gamma;x,y)$		the third Appell function
$$$ \Lambda ppellF{4} $$ \Lambda ppellF{4}@{\alpha}{\beta}{}$	F_4 $\{ \gamma \} $		the fourth Appell function
\Asec \Asec@{z} \Asec@@{z}	$\begin{array}{c} \text{Arcsec} \\ \text{Arcsec}(z) \\ \text{Arcsec} \ z \end{array}$	(4.23.5)	the multivalued inverse of the secant function
\asec \asec@{z} \asec@@{z}	arcsec $arcsec(z)$ $arcsec z$	(4.23.8)	the inverse of the secant function
\Asech \Asech@{z}	${\rm Arcsech}$ ${\rm Arcsech}(z)$	(4.37.5)	the multivalued inverse of the hyperbolic secant function
\Asech@@{z} \asech \asech@{z} \asech@@{z}	Arcsech z arcsech arcsech(z) arcsech z	(4.37.8)	the inverse of the hyperbolic secant function
\Asin \Asin@{z} \Asin@@{z}	Arcsin Arcsin(z) Arcsin z	(4.23.1)	the multivalued inverse of the sine function
\asin \asin@{z} \asin@@{z}	$\arcsin z$ $\arcsin z$	§4.23(ii)	the inverse of the sine function
Asinh	Arcsinh	(4.37.1)	the multivalued inverse of the hyperbolic sine function
\Asinh0{z} \Asinh00{z}	Arcsinh(z) $Arcsinh z$		
\asinh \asinh@{z} \asinh@@{z}	$\begin{array}{l} \operatorname{arcsinh} \\ \operatorname{arcsinh}(z) \\ \operatorname{arcsinh} z \end{array}$	§4.37(ii)	the inverse of the hyperbolic sine function
\AskeyWilsonpolyp{n} \AskeyWilsonpolyp{n}@{x}{a}{	p_n	(18.28.1)	the Askey–Wilson polynomial
\assJacobipolyP{\alpha}{\bet	:a}{n}		

$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	T _E X markup	Expansion	Declared	Proper Name
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		$P_n^{(\alpha,\beta)}(x;c)$		
$\label{eq:lambda} $$ \lambda ass Legendre Olver Q(\mu) \{\nu) \bullet \{z\} \\ V_{\nu} \\ \lambda ass Legendre Olver Q(\mu) \{\nu) \bullet \{z\} \\ V_{\nu} \\ \lambda ass Legendre P(\nu) \} \\ P_{\nu} \\ \lambda ass Legendre P(\nu) \bullet \{z\} \\ P_{\nu}(z) \\ \lambda ass Legendre P(\nu) \bullet \{z\} \\ P_{\nu}(z) \\ \lambda ass Legendre P(\mu) \{\nu) \bullet \{z\} \\ P_{\nu}(z) \\ \lambda ass Legendre P(\mu) \{\nu) \bullet \{z\} \\ P_{\nu}(z) \\ \lambda ass Legendre P(\mu) \{\nu) \bullet \{z\} \\ P_{\nu}(z) \\ \lambda ass Legendre P(\mu) \{\nu) \bullet \{z\} \\ P_{\nu}(z) \\ \lambda ass Legendre Poly (n) \bullet \{x\} \{c\} \\ P_{\nu}(z) \\ \lambda ass Legendre Poly (n) \bullet \{x\} \{c\} \\ P_{\nu}(z) \\ \lambda ass Legendre Poly \{\nu) \bullet \{z\} \\ Q_{\nu}(z) \\ \lambda ass Legendre Q(\nu) \bullet \{z\} \\ Q_{\nu}(z) \\ \lambda ass Legendre Q(\nu) \bullet \{z\} \\ Q_{\nu}(z) \\ \lambda ass Legendre Q(\nu) \bullet \{z\} \\ Q_{\nu}(z) \\ \lambda ass Legendre Q(\nu) \bullet \{z\} \\ Q_{\nu}(z) \\ \lambda ass Legendre Q(\nu) \bullet \{nu) \bullet \{z\} \\ Q_{\nu}(z) \\ \lambda ass Legendre Q(\nu) \bullet \{nu) \bullet \{z\} \\ Q_{\nu}(z) \\ \lambda ass Legendre Q(\nu) \bullet \{nu) \bullet \{z\} \\ Q_{\nu}(z) \\ \lambda ass Legendre Q(\nu) \bullet \{nu) \bullet \{z\} \\ Q_{\nu}(z) \\ \lambda ass Legendre Q(\nu) \bullet \{nu) \bullet \{z\} \\ A_{\nu}(z) \\ \lambda ass Legendre Q(\nu) \bullet \{nu) \bullet \{z\} \\ A_{\nu}(z) \\ \lambda ass Legendre P(\nu) \bullet \{z\} \\ \lambda ass Legendre P(\nu) \bullet \{nu) \bullet \{z\} \\ \lambda ass Legendre P(\nu) \bullet \{nu) \bullet \{z\} \\ \lambda ass Legendre P(\nu) \bullet \{nu) \bullet \{z\} \\ \lambda ass Legendre P(\nu) \bullet \{nu) \bullet \{z\} \\ \lambda ass Legendre P(\nu) \bullet \{nu) \bullet \{z\} \\ \lambda ass Legendre P(\nu) \bullet \{nu) \bullet \{z\} \\ \lambda ass Legendre P(\nu) \bullet \{nu) \bullet \{z\} \\ \lambda ass Legendre P(\nu) \bullet \{nu) \bullet \{nu) \bullet \{z\} \\ \lambda ass Legendre P(\nu) \bullet \{nu) \bullet \{nu) \bullet \{z\} \\ \lambda ass Legendre P(\nu) \bullet \{nu) \bullet \{nu)$	$\arrowverQ{ u}$		§14.2(ii)	$= Q_{\nu}^{0}$, shorthand for Olver's associated Legendre function
$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	\assLegendreOlverQ{\nu}@{z}	$oldsymbol{Q}_{ u}(z)$		
$\begin{array}{llllllllllllllllllllllllllllllllllll$	\assLegendreOlverQ[\mu]{\nu}	$\boldsymbol{Q}^{\mu}_{\nu}$	§14.21(i)	Olver's associated Legendre function
$\begin{array}{llllllllllllllllllllllllllllllllllll$	$\assLegendreOlverQ[\mu]{\nu}@{\assLegendreOlverQ[\mu]} $	(z}		
tion of the first kind)		0140(**)	70 1 11 15 11 1 1 1
$ \begin{array}{c} \text{AssLegendreP[\mu]\{\nu\}} & p_{\nu}^{\mu} \\ \text{AssLegendreP[\mu]\{\nu\}} & p_{\nu}^{\mu}(z) \\ \text{AssLegendrePoly}\{n\} & p_{\nu}^{\mu}(z) \\ \text{AssLegendreQ[\nu]} & q_{\nu}^{\mu}(z) \\ \text{AssLegendreQ[\nu]}\{n\} & q_{\nu}^{\mu}(z) \\ \text{AssLegendreQ[\nu]}\{n\} & q_{\nu}^{\mu}(z) \\ \text{AssLegendreQ[\nu]}\{n\} & q_{\nu}^{\mu}(z) \\ \text{AssLegendreQ[\nu]}\{n\} & q_{\nu}^{\mu}(z) \\ \text{Asspmpeq} & \sim & (2.1.1) & \text{asymptotically equal} \\ \text{Asympexp} & \sim & \$2.1(\text{iii}) & \text{asymptotic expansion (the right-hand side asymptotic expansion of the left-hand side)} \\ \text{Attan} & \text{Arctan} & (4.23.3) & \text{the multivalued inverse of the tangent function} \\ \text{Attan0}\{z\} & \text{Arctan}(z) \\ \text{Attan0}\{z\} & \text{arctan}(z) \\ \text{Attan0}\{z\} & \text{arctan}(z) \\ \text{Attanh0}\{z\} & \text{arctan}(z) \\ \text{Attanh} & \text{Arctanh}(z) \\ \text{Attanh} & \text{Arctanh}(z) \\ \text{Attanh0}\{z\} & \text{arctanh}(z) \\ \text{attanh0}(z) & \text{arctanh}(z$	-		§14.2(11)	
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$ \begin{array}{llllllllllllllllllllllllllllllllllll$			§14.21(i)	the associated Legendre function of the first kind
$\begin{array}{llllllllllllllllllllllllllllllllllll$			(10.00.0)	
tion of the second kind \assLegendreQ{\nu}{0}z} \ Q_{\nu}(z) \ assLegendreQ[\nu]{\nu} \ Q_{\nu}^{\mu} \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \			(18.30.6)	
$\begin{array}{llllllllllllllllllllllllllllllllllll$	\assLegendreQ{\nu}	$Q_{ u}$	§14.2(ii)	•••
$\label{eq:localization} $$ \text{kind} $$ \text{asympeq} $$ \sim $ (2.1.1) $$ asymptotically equal $$ \text{asymptotic expansion (the right-hand side asymptotic expansion of the left-hand side)} $$ \text{Arctan} $$ Arctan $$ (4.23.3) $$ the multivalued inverse of the tangent function $$ \text{Atan@{z}}$$ Arctan $$ 2$ (4.23.4) $$ the inverse of the tangent function $$ \text{Atan@{z}}$$ arctan $$ 2$ (4.37.3) $$ the inverse of the tangent function $$ \text{Atan@{z}}$$ arctan $$ 2$ (4.37.3) $$ the multivalued inverse of the hyperbolic tangent function $$ \text{Atanh@{z}}$$ arctan $$ 2$ (4.37.3) $$ the multivalued inverse of the hyperbolic tangent function $$ \text{Atanh@{z}}$$ Arctanh $$ 4.37.3) $$ the multivalued inverse of the hyperbolic tangent function $$ \text{Atanh@{z}}$$ Arctanh $$ 2$ Arctanh $$ 3$ Arctanh $$ 4.37(ii) $$ the inverse of the hyperbolic tangent function $$ 2$ Arctanh $$ 3$ Arctanh $$ 3$ Arctanh $$ 4.37(ii) $$ the inverse of the hyperbolic tangent function $$ 2$ Arctanh $$ 3$ Arctanh $$ 3$ Arctanh $$ 4.37(ii) $$ the inverse of the hyperbolic tangent function $$ 4$ Arctanh $$ 4.37(ii) $$ the inverse of the hyperbolic tangent function $$ 4$ Arctanh $$ 4.37(ii) $$ the inverse of the hyperbolic tangent function $$ 4$ Arctanh $$ 4.37(ii) $$ the inverse of the hyperbolic tangent$	$\assLegendreQ{\nu}@{z}$			
\asympeq \ \ \asympexp \ \ \asymptotic asymptotic expansion (the right-hand side asymptotic expansion of the left-hand side) Atan	\assLegendreQ[\mu]{\nu}	$Q^{\mu}_{ u}$	§14.21(i)	
\asymptotic expansion (the right-hand side asymptotic expansion (the right-hand side asymptotic expansion of the left-hand side) \Atan	lem:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma:lemma	$Q^{\mu}_{ u}(z)$		
asymptotic expansion of the left-hand side) \[\lambda \tan \\ \lambda \tan(z) \\ \lambda \tanh(z)	\asympeq	\sim	(2.1.1)	asymptotically equal
\Atan	\asympexp	~	§2.1(iii)	asymptotic expansion (the right-hand side is the asymptotic expansion of the left-hand side)
\Atan@{z}	\Atan	Arctan	(4.23.3)	the multivalued inverse of the tangent function
\atan arctan \\atan\(2z\) \\arctan\(2z\) \\arctan\	\Atan@{z}	Arctan(z)		_
$\begin{array}{llllllllllllllllllllllllllllllllllll$	\Atan@@{z}			
$\label{eq:localization} $\operatorname{Atanh} = \operatorname{Arctanh} z$$ $	\atan	arctan	§4.23(ii)	the inverse of the tangent function
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	\atan@{z}	$\arctan(z)$		
$\label{eq:localization} $\operatorname{Arctanh}(z)$ & \operatorname{Arctanh}(z)$ & \operatorname{AuxFresnelf}(z)$ & f(z)$ & the auxiliary function for Fresnel integrals for the suxiliary function for Fresnel integrals for the auxiliary function for Fresnel integrals for the auxiliary function for sine and cosine in the suxiliary function for sine and $	\atan@@{z}	$\arctan z$		
lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	\Atanh	Arctanh	(4.37.3)	the multivalued inverse of the hyperbolic tangent function
$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	\Atanh@{z}	Arctanh(z)		
lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	\Atanh@@{z}	$\operatorname{Arctanh} z$		
$\begin{array}{llllllllllllllllllllllllllllllllllll$	\atanh	arctanh	§4.37(ii)	the inverse of the hyperbolic tangent function
\auxFresnelf f (7.2.10) the auxiliary function for Fresnel integrals f (auxFresnelf0{z}) f(z) \auxFresnelg g (7.2.11) the auxiliary function for Fresnel integrals g (auxFresnelg0{z}) g(z) \auxsincosintf f (6.2.17) the auxiliary function for sine and cosine in f (auxsincosintf0{z}) f(z) \auxsincosintg g (6.2.18) the auxiliary function for sine and cosine in g	\atanh@{z}	$\operatorname{arctanh}(z)$		
$\begin{array}{llllllllllllllllllllllllllllllllllll$	\atanh@@{z}	$\operatorname{arctanh} z$		
$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	\auxFresnelf		(7.2.10)	the auxiliary function for Fresnel integrals f
$\begin{array}{llllllllllllllllllllllllllllllllllll$	\auxFresnelf@{z}	f(z)		
\auxsincosintf f (6.2.17) the auxiliary function for sine and cosine in f \auxsincosintf@{z} $f(z)$ \auxsincosintg g (6.2.18) the auxiliary function for sine and cosine in g		g	(7.2.11)	the auxiliary function for Fresnel integrals g
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	\auxFresnelg@{z}	g(z)		
\auxsincosintg g $\qquad \qquad \qquad$	\auxsincosintf	f	(6.2.17)	the auxiliary function for sine and cosine integrals f
g	$\auxsincosintf@{z}$	f(z)		
	\auxsincosintg	g	(6.2.18)	the auxiliary function for sine and cosine integrals g
	$\auxsincosintg@{z}$	g(z)		
	-	,		
\BarnesG G (5.17.1) the Barne's G -function (or double gamma) tion	\BarnesG	G	(5.17.1)	the Barne's G -function (or double gamma) function
\BarnesG@{z} $G(z)$	\BarnesG@{z}	G(z)		
\Bellnumber B \Section \Bell number	\Bellnumber	В	§26.7(i)	the Bell number

T _E X markup	Expansion	Declared	Proper Name
\Bellnumber@{n}	B(n)		
\BernoullinumberB{n}	B_n	§24.2(i)	the Bernoulli number
\BernoullipolyB{n}	B_n	§24.2(i)	the Bernoulli polynomial
\BernoullipolyB{n}@{x}	$B_n(x)$	0 ()	1 0
\BesselAmat{\nu}	$A_{ u}$	§35.5(i)	the Bessel function of matrix argument (first kind
\BesselAmat{\nu}@{\mathbf{T}		0 ()	
\BesselBmat{\nu}	$B_{ u}$	(35.5.3)	the Bessel function of matrix argument (second
	D (T)		kind)
\BesselBmat{\nu}@{\mathbf{T}	. ,		
\BesselC{\nu}	$\mathscr{C}_{ u}$	$\S 10.2$	the Bessel cylinder function
\BesselC{\nu}@{z}	$\mathscr{C}_{ u}(z)$	(10.0.0)	
\BesselJ{\nu}	$J_{ u}$	(10.2.2)	the Bessel function of the first kind
\BesselJ{\nu}@{z}	$J_{\nu}(z)$	01001	
\BesselJimag{\nu}	$\widetilde{J}_{ u}$	§10.24	the Bessel function of the first kind of imagina order
$\BesselJimag{ u}0{x}$	$\widetilde{J}_{ u}(x)$		
\Besselpolyy{n}	y_n	(18.34.1)	the Bessel polynomial
$\label{lem:besselpolyy} $$ \Besselpolyy{n}@{x}{a}$$	$y_n(x;a)$		
\BesselY{\nu}	$Y_{ u}$	(10.2.3)	the Bessel function of the second kind
$\BesselY{ u}@{z}$	$Y_{ u}(z)$		
\BesselYimag{\nu}	$\widetilde{Y}_{ u}$	§10.24	the Bessel function of the second kind of imagina order
$\Bessel Yimag{\nu}@{x}$	$\widetilde{Y}_{\nu}(x)$		
\BickleyKi{\alpha} \BickleyKi{\alpha}@{x}	$\operatorname{Ki}_{\alpha}$ $\operatorname{Ki}_{\alpha}(x)$	(10.43.11)	the Bickley function
(Dionic) nit ((dipid) o (n)	111α(ω)		
\higN		(2.1.3)	the order not exceeding
\bigO \bigO@{x}	O	(2.1.3)	the order not exceeding
\big0@{x}	O O(x)		
\big0@{x} \bigqJacobipolyP{n}	$O O(x)$ P_n	(2.1.3) (18.27.5)	the order not exceeding the big q -Jacobi polynomial
\big0@{x}	$O O(x)$ P_n		
\big0@{x} \bigqJacobipolyP{n}	$O \ O(x) \ P_n \ $ b}{c}{q} \ P_n(x;a,b,c;q)	(18.27.5)	
\bigO@{x} \bigqJacobipolyP{n} \bigqJacobipolyP{n}@{x}{a}{t	$O \\ O(x) \\ P_n \\ \text{b}\{c\}\{q\} \\ P_n(x;a,b,c;q) \\ \binom{z}{m}$	(18.27.5) §1.2(i)	the big q -Jacobi polynomial the binomial coefficient
<pre>\big0@{x} \bigqJacobipolyP{n} \bigqJacobipolyP{n}@{x}{a}{\text{b}} \binom{z}{m}</pre>	$O \\ O(x) \\ P_n \\ b\}\{c\}\{q\} \\ P_n(x;a,b,c;q) \\ \binom{z}{m} \\ a_0$	(18.27.5) §1.2(i) CODATA	the big q -Jacobi polynomial
\bigO@{x} \bigQ@{x} \bigqJacobipolyP{n} \bigqJacobipolyP{n}@{x}{a}{t} \binom{z}{m} \Bohrradius \BoltzmannConstant	$O \\ O(x) \\ P_n \\ \text{b}\{c\}\{q\} \\ P_n(x;a,b,c;q) \\ \binom{z}{m}$	(18.27.5) §1.2(i) CODATA CODATA	the big q-Jacobi polynomial the binomial coefficient the Bohr radius the Boltzmann constant
\bigO@{x} \bigQJacobipolyP{n} \bigqJacobipolyP{n}@{x}{a}{b} \binom{z}{m} \Bohrradius \BoltzmannConstant \Bulirschcompellintcel	O $O(x)$ P_n b }{ c }{ q } $P_n(x; a, b, c; q)$ $\begin{pmatrix} z \\ m \end{pmatrix}$ a_0 k c el	(18.27.5) §1.2(i) CODATA	the big q -Jacobi polynomial the binomial coefficient the Bohr radius
\bigO@{x} \bigQ@{x} \bigqJacobipolyP{n} \bigqJacobipolyP{n}@{x}{a}{t} \binom{z}{m} \Bohrradius \BoltzmannConstant	O $O(x)$ P_n b }{ c }{ q } $P_n(x; a, b, c; q)$ $\begin{pmatrix} z \\ m \end{pmatrix}$ a_0 k c el	(18.27.5) §1.2(i) CODATA CODATA	the big q -Jacobi polynomial the binomial coefficient the Bohr radius the Boltzmann constant
\bigO@{x} \bigQJacobipolyP{n} \bigqJacobipolyP{n}@{x}{a}{b} \binom{z}{m} \Bohrradius \BoltzmannConstant \Bulirschcompellintcel	$O \ O(x) \ P_n \ b\}\{c\}\{q\} \ P_n(x;a,b,c;q) \ \dfrac{\binom{z}{m}}{a_0} \ k \ cel \ b\}\{a\}\{b\}$	(18.27.5) §1.2(i) CODATA CODATA	the big q-Jacobi polynomial the binomial coefficient the Bohr radius the Boltzmann constant Bulirsch's complete elliptic integral
\bigO@{x} \bigQJacobipolyP{n} \bigqJacobipolyP{n}@{x}{a}{b} \binom{z}{m} \Bohrradius \BoltzmannConstant \Bulirschcompellintcel \Bulirschcompellintcel@{k_c}	$O \ O(x) \ P_n \ {\bf b}{\bf c}{\bf q} \ P_n(x;a,b,c;q) \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	(18.27.5) §1.2(i) CODATA CODATA (19.2.11)	the big q-Jacobi polynomial the binomial coefficient the Bohr radius the Boltzmann constant Bulirsch's complete elliptic integral
\bigO@{x} \bigQJacobipolyP{n} \bigqJacobipolyP{n}@{x}{a}{b} \binom{z}{m} \Bohrradius \BoltzmannConstant \Bulirschcompellintcel \Bulirschcompellintcel@{k_c}	$O \ O(x)$ P_n b){c}{q} $P_n(x; a, b, c; q)$ $\begin{pmatrix} z \\ m \end{pmatrix}$ a_0 k cel }{p}{a}{b}(a){b} cel(k_c, p, a, b) el1 {k_c}	(18.27.5) §1.2(i) CODATA CODATA (19.2.11)	the big q-Jacobi polynomial the binomial coefficient the Bohr radius the Boltzmann constant Bulirsch's complete elliptic integral
<pre>\bigO@{x} \bigQJacobipolyP{n} \bigqJacobipolyP{n}@{x}{a}{t} \binom{z}{m} \Bohrradius \BoltzmannConstant \Bulirschcompellintcel \Bulirschcompellintcel@{k_c}</pre>	$O \ O(x) \ P_n \ {\bf b}{\bf c}{\bf q} \ P_n(x;a,b,c;q) \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	(18.27.5) §1.2(i) CODATA CODATA (19.2.11)	the big q-Jacobi polynomial the binomial coefficient the Bohr radius the Boltzmann constant Bulirsch's complete elliptic integral Bulirsch's incomplete elliptic integral of the firkind
\bigO@{x} \bigQO@{x} \bigqJacobipolyP{n} \bigqJacobipolyP{n}@{x}{a}{t} \binom{z}{m} \Bohrradius \BoltzmannConstant \Bulirschcompellintcel \Bulirschcompellintcel@{k_c} \Bulirschincellintel{1} \Bulirschincellintel{1}	$O \\ O(x) \\ P_n \\ b\} \{c\} \{q\} \\ P_n(x;a,b,c;q)$ $\begin{pmatrix} z \\ m \end{pmatrix} \\ a_0 \\ k \\ cel \\ b\} \{a\} \{b\} \\ cel(k_c,p,a,b)$ $el1$ $\{k_c\} \\ el1(x,k_c) \\ el2$	(18.27.5) §1.2(i) CODATA CODATA (19.2.11)	the big q-Jacobi polynomial the binomial coefficient the Bohr radius the Boltzmann constant Bulirsch's complete elliptic integral Bulirsch's incomplete elliptic integral of the firkind
\bigO@{x} \bigQO@{x} \bigqJacobipolyP{n} \bigqJacobipolyP{n}@{x}{a}{t} \binom{z}{m} \Bohrradius \BoltzmannConstant \Bulirschcompellintcel \Bulirschcompellintcel \Bulirschincellintel{1} \Bulirschincellintel{1}	$O \\ O(x) \\ P_n \\ b\} \{c\} \{q\} \\ P_n(x;a,b,c;q)$ $\begin{pmatrix} z \\ m \end{pmatrix} \\ a_0 \\ k \\ cel \\ b\} \{a\} \{b\} \\ cel(k_c,p,a,b)$ $el1$ $\{k_c\} \\ el1(x,k_c) \\ el2$	(18.27.5) §1.2(i) CODATA CODATA (19.2.11)	the big q-Jacobi polynomial the binomial coefficient the Bohr radius the Boltzmann constant Bulirsch's complete elliptic integral Bulirsch's incomplete elliptic integral of the firkind
\bigO@{x} \bigQO@{x} \bigqJacobipolyP{n} \bigqJacobipolyP{n}@{x}{a}{t} \binom{z}{m} \Bohrradius \BoltzmannConstant \Bulirschcompellintcel \Bulirschcompellintcel@{k_c} \Bulirschincellintel{1} \Bulirschincellintel{1}	$O \\ O(x) \\ P_n \\ b\} \{c\} \{q\} \\ P_n(x;a,b,c;q)$ $\begin{pmatrix} z \\ m \end{pmatrix} \\ a_0 \\ k \\ cel \\ b\} \{a\} \{b\} \\ cel(k_c,p,a,b)$ $el1$ $\{k_c\} \\ el1(x,k_c) \\ el2$ $\{k_c\} \{a\} \{b\}$	(18.27.5) §1.2(i) CODATA CODATA (19.2.11)	the big q-Jacobi polynomial the binomial coefficient the Bohr radius the Boltzmann constant Bulirsch's complete elliptic integral Bulirsch's incomplete elliptic integral of the finkind Bulirsch's incomplete elliptic integral of the seconkind
\bigO@{x} \bigO@{x} \bigqJacobipolyP{n} \bigqJacobipolyP{n}@{x}-{a}-{t} \binom{z}-{m} \Bohrradius \BoltzmannConstant \Bulirschcompellintcel \Bulirschincellintel{1} \Bulirschincellintel{1} \Bulirschincellintel{2} \Bulirschincellintel{2}	$O \\ O(x) \\ P_n \\ \text{b} \{c\} \{q\} \\ P_n(x; a, b, c; q)$ $\begin{pmatrix} z \\ m \end{pmatrix} \\ a_0 \\ k \\ \text{cel} \\ \} \{p\} \{a\} \{b\} \\ \text{cel}(k_c, p, a, b)$ $\text{el1} \\ \{k_c\} \\ \text{el1}(x, k_c) \\ \text{el2} \\ \{k_c\} \{a\} \{b\} \\ \text{el2}(x, k_c, a, b)$ el3	(18.27.5) §1.2(i) CODATA CODATA (19.2.11) (19.2.15)	the big q-Jacobi polynomial the binomial coefficient the Bohr radius the Boltzmann constant Bulirsch's complete elliptic integral Bulirsch's incomplete elliptic integral of the fir kind

$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	T _E X markup	Expansion	Declared	Proper Name
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	\canonint{K}	Ψ_K	(36.2.4)	the canonical integral function
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\c M(X) = M(X)$	$\Psi_K(x)$		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	\card{x}	x	§26.1	the cardinality of a set
$ \begin{array}{c} \langle \text{CarlsonellintRGe}(x) \{\gamma\} \rangle & R_C \\ \langle \text{Carlsonmultivarhyper}(-a) \} & R_C \\ \langle \text{Carlsonmultivarhyper}(-a) \} & R_C \\ \langle \text{Carlsonmultivarhyper}(-a) \in P_{-a} \\ \langle \text{Carlsonmultivarhyper}(-a) \in P_{-a} \\ \langle \text{CarlsonsymellintRD} \\ R_{-a}(b_1, \ldots, b_n; z_1, \ldots, z_n) \\ \langle \text{CarlsonsymellintRD}(x) \} \langle y \} \langle z \rangle \\ R_D \\ \langle \text{CarlsonsymellintRD}(x) \} \langle y \rangle \langle z \rangle \\ \langle \text{CarlsonsymellintRD}(x) \} \langle y \rangle \langle z \rangle \\ \langle \text{CarlsonsymellintRD}(x) \} \langle y \rangle \langle z \rangle \\ \langle \text{CarlsonsymellintRD}(x) \} \langle y \rangle \langle z \rangle \\ \langle \text{CarlsonsymellintRD}(x) \} \langle y \rangle \langle z \rangle \\ \langle \text{CarlsonsymellintRD}(x) \} \langle y \rangle \langle z \rangle \\ \langle \text{CarlsonsymellintRD}(x) \rangle \langle z \rangle \langle z \rangle \\ \langle \text{CarlsonsymellintRD}(x) \rangle \langle z \rangle \langle z \rangle \\ \langle \text{CarlsonsymellintRD}(x) \rangle \langle z \rangle \langle z \rangle \\ \langle \text{CarlsonsymellintRD}(x) \rangle \langle z \rangle \langle z \rangle \langle z \rangle \\ \langle \text{CarlsonsymellintRD}(x) \rangle \langle z \rangle \langle z \rangle \langle z \rangle \\ \langle \text{CarlsonsymellintRD}(x) \rangle \langle z \rangle \langle z \rangle \langle z \rangle \\ \langle \text{CarlsonsymellintRD}(x) \rangle \langle z \rangle \langle z \rangle \langle z \rangle \\ \langle \text{CarlsonsymellintRD}(x) \rangle \langle z \rangle \langle z \rangle \langle z \rangle \langle z \rangle \\ \langle \text{CarlsonsymellintRD}(x) \rangle \langle z \rangle \langle z \rangle \langle z \rangle \langle z \rangle \\ \langle \text{CarlsonsymellintRD}(x) \rangle \langle z \rangle \\ \langle \text{CarlsonsymellintRD}(x) \rangle \langle z $	\CarlsonellintRC		(19.2.17)	Carlson's elliptic integral combining inverse circu
$ \begin{array}{c} & \text{CarlsonsymellintRD} & R_{-a}(b_1, \ldots, b_n; z_1, \ldots, z_n) \\ & R_{-a}(b_1, \ldots, b_n; z_1, \ldots, z_n) \\ & R_{-a}(b_1, \ldots, b_n; z_1, \ldots, z_n) \\ & & \text{CarlsonsymellintRD0}(x)\{y\}\{z\} \\ & R_{D}(x, y, z) \\ & \text{CarlsonsymellintRD0}(x)\{y\}\{z\} \\ & R_{D}(x, y, z) \\ & \text{CarlsonsymellintRP0}(x)\{y\}\{z\} \\ & R_{F}(x, y, z) \\ & \text{CarlsonsymellintRP0}(x)\{y\}\{z\} \\ & R_{F}(x, y, z) \\ & \text{CarlsonsymellintRP0}(x)\{y\}\{z\} \\ & R_{G}(x, y, z) \\ & \text{CarlsonsymellintRD0}(x)\{y\}\{z\} \\ & R_{G}(x, y, z) \\ & \text{CarlsonsymellintRD0}(x)\{y\}\{z\}\{z\} \\ & R_{G}(x, y, z) \\ & \text{CarlsonsymellintRD0}(x)\{y\}\{z\}\{z\}\} \\ & R_{G}(x, y, z, y, z) \\ & \text{CarlsonsymellintRD0}(x)\{y\}\{z\}\{z\}\} \\ & R_{G}(x, y, z, y, z) \\ & \text{CarlsonsymellintRD0}(x)\{y\}\{z\}\{z\}\} \\ & R_{G}(x, y, z, y, z) \\ & \text{CarlsonsymellintRD0}(x)\{y\}\{z\}\{z\}\} \\ & R_{G}(x, y, z, y, z) \\ & \text{CarlsonsymellintRD0}(x)\{y\}\{z\}\{z\}\} \\ & R_{G}(x, y, z, y, z) \\ & \text{CarlsonsymellintRD0}(x)\{y\}\{z\}\{z\}\} \\ & R_{G}(x, y, z, y, z) \\ & \text{CarlsonsymellintRD0}(x)\{y\}\{z\}\{z\}\} \\ & R_{G}(x, y, z, y, z) \\ & \text{CarlsonsymellintRD0}(x)\{y\}\{z\}\{z\}\} \\ & R_{G}(x, y, z, z, y) \\ & \text{CarlsonsymellintRD0}(x)\{y\}\{z\}\{z\}\} \\ & R_{G}(x, y, z, z, y, z) \\ & \text{CarlsonsymellintRD0}(x)\{y\}\{z\}\{z\}\} \\ & R_{G}(x, y, z, z, y, z) \\ & \text{CarlsonsymellintRD0}(x)\{y\}\{z\}\{z\} \\ & R_{G}(x, y, z, z, y, z) \\ & \text{CarlsonsymellintRD0}(x)\{y\}\{z\}\{z\} \\ & R_{G}(x, y, z, z, z) \\ & \text{CarlsonsymellintRD0}(x)\{y\}\{z\}\{z\} \\ & R_{G}(x, y, z, z, z) \\ & \text{CarlsonsymellintRD0}(x)\{x\}\{x\}\{x\}\{x\}\{x\}\{x\}\{x\}\{x\}\{x\}\{x\}\{x\}\{x\}\{x\}\{$				
$R_{-a}(b_1,\dots,b_n;z_1,\dots,z_n)$ $(CarlsonsymellintRD0(x)\{y\}\{z\} R_D $	\Carlsonmultivarhyper{-a}	R_{-a}	(19.16.9)	Carlson's multivariate hypergeometric function
$ \begin{array}{c} \text{CarlsonsymellintRD} & R_D & (19.16.5) \text{ Carlson's elliptic integral symmetric in only two variables} \\ \text{CarlsonsymellintRDQQ(x)} & R_D & (19.16.1) \text{ Carlson's elliptic integral of first kind} \\ \text{CarlsonsymellintRPQ} & R_F & (19.16.1) \text{ Carlson's symmetric elliptic integral of first kind} \\ \text{CarlsonsymellintRPQ} & R_F & (19.16.1) \text{ Carlson's symmetric elliptic integral of first kind} \\ \text{CarlsonsymellintRQQ} & R_F & (19.16.2) \text{ Carlson's symmetric elliptic integral of second kind} \\ \text{CarlsonsymellintRQQ} & R_G & (19.16.3) \text{ Carlson's symmetric elliptic integral of second kind} \\ \text{CarlsonsymellintRQQ} & R_G & (19.16.2) \text{ Carlson's symmetric elliptic integral of second kind} \\ \text{CarlsonsymellintRQQ} & R_G & (19.16.2) \text{ Carlson's symmetric elliptic integral of third kind} \\ \text{CarlsonsymellintRQQ} & R_G & (19.16.2) \text{ Carlson's symmetric elliptic integral of third kind} \\ \text{CarlsonsymellintRQQ} & R_G & (19.16.2) \text{ Carlson's symmetric elliptic integral of third kind} \\ \text{CarlsonsymellintRQQ} & R_G & (19.16.2) \text{ Carlson's symmetric elliptic integral of third kind} \\ \text{CarlsonsymellintRQQ} & R_G & (19.16.2) \text{ Carlson's symmetric elliptic integral of third kind} \\ \text{CarlsonsymellintRQQ} & R_G & (19.16.2) \text{ Carlson's symmetric elliptic integral of third kind} \\ \text{CarlsonsymellintRQQ} & R_G & (19.16.2) \text{ Carlson's symmetric elliptic integral of third kind} \\ \text{CarlsonsymellintRQQ} & R_G & (19.16.2) \text{ Carlson's symmetric elliptic integral of third kind} \\ \text{CarlsonsymellintRQQ} & R_G & (19.16.2) \text{ Carlson's symmetric elliptic integral of third kind} \\ \text{CarlsonsymellintRQQ} & R_G & (19.16.2) \text{ Carlson's symmetric elliptic integral of third kind} \\ \text{CarlsonsymellintRQQ} & R_G & (19.16.2) \text{ Carlson's symmetric elliptic integral of third kind} \\ \text{CarlsonsymellintRQQ} & R_G & (19.16.2) \text{ Carlson's symmetric elliptic integral of third kind} \\ \text{CarlsonsymellintRQQ} & R_G & (19.16.2) \text{ Carlson's symmetric elliptic integral of third kind} \\ \text{CarlsonsymellintRQQ} & R_G & (19.16.2) Carlson's $	\Carlsonmultivarhyper{-a}@{b_1,	$\displaystyle \dots,b_n}{z_1,\dot}$	s,z_n}	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		$R_{-a}(b_1,\ldots,b_n;z_1,\ldots)$	$,z_n)$	
$ \begin{array}{c} (\text{CarlsonsymellintRD@C(x)^iy} \{z\} & R_D \\ (\text{CarlsonsymellintRF} & R_F \\ (\text{CarlsonsymellintRF}(z)^iy^iz) & R_F \\ (\text{CarlsonsymellintRF}(z)^iy^iz) & R_F \\ (\text{CarlsonsymellintRF}(z)^iy^iz) & R_G \\ (\text{CarlsonsymellintRG}(z)^iy^iz) & R_G \\ (\text{CarlsonsymellintRG}(z)^iy^iz) & R_G \\ (\text{CarlsonsymellintRG}(z)^iy^iz) & R_G \\ (\text{CarlsonsymellintRG}(z)^iy^iz) & R_G \\ (\text{CarlsonsymellintRJ}(z)^iy^iz) & R_G \\ (\text{CarlsonsymellintRJ}(z)^iy^iz) & R_G \\ (\text{CarlsonsymellintRJ}(z)^iy^iz)^iz) & R_G \\ (\text{CarlsonsymellintRJ}(z)^iy^iz)^iz)^i & R_G \\ (\text{CarlsonsymellintRJ}(z)^iy^iz)^iz)^i & R_G \\ (\text{CarlsonsymellintRJ}(z)^iy^iz)^iz)^i & R_G \\ (\text{CarlsonsymellintRJ}(z)^iy^iz)^iz)^i & R_G \\ (\text{CarlsonsymellintRJ}(z)^iz)^iz)^i & R_G \\ (\text{CarlsonsymellintRJ}(z)^iz)^iz)^i & R_G \\ (\text{CarlsonsymellintRJ}(z)^iz)^iz)^i & R_G \\ (\text{CarlsonsymellintRJ}(z)^iz)^i & R_G \\ (\text{CarlsonsymellintRJ}(z)^iz)^$	\CarlsonsymellintRD	R_D	(19.16.5)	
$ \begin{array}{c} (\text{CarlsonsymellintRF} & R_F \\ (\text{CarlsonsymellintRF0}\{x\}\{y\}\{z\} & R_F(x,y,z) \\ (\text{CarlsonsymellintRF0}\{x\}\{y\}\{z\} & R_F(x,y,z) \\ (\text{CarlsonsymellintRF0}\{x\}\{y\}\{z\} & R_F(x,y,z) \\ (\text{CarlsonsymellintRG0}\{x\}\{y\}\{z\} & R_G(x,y,z) \\ (\text{CarlsonsymellintRG0}\{x\}\{y\}\{z\} & R_G(x,y,z) \\ (\text{CarlsonsymellintRG0}\{x\}\{y\}\{z\} & R_G(x,y,z) \\ (\text{CarlsonsymellintRJ0}\{x\}\{y\}\{z\}\{p\} \\ R_J(x,y,z,p) \\ (\text{CarlsonsymellintRJ0}$	$\CarlsonsymellintRD@{x}{y}{z}$	$R_D(x,y,z)$		
$ \begin{array}{c} (\text{CarlsonsymellintRF0(x)}\{y\}\{z\} & R_F(x,y,z) \\ (\text{CarlsonsymellintRF00(x)}\{y\}\{z\} & R_F \\ \\ (\text{CarlsonsymellintRG0}(x), & R_G \\ (\text{CarlsonsymellintRG0(x)}\{y\}\{z\} & R_G(x,y,z) \\ (\text{CarlsonsymellintRJ0(x)}\{y\}\{z\} & R_G \\ (\text{CarlsonsymellintRJ0(x)}\{y\}\{z\} & R_G \\ (\text{CarlsonsymellintRJ0(x)}\{y\}\{z\}\} & R_G \\ (\text{CarlsonsymellintRJ0(x)}\{y\}\{z\} & R_G \\ (\text{CarlsonsymellintRJ0(x)}\{y\}\{z\}\} & R_G \\ (\text{CatlsonsymellintRJ0(x)}\{y\}\{z\}\} & R_G \\ (\text{CatlsonsymellintRJ0(x)}\{y\}\{z\} & R_G \\ (CatlsonsymellintRJ0(x)$	\CarlsonsymellintRD@@{x}{y}{z}	R_D		
$ \begin{array}{c} (\text{CarlsonsymellintRFe0e}\{x\}\{y\}\{z\} \ R_F \\ (\text{CarlsonsymellintRG0e}\{x\}\{y\}\{z\} \ R_G \\ (xy,z) \\ (\text{CarlsonsymellintRG0e}\{x\}\{y\}\{z\} \ R_G \\ (\text{CarlsonsymellintRJ0e}\{x\}\{y\}\{z\} \ R_G \\ (\text{CarlsonsymellintRJ0e}\{x\}\{y\}\{z\} \ R_G \\ (\text{CarlsonsymellintRJ0e}\{x\}\{y\}\{z\} \ R_G \\ (\text{CarlsonsymellintRJ0e}\{x\}\{y\}\{z\}\{p\} \\ R_J(x,y,z,p) \\ (\text{CarlsonsymellintRintR0e}\{x\}\{y\}\{z\}\{y\}\{z\}\{p\} \\ R_J(x,y,z,p) \\ (\text{CarlsonsymellintRintR0e}\{x\}\{y\}\{z\}\{y\}\{z\}\{p\} \\ R_J(x,y,z,p) \\ (\text{CarlsonsymellintRintR0e}\{x\}\{y\}\{z\}\{y\}\{z\}\{p\} \\ R_J(x,y,z,p) \\ (\text{CarlsonsymellintRintR0e}\{x\}\{y\}\{z\}\{p\} \\ R_J(x,y,z,p) \\ (Carlson's symmetric elliptic integral of third kind of the Carlson's symmetric elliptic integral of the first kind of the Gallson's symmetric elliptic integral of the first kind of the Gallson's symmetric elliptic integral of the first kind of the Gallson's symmetric elliptic integral of the first kind of the Gallson's symmetric elliptic integral of the first kind of the Gallson's symmetric elliptic integral of the first kind of the Gallson's symmetric elliptic integral of the first kind of the Gallson's symmetric elliptic integral of the first kind of the Gallson's symmetric elliptic integral of the first kind of the Gallson's symmetric elliptic integral of the first kind of the Gallson's symmetric elliptic integral of the Gallson's symmetric elliptic integral of the Gallson's symmetric elliptic integral of the G$	\CarlsonsymellintRF	R_F	(19.16.1)	Carlson's symmetric elliptic integral of first kind
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	\CarlsonsymellintRF@{x}{y}{z}	$R_F(x,y,z)$		
$ \begin{array}{c} (\text{CarlsonsymellintRG@\{x\}\{y\}\{z\}} & R_G(x,y,z) \\ (\text{CarlsonsymellintRJO@\{x\}\{y\}\{z\}} & R_G \\ & & & & & & & & & & & & & & & & & & $	\CarlsonsymellintRF@@{x}{y}{z}	R_F		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	\CarlsonsymellintRG	R_G	(19.16.3)	Carlson's symmetric elliptic integral of second kind
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	\CarlsonsymellintRG@{x}{y}{z}	$R_G(x,y,z)$		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$				
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	· · · · · · · · · · · · · · · · · · ·		(19.16.2)	Carlson's symmetric elliptic integral of third kind
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			(/	The standard
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	\cartprod	R_J \times		
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	\Catalannumber	•	(26.5.1)	the Catalan number
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	\Catalannumber@{n}	C(n)		
$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	-		(19.2.9)	(Legendre's) complementary complete elliptic in tegral of the second kind (of modulus k)
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		E'(k)		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	\ccompellintEk@@{k}			
$\begin{tabular}{ll} $ \ccompellintKk@@\{k\} & K' \\ \cciling\{x\} & $[x]$ & Intro. & the ceiling of a real number x \\ \ccompellintKk@@\{k\} & $[x]$ & Intro. & the ceiling of a real number x \\ \ccompellintKk@@\{k\} & C_n & 18.19 & the Charlier polynomial \\ \ccompellintKk@@\{k\} & C_n & 18.19 & the Charlier polynomial \\ \ccompellintKk@@\{k\} & C_n & 18.19 & the Charlier polynomial \\ \ccompellintKk@@\{k\} & C_n & 18.19 & the Chebyshev polynomial of the first kind \\ \ccompellintKk@@\{k\} & C_n & 18.3 & the Chebyshev polynomial of the first kind \\ \ccompellintKk@@\{k\} & V_n & 18.3 & the Chebyshev polynomial of the third kind \\ \ccompellintKk@@\{k\} & V_n & 18.3 & the Chebyshev polynomial of the third kind \\ \ccompellintKk@@\{k\} & V_n & 18.3 & the Chebyshev polynomial of the fourth kind \\ \ccompellintKk@@\{k\} & V_n & 18.3 & the Chebyshev polynomial of the fourth kind \\ \ccompellintKk@@\{k\} & V_n & 18.3 & the Chebyshev $polynomial of the fourth kind \\ \ccompellintKk@@\{k\} & V_n & 18.3 & the Chebyshev $polynomial of the fourth kind \\ \ccompellintKk@@\{k\} & V_n & 18.3 & the Chebyshev $polynomial of the fourth kind \\ \ccompellintKk@@\{k\} & V_n & 18.3 & the Chebyshev $polynomial of the fourth kind \\ \ccompellintKk@@\{k\} & V_n & 18.3 & the Chebyshev $polynomial of the fourth kind \\ \ccompellintKk@@\{k\} & V_n & 18.3 & the Chebyshev $polynomial of the fourth kind \\ \ccompellintKk@@\{k\} & V_n & 18.3 & the Chebyshev $polynomial of the fourth kind \\ \ccompellintKk@@\{k\} & V_n & 18.3 & the Chebyshev $polynomial of the fourth kind \\ \ccompellintKk@@\{k\} & V_n & 18.3 & the Chebyshev $polynomial of the fourth kind \\ \ccompellintKk@@\{k\} & V_n & 18.3 & the Chebyshev $polynomial of the fourth kind \\ \ccompellintKk@@\{k\} & V_n & 18.3 & the Chebyshev $polynomial of the fourth kind \\ \ccompellintKk@@\{k\} & V_n	-		(19.2.9)	(Legendre's) complementary complete elliptic in tegral of the first kind (of modulus k)
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$				
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$				
$\label{eq:charlierpolyCn} $$ C_n(x;a)$ $$ C_n(x;a)$ $$ C_n(x;a)$ $$ T_n$ $$ 18.3$ the Chebyshev polynomial of the first kind $$ ChebyshevpolyT\{n}@\{x\}$ $$ T_n(x)$ $$ 18.3$ the Chebyshev polynomial of the second kind $$ ChebyshevpolyU\{n\}@\{x\}$ $$ U_n(x)$ $$ 18.3$ the Chebyshev polynomial of the second kind $$ ChebyshevpolyV\{n\}@\{x\}$ $$ U_n(x)$ $$ 18.3$ the Chebyshev polynomial of the third kind $$ ChebyshevpolyV\{n\}@\{x\}$ $$ V_n(x)$ $$ 18.3$ the Chebyshev polynomial of the fourth kind $$ ChebyshevpolyW\{n\}@\{x\}$ $$ W_n(x)$ $$ 18.3$ the Chebyshev polynomial of the fourth kind $$ ChebyshevpolyW\{n\}@\{x\}$ $$ W_n(x)$ $$ (25.16.1)$ the Chebyshev $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$$				
$\begin{tabular}{lllllllllllllllllllllllllllllllllll$			$\S 18.19$	the Charlier polynomial
$\label{eq:chebyshevpolyTable} $$ T_n(x)$$ ChebyshevpolyU{n}$ $$ U_n$$ §18.3 the Chebyshev polynomial of the second kind $$ ChebyshevpolyU{n}@{x}$ $$ U_n(x)$$ S18.3 the Chebyshev polynomial of the third kind $$ ChebyshevpolyV{n}@{x}$ $$ V_n(x)$$ S18.3 the Chebyshev polynomial of the third kind $$ ChebyshevpolyV{n}@{x}$ $$ V_n(x)$$ S18.3 the Chebyshev polynomial of the fourth kind $$ ChebyshevpolyW{n}$ W_n$$ S18.3 the Chebyshev polynomial of the fourth kind $$ ChebyshevpolyW{n}@{x}$ $$ W_n(x)$$ ChebyshevPsi $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$ $$$		$C_n(x;a)$		
$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	\ChebyshevpolyT{n}	T_n	$\S 18.3$	the Chebyshev polynomial of the first kind
$\label{eq:chebyshevpolyUn} $$ U_n(x)$$ ChebyshevpolyV{n}$ V_n $18.3 the Chebyshev polynomial of the third kind $$ ChebyshevpolyV{n}^{Q}x}$ $V_n(x)$$ S18.3 the Chebyshev polynomial of the fourth kind $$ ChebyshevpolyW{n}$ W_n $18.3 the Chebyshev polynomial of the fourth kind $$ ChebyshevpolyW{n}^{Q}x}$ $W_n(x)$$ ChebyshevPsi$ $$\psi$ (25.16.1) the Chebyshev $$\psi$-function $$ ChebyshevPsi^{Q}x}$$	$\ChebyshevpolyT{n}@{x}$	$T_n(x)$		
lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	\ChebyshevpolyU{n}	U_n	$\S 18.3$	the Chebyshev polynomial of the second kind
$\label{eq:chebyshevpolyWn} $V_n(x)$$ $V_n(x)$$ $V_n(x)$$ $$ W_n$$ $$ $18.3$$ the Chebyshev polynomial of the fourth kind $$ $ChebyshevpolyW{n}@{x}$$ $W_n(x)$$ $$ $\psi$$ (25.16.1)$$ the Chebyshev ψ-function $$ $ChebyshevPsi@{x}$$ $\psi(x)$$$	$\ChebyshevpolyU{n}@{x}$	$U_n(x)$		
$\label{eq:chebyshevpolyWn} W_n & 18.3 the Chebyshev polynomial of the fourth kind $$ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	\ChohwahownolwWnl	V_n	§18.3	the Chebyshev polynomial of the third kind
$\label{eq:chebyshevpolyWn} W_n & 18.3 the Chebyshev polynomial of the fourth kind $$ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$		$V_n(x)$		
$\label{eq:chebyshevpolyW} $$ \ \ W_n(x) $$ $$ \ \ \ \psi_n(x) $$ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$				(1 C1 1 1 1 1 C 1 C 1 1 1 1
\ChebyshevPsi ψ (25.16.1) the Chebyshev ψ -function \ChebyshevPsi@{x} $\psi(x)$	\ChebyshevpolyV{n}@{x}		$\S 18.3$	the Chebyshev polynomial of the fourth kind
$\verb \ChebyshevPsiQ{x} \qquad \qquad \psi(x)$	\ChebyshevpolyV{n}@{x} \ChebyshevpolyW{n}	W_n	§18.3	the Chebyshev polynomial of the fourth kind
	\ChebyshevpolyW{n}@{x} \ChebyshevpolyW{n} \ChebyshevpolyW{n}@{x}	W_n $W_n(x)$		
	\ChebyshevpolyW{n}@{x} \ChebyshevpolyW{n} \ChebyshevpolyW{n}@{x} \ChebyshevPsi	W_n $W_n(x)$ ψ		

T _E X markup	Expansion	Declared	Proper Name
		$\S 34.1$	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)		ma (or modulus iv)
\compellintKk@@{k}	K		
\compellintPik	П	(19.2.8)	(Legendre's) complete elliptic integral of the third kind (of modulus k)
\compellintPik@{\alpha^2}{k}	$\Pi(\alpha^2, k)$		kind (of modulus k)
\Complexes	\mathbb{C}	Intro.	the set of complex numbers
\conj{z}	\overline{z}	(1.9.11)	the complex conjugate of a complex number z
\conj{z} \contdualHahnpolyS{n}	$\frac{z}{S_n}$	§18.25	the continuous dual Hahn polynomial
\contdualHahnpolyS{n}@{x^2}{a}{		316.20	the continuous dual riann polynomial
\contHahnpolyp{n} \contHahnpolyp{n}@{x}{a}{b}{\cc	p_n onj{a}}{\conj{b}} $p_n(x;a,b,\overline{a},\overline{b})$	§18.19	the continuous Hahn polynomial
\continuous	C	§1.4(ii)	the set of functions continuous on the interval (a, b)
\continuous@{(a,b)}	$C\left(a,b\right)$	3 ()	(*,*,*)
\continuous[n]	C^{n}	§1.4	the set of continuous functions n -times differentiable on the interval (a, b)
\continuous[n]@{(a,b)}	$C^{n}\left(a,b\right)$		(, ,
\contqHermitepolyH{n} \contqHermitepolyH{n}@{x}{q}	H_n $H_n(x \mid q)$	(18.28.16)	the continuous q -Hermite polynomial
\contqinvHermitepolyh{n} \contqinvHermitepolyh{n}@{x}{q}	h_n	(18.28.18)	the continuous q^{-1} -Hermite polynomial
	$h_n(x \mid q)$		
	$m(w \mid q)$		
\contqultrasphpoly{n}	C_n	(18.28.13)	the continuous q -ultraspherical (or Rogers) polynomial
$\label{lem:contqultrasphpoly} $$ \contqultrasphpoly_n^0_x_{\contqultrasphpoly_n}. $$ \contqultrasphpoly_n^0_x_{\contqult$	C_n a}{q}	(18.28.13)	
\contqultrasphpoly{n}@{x}{\beta	C_n	, ,	nomial
\contqultrasphpoly{n}@{x}{\beta \cos	C_n a}{q} $C_n(x; \beta \mid q)$ \cos	(18.28.13)	
\contqultrasphpoly{n}@{x}{\beta \cos \cos@{z}	C_n a}{q} $C_n(x; \beta \mid q)$ \cos $\cos(z)$, ,	nomial
\contqultrasphpoly{n}@{x}{\beta \cos \cos@{z} \cos@@{z}	C_n a}{q} $C_n(x; \beta q)$ $\cos \cos(z)$ $\cos z$	(4.14.2)	nomial the cosine function
\contqultrasphpoly{n}@{x}{\beta \cos \cos@{z} \cos@@{z} \cosh	C_n a}{q} $C_n(x; \beta \mid q)$ $\cos \cos(z)$ $\cos z$ \cosh	, ,	nomial
\contqultrasphpoly{n}@{x}{\beta \cos \cos@{z} \cos@@{z} \cosh \cosh@{z}	C_n a}{q} $C_n(x; \beta \mid q)$ $\cos \cos(z)$ $\cos z$ $\cosh(z)$	(4.14.2)	nomial the cosine function
\contqultrasphpoly{n}@{x}{\beta \cos \cos@{z} \cos@@{z} \cosh	C_n a}{q} $C_n(x; \beta \mid q)$ $\cos \cos(z)$ $\cos z$ \cosh	(4.14.2)	nomial the cosine function the hyperbolic cosine function
\contqultrasphpoly{n}@{x}{\beta \cos \cos@{z} \cos@{z} \cosh \cosh@{z} \cosh@{z} \cosh@0{z}	C_n a}{q} $C_n(x; \beta \mid q)$ $\cos \cos(z)$ $\cos z$ $\cosh(z)$	(4.14.2)	nomial the cosine function
\contqultrasphpoly{n}@{x}{\beta \cos \cos@{z} \cos@@{z} \cosh \cosh@{z} \cosh@{z}	C_n A}{q} $C_n(x; \beta \mid q)$ $\cos \cos \cos(z)$ $\cos z$ $\cosh \cos (z)$ $\cosh z$	(4.14.2)	nomial the cosine function the hyperbolic cosine function
\contqultrasphpoly{n}@{x}{\beta \cos \cos@{z} \cos@{z} \cosh \cosh@{z} \cosh@{z} \cosh@0{z}	C_n A}{q} $C_n(x; \beta \mid q)$ $\cos \cos \cos z$ $\cosh \cos (z)$ $\cosh z$ Chi	(4.14.2)	nomial the cosine function the hyperbolic cosine function
\contqultrasphpoly{n}@{x}{\beta \cos \cos@{z} \cos@@{z} \cosh \cosh@{z} \cosh@{z} \cosh@u{z}	C_n a) {q} $C_n(x; \beta q)$ $\cos \cos(z)$ $\cos z$ $\cosh \cos(z)$ $\cosh z$ Chi $Chi(z)$	(4.14.2) (4.28.2) (6.2.16)	nomial the cosine function the hyperbolic cosine function the hyperbolic cosine integral
\contqultrasphpoly{n}@{x}{\beta} \cos \cos@{z} \cos0@{z} \cosh \cosh@{z} \cosh \cosh@{z} \cosh \cosh@{z} \coshint \coshint@{z} \cosint	C_n a){q} $C_n(x; \beta q)$ $\cos \cos(z)$ $\cos z$ $\cosh(z)$ $\cosh z$ Chi	(4.14.2) (4.28.2) (6.2.16)	nomial the cosine function the hyperbolic cosine function the hyperbolic cosine integral

$T_{E\!X}\ markup$	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_ℓ^\pm
$\verb \Coulombphasesigma{\ell}@{\eta} $			·
	$\sigma_\ell(\eta)$		
\Coulombphasetheta{\ell}	$ heta_\ell$	(33.2.9)	the phase of the irregular Coulomb function H_{ℓ}^{\pm}
$\verb \Coulombphasetheta{\ell}@{\eta} $			
	$ heta_\ell(\eta, ho)$		
\Coulombturnr	$r_{ m tp}$	(33.14.3)	the outer turning point for Coulomb (radial) functions (for repulsive interactions)
\Coulombturnr@{\epsilon}{\ell}	$r_{ ext{tp}}(\epsilon,\ell)$,
\Coulombturnrho	$ ho_{ m tp}$	(33.2.2)	the outer turning point for Coulomb (radial) functions (for attractive interactions)
\Coulombturnrho@{\eta}{\ell}	$ ho_{ ext{tp}}(\eta,\ell)$		
\cpi	π	(3.12.1)	the ratio of the circumference of a circle to its diameter
\crossprod	X	?	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}	$\operatorname{csch}(z)$	(1.20.0)	one ny persone coseconic rancoron
\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}	$\Phi_K(t;x)$	(33.2.1)	the cuspoid custoffee of codimension if
D	- I ((, w)		
\DawsonsintF	\overline{F}	(7.2.5)	Dawson's integral
\DawsonsintF@{z}	F(z)	(1.2.0)	Dawson's megrar
\Dedekindeta		(27 14 12)	Dedekind's eta function (or modular function)
\Dedekindeta \Dedekindeta@{\tau}	$\eta \ \eta(au)$	(21.14.12)	Dedekind's eta function (of modular function)
\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}	$\Psi_K(x;k)$	(F. 0. 0)	
\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	$\S 18.3$	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

Diracdeltaseq{n}	Expansion	Declared	Proper Name
-	δ_n	§1.17(i)	the Dirac delta sequence
${\tt Diracdeltaseq\{n\}0\{x\}}$	$\delta_n(x)$		
Dirichletchar	χ	$\S 27.8$	the Dirichlet character
${\tt Dirichletchar@\{n\}\{k\}}$	$\chi(n,k)$		
Dirichletchar@@{n}{k}	$\chi(n)$		
Dirichletchar[r]	χ_r		
Dirichletchar[r]@{n}{k}	$\chi_r(n,k)$		
	$\chi_r(n)$		
DirichletL	L	(25.15.1)	the Dirichlet L -function
DirichletL@{s}{\chi}	$L(s,\chi)$		
${\tt discqHermitepolyhI\{n\}}$	h_n	(18.27.21)	the discrete q -Hermite I polynomial
$discqHermitepolyhI{n}@{x}{q}$	$h_n(x;q)$		
${\tt discqHermitepolyhII\{n\}}$	h_n	(18.27.23)	the discrete q -Hermite II polynomial
$discqHermitepolyhII\{n\}\{q\}$	$\tilde{h}_n(x;q)$		
DiscriminantDelta	Δ	(27.14.16)	the discriminant function
DiscriminantDelta@{\tau}	$\Delta(au)$		
$diskpoly{\alpha}{m}{n}$	$R_{m,n}^{(\alpha)}$	(18.37.1)	the disk polynomial
diskpoly{\alpha}{m}{n}@{z}	$R_{m,n}^{(\alpha)}(z)$		* v
divergence	$\frac{\operatorname{div}}{\operatorname{div}}$	(1.6.21)	the divergence operator
divides		?	the divides operator operator
dotprod		?	the vector dot product operator
dualHahnpolyR{n}	R_n	§18.25	the dual Hahn polynomial
$\label{eq:dualHahnpolyR} $$\operatorname{dualHahnpolyR}_n=0_x(x+\sum_{mu}_{-\infty})$$ DunsterQ{-\mu}{-\tfrac{1}{2}+$	$R_n(x(x+\gamma+\delta+1))$	$(1); \gamma, \delta, N)$	Dunster's conical function
dualHahnpolyR{n}@{x(x+\gamma+	$R_n(x(x+\gamma+\delta+1))$ \lambda \text{iunit\tau}\\ \Q^{-\mu}_{-rac{1}{2}+i\tau}\\ \text{iunit\tau}\@{x}		Dunster's conical function
$\label{eq:dualHahnpolyR} $$\operatorname{dualHahnpolyR}_n\end{0.005cm} $$\operatorname{DunsterQ}_{-\mu}_{-\tau}^{2}+$$$$$	$R_n(x(x+\gamma+\delta+1))$ \\implies \Q^{-\mu}_{-rac{1}{2}+i\tau}	$(1); \gamma, \delta, N)$	Dunster's conical function
$\begin{array}{l} \operatorname{dualHahnpolyR\{n\}\emptyset\{x(x+\backslash gamma+n)\}} \\ \operatorname{Dunster}\{-\backslash mu\}\{-\backslash tfrac\{1\}\{2\}+n\} \\ \operatorname{Dunster}\{-\backslash mu\}\{-\backslash tfrac\{1\}\{2\}+n\} \\ \end{array}$	$R_n(x(x+\gamma+\delta+1))$ \lambda \text{iunit\tau}\\ \Q^{-\mu}_{-rac{1}{2}+i\tau}\\ \text{iunit\tau}\@{x}	(14.20.2)	
dualHahnpolyR{n}@{x(x+\gamma+ DunsterQ{-\mu}{-\tfrac{1}{2}+ DunsterQ{-\mu}{-\tfrac{1}{2}+ electricconst	$R_n(x(x+\gamma+\delta+1))$ \limit\tau\} $\widehat{Q}_{-\frac{1}{2}+i\tau}^{-\mu}$ \limit\tau\\\ $\widehat{Q}_{-\frac{1}{2}+i\tau}^{-\mu}$ \limit\tau\\\\ $\widehat{Q}_{-\frac{1}{2}+i\tau}^{-\mu}(x)$ ε_0	(14.20.2)	the electric constant or vacuum permitivity
dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}	$R_n(x(x+\gamma+\delta+1))$ \limit\tau\\ $\widehat{Q}^{-\mu}_{-rac{1}{2}+i au}$ \limit\tau\\ $\widehat{Q}^{-\mu}_{-rac{1}{2}+i au}$ \limit\tau\\ $\widehat{Q}^{-\mu}_{-rac{1}{2}+i au}(x)$ ε_0 $\Psi^{(E)}$	(14.20.2)	
dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x}})} DunsterQ{-\mu}{-\tfrac{1}{2}+dualHahnpolyR{n}@{x}}	$R_n(x(x+\gamma+\delta+1))$ \limit\tau\\ $\widehat{Q}_{-\frac{1}{2}+i au}^{-\mu}$ \limit\tau\\ $\widehat{Q}_{-\frac{1}{2}+i au}^{-\mu}$ \limit\tau\\ $\widehat{Q}_{-\frac{1}{2}+i au}^{-\mu}(x)$ ε_0 $\Psi^{(E)}$ $\Psi^{(E)}(x)$	(14.20.2) CODATA $(36.2.5)$	the electric constant or vacuum permitivity the elliptic umbilic canonical integral function
dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}	$R_n(x(x+\gamma+\delta+1))$ \limit\tau\\ $\widehat{Q}^{-\mu}_{-\frac{1}{2}+i au}$ \limit\tau\\ $\widehat{Q}^{-\mu}_{-\frac{1}{2}+i au}$ \limit\tau\\ $\widehat{Q}^{-\mu}_{-\frac{1}{2}+i au}(x)$ $\frac{\varepsilon_0}{\Psi^{(E)}}$ $\Psi^{(E)}(x)$ $\Phi^{(E)}$	(14.20.2)	the electric constant or vacuum permitivity
dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x}})} DunsterQ{-\mu}{-\tfrac{1}{2}+dualHahnpolyR{n}@{x}}	$R_n(x(x+\gamma+\delta+1))$ \limit\tau\\ $\widehat{Q}^{-\mu}_{-\frac{1}{2}+i\tau}$ \limit\tau\\ $\widehat{Q}^{-\mu}_{-\frac{1}{2}+i\tau}$ \limit\tau\\ $\widehat{Q}^{-\mu}_{-\frac{1}{2}+i\tau}(x)$ $ \frac{\varepsilon_0}{\Psi^{(E)}}$ $\Psi^{(E)}(x)$ $\Phi^{(E)}$ $\Phi^{(E)}(s,t;x)$	(14.20.2) CODATA $(36.2.5)$	the electric constant or vacuum permitivity the elliptic umbilic canonical integral function
dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x}})} DunsterQ{-\mu}{-\tfrac{1}{2}+dualHahnpolyR{n}@{x}} electricconst ellumbcanonint@{x} ellumbcatastrophe	$R_n(x(x+\gamma+\delta+1))$ \limit\tau\\ $\widehat{Q}^{-\mu}_{-\frac{1}{2}+i au}$ \limit\tau\\ $\widehat{Q}^{-\mu}_{-\frac{1}{2}+i au}$ \limit\tau\\ $\widehat{Q}^{-\mu}_{-\frac{1}{2}+i au}(x)$ $\frac{\varepsilon_0}{\Psi^{(E)}}$ $\Psi^{(E)}(x)$ $\Phi^{(E)}$	(14.20.2) CODATA $(36.2.5)$	the electric constant or vacuum permitivity the elliptic umbilic canonical integral function the elliptic umbilic catastrophe
dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x}+delumbcanonint@{x}ellumbcatastrophe@{s}{t}{x}	$R_n(x(x+\gamma+\delta+1))$ \limit\tau\\ $\widehat{Q}^{-\mu}_{-\frac{1}{2}+i\tau}$ \limit\tau\\ $\widehat{Q}^{-\mu}_{-\frac{1}{2}+i\tau}$ \limit\tau\\ $\widehat{Q}^{-\mu}_{-\frac{1}{2}+i\tau}(x)$ $ \frac{\varepsilon_0}{\Psi^{(E)}}$ $\Psi^{(E)}(x)$ $\Phi^{(E)}$ $\Phi^{(E)}(s,t;x)$	(14.20.2) $(14.20.2)$ $CODATA$ $(36.2.5)$ $(36.2.2)$	the electric constant or vacuum permitivity the elliptic umbilic canonical integral function the elliptic umbilic catastrophe the elliptic umbilic diffraction canonical integral
dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x}+delumbcanonint} ellumbcanonint@{x}ellumbcatastrophe@{s}{t}{x}ellumbdiffrcanonint	$R_n(x(x+\gamma+\delta+1))$ \\implies \Q^{-\mu}_{-rac{1}{2}+i\tau}\\\implies \Q^{-\mu}_{-rac{1}{2}+i\tau}\\\\implies \Q^{-\mu}_{-rac{1}{2}+i\tau}(x)\\ \frac{\varepsilon_0}{\Psi^{(E)}}\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	(14.20.2) $(14.20.2)$ $CODATA$ $(36.2.5)$ $(36.2.2)$	the electric constant or vacuum permitivity the elliptic umbilic canonical integral function the elliptic umbilic catastrophe the elliptic umbilic diffraction canonical integral
dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x}+delumbcanonint@{x}}ellumbcatastrophe@{s}{t}{x}ellumbdiffrcanonint@{x}{k}	$R_n(x(x+\gamma+\delta+1))$ \limit\tau\\ $\widehat{Q}^{-\mu}_{-\frac{1}{2}+i au}$ \limit\tau\\ $\widehat{Q}^{-\mu}_{-\frac{1}{2}+i au}$ \limit\tau\\ $\widehat{Q}^{-\mu}_{-\frac{1}{2}+i au}(x)$ $\mathcal{Q}^{-\mu}_{-\frac{1}{2}+i au}(x)$ $\mathcal{Q}^{-\mu}_{-\frac{1}{2}+i au}(x)$ $\mathcal{Q}^{(E)}_{-\frac{1}{2}+i au}(x)$	$\begin{array}{c} \text{CODATA} \\ \text{(36.2.2)} \\ \\ \text{(36.2.11)} \end{array}$	the electric constant or vacuum permitivity the elliptic umbilic canonical integral function the elliptic umbilic catastrophe the elliptic umbilic diffraction canonical integr
dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x}+d)}=0 DunsterQ{-\mu}{-\mu}{-\tfrac{1}{2}+d electricconst ellumbcanonint ellumbcanonint@{x} ellumbcatastrophe ellumbcatastrophe@{s}{t}{x} ellumbdiffrcanonint ellumbdiffrcanonint@{x}{k} env env@{f}	$R_n(x(x+\gamma+\delta+1))$ \limit\tau\\ $\widehat{Q}^{-\mu}_{-\frac{1}{2}+i\tau}$ \limit\tau\\ $\widehat{Q}^{-\mu}_{-\frac{1}{2}+i\tau}$ \limit\tau\\ $\widehat{Q}^{-\mu}_{-\frac{1}{2}+i\tau}(x)$ $ \frac{\varepsilon_0}{\Psi^{(E)}(x)}$ $ \Phi^{(E)}(x)$ $ \Phi^{(E)}(s,t;x)$ $ \Psi^{(E)}(s,t;x)$ $ \Psi^{(E)}(s,t;x)$ env	$\begin{array}{c} \text{CODATA} \\ \text{(36.2.5)} \\ \text{(36.2.11)} \\ \end{array}$	the electric constant or vacuum permitivity the elliptic umbilic canonical integral function the elliptic umbilic catastrophe the elliptic umbilic diffraction canonical integr function the envelope of a function
dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x}+d)}=0 DunsterQ{-\mu}{-\text{mu}}{-\text{tfrac}{1}}{2}+ electricconst ellumbcanonint ellumbcanonint@{x} ellumbcatastrophe ellumbcatastrophe@{s}{t}{x} ellumbdiffrcanonint ellumbdiffrcanonint@{x}{k} env env@{f} envAiryAi	$R_n(x(x+\gamma+\delta+1))$ \limit\tau\\ $\widehat{Q}^{-\mu}_{-\frac{1}{2}+i\tau}$ \limit\tau\\ $\widehat{Q}^{-\mu}_{-\frac{1}{2}+i\tau}$ \limit\tau\\ $\widehat{Q}^{-\mu}_{-\frac{1}{2}+i\tau}(x)$ $ \frac{\varepsilon_0}{\Psi^{(E)}}$ $ \Psi^{(E)}(x)$ $ \Phi^{(E)}(x)$ $ \Phi^{(E)}(s,t;x)$ $ \Psi^{(E)}(x;k)$ env env f envAi	$\begin{array}{c} \text{CODATA} \\ \text{(36.2.2)} \\ \\ \text{(36.2.11)} \end{array}$	the electric constant or vacuum permitivity the elliptic umbilic canonical integral function the elliptic umbilic catastrophe the elliptic umbilic diffraction canonical integral function
dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{-\text{tfrac}{1}}{2}+dualHahnpolyR{n}@{-\text{tfrac}{1}}{2}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dual	$R_n(x(x+\gamma+\delta+1))$ \\iunit\tau\\ $\widehat{Q}^{-\mu}_{-\frac{1}{2}+i\tau}$ \\iunit\tau\\ $\widehat{Q}^{-\mu}_{-\frac{1}{2}+i\tau}(x)$ \\ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	$\begin{array}{c} \text{CODATA} \\ \text{(36.2.5)} \\ \\ \text{(36.2.11)} \\ \\ \text{?} \\ \text{§2.8(iii)} \end{array}$	the electric constant or vacuum permitivity the elliptic umbilic canonical integral function the elliptic umbilic catastrophe the elliptic umbilic diffraction canonical integr function the envelope of a function the envelope of the Airy function Ai
dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x}+d)}=0 DunsterQ{-\mu}{-\mu}{-\tfrac{1}{2}+d} electricconst ellumbcanonint ellumbcanonint ellumbcanonint@{x} ellumbcatastrophe ellumbcatastrophe@{s}{t}{x} ellumbdiffrcanonint ellumbdiffrcanonint ellumbdiffrcanonint@{x}{k} env env@{f} envAiryAi envAiryAi@{z} envAiryBi	$R_n(x(x+\gamma+\delta+1))$ \\iunit\tau\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	$\begin{array}{c} \text{CODATA} \\ \text{(36.2.5)} \\ \text{(36.2.11)} \\ \end{array}$	the electric constant or vacuum permitivity the elliptic umbilic canonical integral function the elliptic umbilic catastrophe the elliptic umbilic diffraction canonical integr function the envelope of a function
dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{x(x+\gamma+dualHahnpolyR{n}@{-\text{tfrac}{1}}{2}+dualHahnpolyR{n}@{-\text{tfrac}{1}}{2}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dualHahnpolyR{n}@{x}+dual	$R_n(x(x+\gamma+\delta+1))$ \limit\tau\\ $\widehat{Q}^{-\mu}_{-\frac{1}{2}+i\tau}$ \limit\tau\\ $\widehat{Q}^{-\mu}_{-\frac{1}{2}+i\tau}(x)$ $\mathcal{Q}^{-\mu}_{-\frac{1}{2}+i\tau}(x)$ $\mathcal{Q}^{-\mu}_{-\frac{1}{2}+i\tau}(x)$ $\mathcal{Q}^{(E)}_{-\frac{1}{2}+i\tau}(x)$	(14.20.2) $(14.20.2)$ (20.2) $(36.2.2)$ $(36.2.2)$ $(36.2.11)$ $(36.2.11)$ $(36.2.11)$	the electric constant or vacuum permitivity the elliptic umbilic canonical integral function the elliptic umbilic catastrophe the elliptic umbilic diffraction canonical integr function the envelope of a function the envelope of the Airy function Ai the envelope of the Airy function Bi
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T _E X markup	Expansion	Declared	Proper Name
\	$M_\ell(\eta, ho)$	01418/ \	41
\envparaU	envU	§14.15(v)	the envelope of the parabolic cylinder function U
\envparaU@{c}{x}	envU(c,x)	01415()	
\envparaUbar	$\operatorname{env}\overline{\overline{U}}$	§14.15(v)	the envelope of the parabolic cylinder function \overline{L}
\envparaUbar@{c}{x}	$\operatorname{env} \overline{U}(c,x)$	/	
\erf	erf	(7.2.1)	the error function
\erf0{z}	$\operatorname{erf}(z)$		
\erf@{z}	$\operatorname{erf} z$	(= 0.0)	
\erfc	erfc	(7.2.2)	the complementary error function erfc
\erfc@{z}	$\operatorname{erfc}(z)$		
\erfc@@{z}	$\operatorname{erfc} z$	(7.0.0)	
\erfw	w	(7.2.3)	the complementary error function w
\erfw@{z} \erfw@@{z}	w(z)		
• • •	w z	(F 10.1)	
\EulerBeta	B	(5.12.1)	the Euler beta function
\EulerBeta@{a}{b}	$\mathrm{B}(a,b)$	(7.0.0)	11 P.1
\EulerConstant	$\frac{\gamma}{z}$	(5.2.3)	the Euler constant
\EulerGamma	Γ	(5.2.1)	the Euler gamma function
\EulerGamma@{z}	$\Gamma(z)$		
\Euleriannumber{n}{k}	$\binom{n}{k}$	§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	$\S24.2(ii)$	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 reatively prime to n , $(\phi = \phi_0)$
\Eulertotientphi@{n}	$\phi(n)$		
\Eulertotientphi[k]	$\phi_{m{k}}$	(27.2.6)	the sum of k^{th} powers of integers relatively prim to n
\Eulertotientphi[k]@{n}	$\phi_k(n)$		
\exp	exp	(4.2.19)	the exponential function
\exp@{z}	$\exp(z)$,	1
\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}	$E_1(z)$	` /	<u>-</u>
\expintEi	Ei	§6.2(i)	the exponential integral Ei
\expintEi@{z}	$\mathrm{Ei}(z)$	0 - ·(-)	1
\expintEin	Ein	(6.2.3)	the complementary exponential integral
\expintEin@{z}	$\operatorname{Ein}(z)$	(31213)	r
\exptrace	etr	§35.1	the exponential of the trace
\exptrace@{\mathbf{X}}	$ ext{etr}(\mathbf{X})$	922	1
	(/		
\FerrersP{\nu}	$P_{ u}$	§14.2(ii)	$= P_{\nu}^{0}$, shorthand for the Ferrers function of the first kind
\FerrersP{\nu}@{x}	$P_{\nu}(x)$		
\FerrersP[\mu]{\nu}	$P^{\mu}_{ u}$	(14.3.1)	the Ferrers function of the first kind
\FerrersP[\mu]{\nu}@{x}	$P^{\mu}_{\nu}(x)$	(=1:5:1)	
\FerrersQ{\nu}	$Q_{ u}$	§14.2(ii)	$= Q_{\nu}^{0}$, shorthand for the Ferrers function of the

$T_{E\!X}\ markup$	Expansion	Declared	Proper Name
\FerrersQ{\nu}@{x}	$Q_{\nu}(x)$		
\FerrersQ[\mu]{\nu}	Q^μ_ν	(14.3.2)	the Ferrers function of the second kind
\FerrersQ[\mu]{\nu}@{x}	$Q^{\mu}_{\nu}(x)$		
\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}	$\mathscr{F}_{c}\left(f ight)$		
\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}	$\mathscr{F}_s f(s)$		
\Fouriertrans	F	?	the Fourier transform of a function
\Fouriertrans@{f}	$\mathscr{F}(f)$		
\Fouriertrans@@{f}	$\mathscr{F}f$		
\Fouriertrans@{f}@{s}	$\mathscr{F}(f)(s)$		
\Fouriertrans@@{f}@{s}	$\mathscr{F}\widetilde{f}(s)$		
\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	$\frac{S}{S}$	(7.2.8)	the Fresnel sine integral
\Fresnelsinint@{z}	$\stackrel{\sim}{S}(z)$	(1.2.0)	the Fresher sine integral
G	5(2)		
\Gausssum	G	(27.10.9)	the Gauss sum
\Gausssum@{n}{\Dirichletchar}	$G(n,\chi)$	(21.10.3)	the Gauss sum
\genAiryintA{k}	A_k	§9.13(ii)	the generalized Airy function (integral) A_k
\genAiryintA{k}@{z}{p}	$A_k(z,p)$	33.13(11)	the generalized may function (moegrai) m_k
\genAiryintB{k}	B_k	§9.13(ii)	the generalized Airy function (integral) B_k
\genAiryintB{k}@{z}{p}	$B_k(z,p)$	99.1 3 (11)	the generalized Arry function (integral) D_k
		() 19/:\	the managed direction (ODE) 4
\genAiryODEA{n}	A_n	§9.13(i)	the generalized Airy function (ODE) A_n
\genAiryODEA{n}@{z}	$A_n(z)$	°0 19/*\	the manufical Aims for the (ODE) D
\genAiryODEB{n}	B_n	$\S 9.13(i)$	the generalized Airy function (ODE) B_n
\genAiryODEB{n}@{z}	$B_n(z)$	004.10	4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
\genBernoullipolyB{\ell}{n}	$B_n^{(\ell)}$	$\S 24.16$	the generalized Bernoulli polynomial
\genBernoullipolyB{\ell}{n}@{x}			
	$B_n^{(\ell)}(x)$		
\genBesselphi	ϕ	(10.46.1)	the generalized Bessel function
$\genBesselphi@{\rho}{\beta}{z}$	$\phi(ho,eta;z)$		
\gencosint	Ci	(8.21.2)	the generalized cosine integral
$\gencosint @\{a\}\{z\}$	Ci(a, z)		
\genEulerpolyE{\ell}{n}	$E_n^{(\ell)}$	$\S 24.16$	the generalized Euler polynomial
\genEulerpolyE{\ell}{n}@{x}	$E_n^{(\ell)}(x)$		
\genEulersumH	H	§25.16(ii)	the generalized Euler sum
\genEulersumH@{s}{z}	H(s,z)	5 - (-)	
\genexpintE{p}	E_p	(8.19.1)	the generalized exponential integral
\genexpintE{p}@{z}	$E_p(z)$	(0.10.1)	O only on the only on
\genhyperF{p}{q}	pF_q	§16.2	the generalized hypergeometric function
"OThorr thi rdi	<i>p</i> + <i>q</i>	0±0.2	continued on next page

$T_{EX} markup$	Expansion	Declared	Proper Name
lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	p }{b_1,\dots,b_q}{z} $_pF_q(a_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,$	$b_q;z)$	
lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	_p}{b_1,\dots,b_q}{z} $_pF_q\left(egin{array}{c} a_1,,a_p \\ b_1,,b_q \end{array};z ight)$	}	
	$p \Gamma q \left(b_1, \dots, b_q^{r}; \mathcal{Z} \right)$		
lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	${f a_p}{f b_1,\dots,b_q}{f c} \ {f p}F_q(z)$	z}	
\genhyperF{1}{1}	$_1F_1$	§16.2	Kummer confluent hypergeometric function, $_1F_1=M$
\genhyperF{1}{1}@{a}{b}{z} \genhyperF{1}{1}@@{a}{b}{z} \genhyperF{1}{1}@@@{a}{b}{z}	$_{1}F_{1}(a;b;z)$ $_{1}F_{1}\left(\begin{smallmatrix} a\\b \end{smallmatrix};z\right)$ $_{1}F_{1}(z)$		
\genhyperF{2}{1} \genhyperF{2}{1}@{a,b}{c}{z}	${}_2F_1$ ${}_2F_1(a,b;c;z)$	§16.2	Gauss' hypergeometric function, $_2F_1=F$
$\genhyperF{2}{1}@@{a,b}{c}{z}$	$_2F_1\left({a,b\atop c};z ight)$		
\genhyperF{2}{1}@@@{a,b}{c}{z}	$_2F_1(z)$		
\genhyperH{p}{q} \genhyperH{p}{q}@{a_1,\dots,a_j	$_pH_q$ p}{b_1,\dots,b_q}{z} $_pH_q(a_1,\ldots,a_p;b_1,\ldots)$		the bilateral hypergeometric function
\genhyperH{p}{q}@@{a_1,\dots,a	_p}{b_1,\dots,b_q}{z} $_pH_q\left(\begin{smallmatrix}a_1,\ldots,a_p\\b_1,\ldots,b_q\end{smallmatrix};z\right)$	}	
lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	a_p}{b_1,\dots,b_q}{ $_pH_q(z)$	z}	
\genhyperOlverF{p}{q} \genhyperOlverF{p}{q}@{a_1,\do	${}_p\mathbf{F}_q$ ts,a_p}{b_1,\dots,b_ $}_p\mathbf{F}_q(a_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_1,\ldots,a_p;b_$		Olver's scaled generalized hypergeometric function
lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	ots,a_p}{b_1,\dots,b} $_p\mathbf{F}_q\left(egin{array}{c} a_1,,a_p \\ b_1,,b_q \end{array};z ight)$	_q}{z}	
lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	$ ext{dots,a_p}\{ ext{b_1,\dots,}\ _p\mathbf{F}_q(z)$	b_q}{z}	
\genhyperPsimat	Ψ	(35.6.2)	the confluent hypergeometric function of matrix argument (second kind)
\genhyperPsimat@{a}{b}{\mathbf	$\{\mathtt{T}\}\}$ $\Psi(a;b;\mathbf{T})$		argument (second kind)
$\genJacobiellk\{p\}\{q\}$	pq	(22.2.10)	the generic Jacobian elliptic function pq (of modulus k)
\genJacobiellk{p}{q}@{u}{k} \genJacobiellk{p}{q}@@{u}{k}	pq(u,k) $pq u$		
\genlog{a} \genlog{a}\genlog{a}\genlog{a}\genlog{z}	$\log_a \log_a(z)$	§4.2	the logarithm to general base a
/ReπτοR (σ) ΑΑΙΣΙ	$\log_a z$		

$T_{E\!X}\ markup$	Expansion	Declared	Proper Name
\genshiftcosint	ci	(8.21.1)	the generalized shifted cosine integral
\genshiftcosint@{a}{z}	ci(a, z)		
\genshiftsinint	si	(8.21.1)	the generalized shifted sine integral
$\genshiftsinint0{a}{z}$	si(a, z)		
\gensinint	Si	(8.21.2)	the generalized sine integral
$\gensinint0{a}{z}$	$\mathrm{Si}(a,z)$		
\GoodwinStatonint	G	(7.2.12)	the Goodwin–Staton integral
$\GoodwinStatonint @{z}$	G(z)		<u> </u>
\gradient	grad	(1.6.20)	the gradient operator
\Gudermannian	gd	(4.23.39)	the Gudermannian function
\Gudermannian@{z}	$\operatorname{gd}(z)$,	
\Gudermannian@@{z}	$\operatorname{gd} z$		
H			
\HahnpolyQ{n}	Q_n	§18.19	the Hahn polynomial
$\mathbb{Q}_{n}^{2}_{n}$			
	$Q_n(x;\alpha,\beta,N)$		
\HankelH{1}{\nu}	$H_ u^{(1)}$	(10.2.5)	the Hankel function of the first kind(or Bessel function of the third kind)
$\mathbb{1}_{nu}@{z}$	$H_{ u}^{(1)}(z)$		of the time kind)
\HankelH{2}{\nu}	$H_{\nu}^{(2)}$	(10.2.6)	the Hankel function of the second kind(or Bessel function of the third kind)
$\mathbb{1}_{2}{\mathbb{Z}}$	$H_{ u}^{(2)}(z)$		runction of the third kind)
	. ,	(10.10.0)	the median of desirations of the Health for the
\HankelmodderivN{\nu}	$N_{ u}$	(10.18.2)	the modulus of derivatives of the Hankel function of the first kind
\HankelmodderivN{\nu}@{x}	$N_{\nu}(x)$	(10.10.1)	
\HankelmodM{\nu} \HankelmodM{\nu}@{x}	$M_ u \ M_ u(x)$	(10.18.1)	the modulus of the Hankel function of the first kind $$
\Hankelphasederivphi{\nu}	$\phi_{ u}$	(10.18.3)	the phase of derivatives of the Hankel function of the first kind
$\Hankelphasederivphi{ u}0{x}$	$\phi_{\nu}(x)$		
\Hankelphasetheta{\nu} \Hankelphasetheta{\nu}@{x}	$ heta_ u \ heta_ u(x)$	(10.18.3)	the phase of the Hankel function of the first kind
\HeavisideH	H	(1.16.13)	the Heaviside function
\HeavisideH@{x}	H(x)	,	
\HermitepolyH{n}	H_n	§18.3	the Hermite polynomial
$\label{eq:hermitepolyh} $$ \end{subarray} $$ \end{subarray} $$ \operatorname{Hermitepolyh}_{n}@{x}$$	$H_n(x)$		1 0
\HeunHf{m}{s_1}{s_2} \HeunHf{m}{s_1}{s_2}@{a}{q_m}{	$\begin{array}{c} (s_1,s_2) H\!f_m \\ \texttt{\alpha} \{\texttt{\beta} \} \{\texttt{\gamm} \\ (s_1,s_2) H\!f_m(a,q_m;\alpha,\mu,\alpha,\mu,\alpha,\mu,\alpha,\mu,\alpha,\mu,\alpha,\mu,\alpha,\mu,\alpha,\mu,\alpha,\mu,\alpha,\mu$		the Heun function a}{z}
\HeunHf{m}{s_1}{s_2}@@{a}{q_m}	${lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}{lpha}$	ma}{\delt	ca}{z}
\HeunHf[\nu]{m}{s_1}{s_2} \HeunHf[\nu]{m}{s_1}{s_2}@{a}{	$(s_1,s_2)H\!f_m^ otuga$ q_m}{\alpha}{\beta}{ $(s_1,s_2)H\!f_m^ u(a,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,q_m;lpha,$		\delta}{z}
\HeunHf[\nu]{m}{s_1}{s_2}@@{a}	$\{ extsf{q_m}_{\hat{s}_1,s_2} Hf^ u_m(z)$	{\gamma}{	(\delta}{z}
\HeunH1	$H\ell$	(31.3.1)	the (fundamental) Heun function
/!!emilit	114	(01.0.1)	the (fundamental) Heuri function

T _E X markup	Expansion	Declared	Proper Name
$\ \HeunHl@{a}{q}{\alpha}{\beta}{\$	$\operatorname{gamma}_{\left(delta\right) } \{z\}$		
	$H\!\ell(a,q;lpha,eta,\gamma,\delta;z)$		
$\HeunHl@@{a}{q}{\alpha}{\beta}{$	$[\gamma]{\z}$		
	$H\!\ell(z)$		
	**	(04 % 0)	
\HeunpolyHp{n}{m}	$Hp_{n,m}$	(31.5.2)	the Heun polynomial
lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:			2}
	$Hp_{n,m}(a,q_{n,m};-n,\beta,$	$\gamma, \delta; z)$	
\	() (\	(\ a - a + - a)	r_1
lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	-	{\delta}1	(Z)
	$Hp_{n,m}(z)$		
\Hilberttrans	\mathcal{H}	81.14(v)	the Hilbert transform of a function
\Hilberttrans@{f}	$\mathcal{H}\left(f\right)$	3(')	
\Hilberttrans@@{f}	$\mathcal{H}f$		
\Hilberttrans@{f}@{s}	$\mathcal{H}(f)(s)$		
\Hilberttrans@@{f}@{s}	$\mathcal{H}(f)(s)$ $\mathcal{H}f(s)$		
\Hurwitzzeta		(95 11 1)	the Hurwitz zeta function
\nurwitzzeta \Hurwitzzeta@{s}{a}	$\zeta \\ \zeta(s,a)$	(20.11.1)	the Hulwitz zeta function
	$\frac{\zeta(s,a)}{F}$	(15.2.1)	(Gauss') hypergeometric function
\hyperF	=	(15.2.1)	(Gauss') hypergeometric function
\hyperF@{a}{b}{c}{z}	F(a,b;c;z)		
\hyperF@@{a}{b}{c}{z}	$F({a,b \atop c};z)$		
\hyperF@@@{a}{b}{c}{z}	F(z)		
\hyperOlverF	F	(15.2.2)	Olver's scaled hypergeometric function
$\hyperOlverF@{a}{b}{c}{z}$	$\mathbf{F}(a,b;c;z)$		
$\hyperOlverF@@{a}{b}{c}{z}$	$\mathbf{F}(rac{a,b}{c};z)$		
$\label{local-prop} $$ \displaystyle \Gamma_0(0_{a}_b)_{c}_z$$	$\mathbf{F}(z)$		
\hyperumbcanonint	$\Psi^{ m (H)}$	(36.2.5)	the hyperbolic umbilic canonical integral functi
$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	$\Psi^{(\mathrm{H})}(x)$		
\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 in
			gral function
\hyperumbdiffrcanonint@{x}{k}	$\Psi^{(\mathrm{H})}(x;k)$		
\idem	idem	$\S 17.1$	the idem function
\idem@{\chi_1}{\chi_2\dots\chi_			
	$\operatorname{idem}(\chi_1;\chi_2\ldots\chi_n)$		
\imagpart	<u> </u>	(1.9.2)	the imaginary part of a complex number z
\imagpart(\imagpart0{z}	$\Im(z)$	(1.0.4)	one imaginary part of a complex number 2
\imagpart@{z} \imagpart@@{z}	$\Im(z)$ $\Im z$		
		(0 17 1)	the incomplete bets function
\incBeta{x} \incBeta{x}@{a}{b}	B_x	(8.17.1)	the incomplete beta function
\τποη ς ραίγιλίσι 101	$B_x(a,b)$	(19.2.6)	the incomplete elliptic in the C.T. 1 (C.
	D	119261	the incomplete elliptic integral of Janke (of mod
	D	(13.2.0)	
\incellintDk		(13.2.0)	$(\log k)$
$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	$D(\phi,k)$		lus k)
\incellintDk \incellintDk@{\phi}{k} \incellintEk		(19.2.5)	lus k) (Legendre's) incomplete elliptic integral of the s
\incellintDk \incellintDk@{\phi}{k} \incellintEk	$D(\phi,k)$		lus k)
$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	$D(\phi,k)$		lus k) (Legendre's) incomplete elliptic integral of the se

T _E X markup	Expansion	Declared	Proper Name
$\label{lintFk0{\phi}{k}} % \label{lintFk0{\phi}{k}} % \label{lintFk0{\phi}{k}} % \label{lintFk0{\phi}{k}{k}} % \label{lintFk0{\phi}{k}{k}{k}} % \label{lintFk0{\phi}{k}{k}{k}{k}} % \label{lintFk0{\phi}{k}{k}{k}{k}{k}{k}{k}{k}{k}{k}{k}{k}{k}$	$F(\phi, k)$		
\incellintPik	П	(19.2.7)	(Legendre's) incomplete elliptic integral of the third kind (of modulus k)
\incellintPik@{\phi}{\alpha^2}	$\{\mathbf{k}\}\$ $\Pi(\phi, \alpha^2, k)$		
\incGamma	$\frac{\Pi(\phi,\alpha^2,k)}{\Gamma}$	(8.2.2)	the upper incomplete gamma function
\incGamma@{a}{z}	$\Gamma(a,z)$	(-)	r
\incgamma	γ	(8.2.1)	the lower incomplete gamma function
\incgamma@{a}{z}	$\gamma(a,z)$		
\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	(7.17.1)	the inverse error function
\inverf@{x}	inverf(x)	,	
\inverf@@{x}	inverf x		
\inverfc	inverfc	(7.17.1)	the inverse complementary error function
\inverfc@{x}	inverfc(x)		
\inverfc@@{x}	inverfe x		
\irregCoulombc	c	(33.14.9)	the irregular Coulomb (radial) function (for attractive interactions) c
\irregCoulombc@{\epsilon}{\ell	\}{r}		orre inversessions) e
	$c(\epsilon, \ell; r)$		
\irregCoulombG{\ell}	G_ℓ	(33.2.11)	the irregular Coulomb (radial) function (for repulsive interactions) G_{ℓ}
\irregCoulombG{\ell}@{\eta}{\r	Tho} $G_\ell(\eta, ho)$		Sive intertections) of
\irregCoulombH{\pm}{\ell}	H_ℓ^\pm	(33.2.7)	the irregular Coulomb (radial) function (for repulsive interactions) H_{ℓ}^{\pm}
\irregCoulombH{\pm}{\ell}@{\et			sive interactions) H_{ℓ}
	$H_\ell^\pm(\eta, ho)$		
\irregCoulombh	h	(33.14.7)	the irregular Coulomb (radial) function (for attractive interactions) \boldsymbol{h}
\irregCoulombh@{\epsilon}{\ell	_}{r}		
	$h(\epsilon,\ell;r)$		
\iunit	i	?	the imaginary unit
\Jacobiamk	am	(22.16.1)	the Jacobi's amplitude function (of modulus k)
\arrowvert Alacobiamk \arrowvert {k}	am(x,k)		
$\ \Jacobiamk@@{x}{k}$	$\operatorname{am} x$		
\Jacobiellcdk	cd	(22.2.8)	the Jacobian elliptic function cd (of modulus k)
$\Jacobiellcdk@{u}{k}$			
\Jacobiellcdk@@{u}{k}	$\operatorname{cd}\left(u,k\right)$,	
(*	$\operatorname{cd}(u,k)$ $\operatorname{cd}u$		
	$\operatorname{cd} u$	(22.2.5)	the Jacobian elliptic function cn (of modulus k)
\Jacobiellcnk \Jacobiellcnk@{u}{k}	$\operatorname{cd} u$	(22.2.5)	the Jacobian elliptic function cn (of modulus k)
\Jacobiellcnk	$\operatorname{cd} u$	(22.2.5)	. , ,
\Jacobiellcnk \Jacobiellcnk@{u}{k}	$\operatorname{cd} u$ $\operatorname{cn} \operatorname{cn} (u, k)$	(22.2.5)	the Jacobian elliptic function cn (of modulus k) the Jacobian elliptic function cs (of modulus k)
\Jacobiellcnk \Jacobiellcnk@{u}{k} \Jacobiellcnk@@{u}{k}	$\operatorname{cd} u$ cn $\operatorname{cn}(u,k)$ $\operatorname{cn} u$. ,
\Jacobiellcnk \Jacobiellcnk@{u}{k} \Jacobiellcnk@@{u}{k} \Jacobiellcsk	$\operatorname{cd} u$ cn $\operatorname{cn}(u,k)$ $\operatorname{cn} u$ cs		. ,
\Jacobiellcnk \Jacobiellcnk@{u}{k} \Jacobiellcnk@@{u}{k} \Jacobiellcsk \Jacobiellcsk@{u}{k}	$\begin{array}{c} \operatorname{cd} u \\ \\ \operatorname{cn} \\ \operatorname{cn} (u,k) \\ \\ \operatorname{cn} u \\ \\ \operatorname{cs} \\ \operatorname{cs} (u,k) \end{array}$. , ,
\Jacobiellcnk \Jacobiellcnk@{u}{k} \Jacobiellcnk@@{u}{k} \Jacobiellcsk \Jacobiellcsk@{u}{k} \Jacobiellcsk@@{u}{k}	cd u cn $cn (u, k)$ $cn u$ cs $cs (u, k)$ $cs u$	(22.2.9)	the Jacobian elliptic function cs (of modulus k)
\Jacobiellcnk \Jacobiellcnk@{u}{k} \Jacobiellcnk@@{u}{k} \Jacobiellcsk \Jacobiellcsk@{u}{k} \Jacobiellcsk@@{u}{k} \Jacobiellcsk@@{u}{k}	cd u cn $cn (u, k)$ $cn u$ cs $cs (u, k)$ $cs u$ dc	(22.2.9)	the Jacobian elliptic function cs (of modulus k)
\Jacobiellcnk \Jacobiellcnk@{u}{k} \Jacobiellcnk@@{u}{k} \Jacobiellcsk \Jacobiellcsk@{u}{k} \Jacobiellcsk@@{u}{k} \Jacobielldck \Jacobielldck@{u}{k}	cd u cn $cn (u, k)$ $cn u$ cs $cs (u, k)$ $cs u$ dc $dc (u, k)$	(22.2.9)	the Jacobian elliptic function cs (of modulus k)

T _E X markup	Expansion	Declared	Proper Name
$\verb \Jacobielldnk@@{u}{k} $	$\operatorname{dn} u$		
\Jacobielldsk	ds	(22.2.7)	the Jacobian elliptic function ds (of modulus k)
$\Jacobielldsk@{u}{k}$	ds(u,k)		
$\Jacobielldsk@@{u}{k}$	ds u		
\Jacobiellnck	nc	(22.2.5)	the Jacobian elliptic function nc (of modulus k)
$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	$\operatorname{nc}(u,k)$		
$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	$\operatorname{nc} u$		
\Jacobiellndk	nd	(22.2.6)	the Jacobian elliptic function nd (of modulus k)
\Jacobiellndk@{u}{k}	$\operatorname{nd}(u,k)$,	,
\Jacobiellndk@@{u}{k}	$\operatorname{nd} u$		
\Jacobiellnsk	ns	(22.2.4)	the Jacobian elliptic function ns (of modulus k)
\Jacobiellnsk@{u}{k}	$\operatorname{ns}(u,k)$	(22.2.1)	the vacobian empire ranction is (or modards w)
\Jacobiellnsk@@{u}{k}	$\operatorname{ns} u$		
\Jacobiellsck	SC	(22.2.9)	the Jacobian elliptic function sc (of modulus k)
\Jacobiellsck@{u}{k}		(22.2.9)	the Jacobian emptic function sc (of modulus k)
	$\operatorname{sc}(u,k)$		
\Jacobiellsck@@{u}{k}	sc u	(22.2.7)	the Teachier elliptic function of (of model 1)
\Jacobiellsdk	sd	(22.2.7)	the Jacobian elliptic function sd (of modulus k)
\Jacobiellsdk@{u}{k}	$\operatorname{sd}(u,k)$		
\Jacobiellsdk@@{u}{k}	$\operatorname{sd} u$	(00.0.4)	
\Jacobiellsnk	sn	(22.2.4)	the Jacobian elliptic function sn (of modulus k)
\Jacobiellsnk@{u}{k}	$\operatorname{sn}\left(u,k\right)$		
\Jacobiellsnk@@{u}{k}	$\operatorname{sn} u$		
\JacobiEpsilonk	\mathcal{E}	(22.16.14)	Jacobi's Epsilon function (of modulus k)
$\Delta = \sum_{x \in \mathbb{Z}} \{x\}$	$\mathcal{E}(x,k)$		
$\Jacobiphi{\alpha}{\beta}{\lambda}$			
	$\phi_{\lambda}^{(\alpha,\beta)}$	(15.9.11)	the Jacobi function
\Jacobiphi{\alpha}{\beta}{\lambda	oda}@{t}		
• •	$\phi_{\lambda}^{(\alpha,\beta)}(t)$		
\JacobipolyP{\alpha}{\beta}{n}	$P_n^{(\alpha,\beta)}$	§18.3	the Jacobi polynomial
\JacobipolyP{\alpha}{\beta}{n}		310.0	the daeobi polynomiai
(beda) (n)	$P_n^{(\alpha,\beta)}(x)$		
\		0.07.0	(1 T 1: 1 1
\Jacobisym{n}{p}	(n p)	§27.9	the Jacobi symbol
\Jacobithetacombinedq{n}{m}	$\varphi_{n,m}$	§20.11(v)	the combined theta function
$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	_		
	$\varphi_{n,m}(z,q)$		
\Jacobithetaq{j}	$ heta_j$	§20.2(i)	the Jacobi theta function of q
$\Jacobithetaq{j}@{z}{q}$	$\theta_j(z,q)$		
\Jacobithetatau{j}	$ heta_j$	§20.2(i)	the Jacobi theta function of τ
$\ \Jacobithetatau{j}@{z}{\hat z}$	$\theta_j(z au)$		
\JacobiZetak	Z	(22.16.32)	Jacobi's Zeta function (of modulus k)
$\Delta 2 = 1$	Z(x k)		•
\Jonquierephi	φ	§25.12(ii)	Truesdell's notation for polylogarithm
\Jonquierephi@{z}{s}	$\phi(z,s)$	- ()	2 0 0
\JordanJ{k}	J_k	(27.2.11)	Jordan's function
\JordanJ{k}@{n}	$J_k(n)$, , ,	
K	·· ()		
\Kelvinbei{\nu}	$\mathrm{bei}_{ u}$	(10.61.1)	the Kelvin function bei_{ν}
\Kelvinbei{\nu}@{x}	$bei_{\nu}(x)$	(=====)	
\Kelvinbei{\nu}@@{x}	$\operatorname{bei}_{\nu} x$		
\Kelvinber(\nu)\ \Kelvinber(\nu)	ber_{ν}	(10.61.1)	the Kelvin function ber_{ν}
\Kelvinber{\nu}@{x}	$\operatorname{ber}_{\nu}(x)$	(10.01.1)	one recivili function bery
	DC1ν(ω)		continued on next page

$T_{EX} markup$	Expansion	Declared	Proper Name
\Kelvinber{\nu}@@{x}	$\operatorname{ber}_{\nu} x$		
\Kelvinkei{\nu}	$\mathrm{kei}_{ u}$	(10.61.2)	the Kelvin function kei_{ν}
$\Kelvinkei{ u}0{x}$	$\mathrm{kei}_{\nu}(x)$		
$\Kelvinkei{ u}00{x}$	$\ker_{\nu} x$		
\Kelvinker{\nu}	\ker_{ν}	(10.61.2)	the Kelvin function \ker_{ν}
\Kelvinker{\nu}@{x}	$\ker_{\nu}(x)$		
\Kelvinker{\nu}@@{x}	$\ker_{\nu} x$		
\KleincompinvarJtau	J	(23.15.7)	Klein's complete invariant
\KleincompinvarJtau@{\tau}	J(au)	,	•
\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 A
\KummerconfhyperM@{a}{b}{z}	M(a,b,z)	(10.2.2)	the remainer comment hypergeometric remotion i
\KummerconfhyperU	U	(13.2.6)	the Kummer confluent hypergeometric function
\KummerconfhyperU@{a}{b}{z}	U(a,b,z)	(10.2.0)	the Rummer confident hypergeometric function
(Kummer confriger ow (a) (b) (2)	C(a, b, z)		
	T	010.1	r(0) -1
\LaguerrepolyL{n}	L_n	$\S 18.1$	$=L_n^{(0)}$, shorthand for the Laguerre polynomial
\LaguerrepolyL{n}@{x}	$L_n(x)$	010.0	
\LaguerrepolyL[\alpha]{n}	$L_n^{(lpha)}$	§18.3	the (generalized or associated) Laguerre (or Sonin polynomial
$\label{laguerrepolyL[alpha]{n}@{x}} $$ \coprod_{n \in \mathbb{Z}} \mathbb{E}[x] $$ is the laguerrepoly L[alpha] $	$L_n^{(\alpha)}(x)$		
\LambertW	W	(4.13.1)	the Lambert W -function
\LambertW@{x}	W(x)		
\Lambert\m\	Wm	§4.13	the non-principal branch of the Lambert W function
\LambertWm@{x}	$\operatorname{Wm}(x)$		
\LambertWp	Wp	$\S 4.13$	the principal branch of the Lambert W -function
\LambertWp@{x}	Wp(x)		
$\Delta Ec{m}{nu}$	Ec_{ν}^{m}	$\S 29.3 (iv)$	the Lamé function Ec^m_{ν}
$\label{lameEc(m){nu}@{z}{k^2}} \label{lameEc(m){nu}@{z}{k^2}}$	$Ec_{\nu}^{m}(z,k^{2})$		
$\Delta n}{ \coprod}$	a_{ν}^{n}	$\S 29.3(i)$	the eigenvalues of Lamé's equation a_{ν}^{n}
$\Lameeigvala{n}{nu}@{k^2}$	$a_{\nu}^{n}(k^{2})$		
Δn	$b_{ u}^n$	$\S 29.3(i)$	the eigenvalues of Lamé's equation b_{ν}^{n}
$\Lameeigvalb{n}{n}\$	$b_{ u}^{n}\left(k^{2}\right)$		
\LameEs{m}{\nu}	Es_{ν}^{m}	§29.3(iv)	the Lamé function Es_{ν}^{m}
$\Delta(z)_{k^2}$	$Es_{\nu}^{m}(z,k^{2})$		
\LamepolycdE{m}{2n+2}	cdE_{2n+2}^{m}	(29.12.7)	the Lamé polynomial cdE_{2n+2}^m
$\label{lamepolycdE(m){2n+2}@{z}{k^2}} $$ LamepolycdE(m){2n+2}@{z}{k^2}$	$cdE_{2n+2}^{m}(z,k^2)$,	2.012
\LamepolycE{m}{2n+1}	cE_{2n+1}^m	(29.12.3)	the Lamé polynomial cE_{2n+1}^m
$\label{lamepolyce} $$ \Delta = 1^2 (2n+1)^2 (2k^2) $$ $$ \Delta = 1^2 (k^2) $$$	$cE_{2n+1}^{m}(z,k^2)$	()	211-1
\LamepolydE{m}{2n+1}	dE_{2n+1}^m	(29 12 4)	the Lamé polynomial dE_{2n+1}^m
\LamepolydE{m}{2n+1}@{z}{k^2}	$dE_{2n+1}^m(z,k^2)$	(20.12.1)	the Bame polynomial all $2n+1$
\LamepolyscdE{m}{2n+3}	$scdE_{2n+3}^{m}$	(20 12 8)	the Lamé polynomial $scdE_{2n+3}^m$
\LamepolyscdE(m) $\{2n+3\}$ Q $\{z\}$ {k^2}	*	(23.12.0)	the Dame polynomial $3eaL_{2n+3}$
(Lameporyscur(m) (Zn·5)@(Z) (K Z)	$scdE_{2n+3}^{m}(z,k^2)$		
\LemanalwasE(-)(0-+0)		(90.19.5)	the Lamé polynomial as Em
$\label{lamepolyscEm} $$ \Delta_{2n+2} $$ \Delta_{2n+2}@{z}_{k^2} $$$	scE_{2n+2}^m	(29.12.5)	the Lamé polynomial scE_{2n+2}^m
、ameno i vscドイm トイ ンn+ン ト(0イクトイ k^ン) ト	$scE_{2n+2}^m(z,k^2)$	(00.10.0)	11 7 / 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	a d 1/110	(29.12.6)	the Lamé polynomial sdE_{2n+2}^m
\LamepolysdE{m}{2n+2}	sdE_{2n+2}^m	(23.12.0)	2/1/2
	$\frac{sdE_{2n+2}}{sdE_{2n+2}^{m}(z,k^{2})}$ sE_{2n+1}^{m}		the Lamé polynomial sE_{2n+1}^m

$T_{E\!X}\ markup$	Expansion	Declared	Proper Name
$\label{lamepolysE(m){2n+1}0{z}{k^2}} $$ LamepolysE(m){2n+1}0{z}{k^2}$	$sE_{2n+1}^m(z,k^2)$		
\LamepolyuE{m}{2n} \LamepolyuE{m}{2n}@{z}{k^2}	$uE_{2n}^m uE_{2n}^m (z, k^2)$	(29.12.1)	the Lamé polynomial uE_{2n}^m
\Laplacetrans	\mathscr{L}	(1.14.17)	the Laplace transform of a function
$\Laplacetrans @\{f\}$	$\mathscr{L}\left(f\right)$		
$\Laplacetrans@@{f}$	$\mathscr{L}f$		
$\Laplacetrans @{f}@{s}$	$\mathscr{L}\left(f\right)\left(s\right)$		
$\Laplacetrans@@{f}@{s}$	$\mathscr{L}f(s)$		
\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 p)	§27.9	the Legendre symbol
\LerchPhi	Φ	(25.14.1)	Lerch's transcendent
\LerchPhi@{z}{s}{a}	$\Phi(z,s,a)$		
$\LeviCivitasym{i}{j}{k}$	ϵ_{ijk}	(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	0	(2.1.2)	the order less than
\littleo@{x}	o(x)		
$\left\langle ittleqJacobipolyp\{n\}\right\rangle$	p_n	(18.27.13)	the little q -Jacobi polynomial
$\left(\frac{1}{x}^{2}\right) $	_		
	$p_n(x;a,b;q)$		
\Ln	Ln	(4.2.1)	the multivalued logarithm function
\Ln@{z}	$\operatorname{Ln}(z)$		
\Ln@@{z}	$\operatorname{Ln} z$		
\ln	ln	(4.2.2)	the principal branch of logarithm function
\ln@{z}	$\ln(z)$		
\ln@@{z}	$\ln z$	0.4.0	
\log	log	$\S 4.2$	the logarithm to base 10
\log@{z}	$\log(z)$		
\log@@{z}	$\log z$	(0.0.0)	41 1 41 1 1
\logint	li li()	(6.2.8)	the logarithmic integral
\logint@{z}	$\operatorname{li}(z)$	(110 %)	
\LommelS{\mu}{\nu}	$S_{\mu, u}$	(11.9.5)	the Lommel function $S_{\mu,\nu}$
\LommelS{\mu}{\nu}@{z}	$S_{\mu,\nu}(z)$	(11.0.0)	.1. T. 1.6
\Lommels{\mu}{\nu}	$s_{\mu,\nu}$	(11.9.3)	the Lommel function $s_{\mu,\nu}$
\Lommels{\mu}{\nu}@{z} M	$s_{\mu,\nu}(z)$		
	Λ	(07.0.14)	M
\MangoldtLambda	Λ	(27.2.14)	Mangoldt's function
\MangoldtLambda@{n}	$\Lambda(n)$	200.0(:)	the Methieu Courtieu
\Mathieuce{n}	ce_n	§28.2(vi)	the Mathieu function ce_n
\Mathieuce{n}@{z}{q}	$\operatorname{ce}_n(z,q)$		
\Mathieuce{n}@@{z}{q}	$\operatorname{ce}_n(z)$	\$20 2()	the circurvalues of the Mathian's equation
\Mathieueigvala{n}	a_n	$\S 28.2(v)$	the eigenvalues of the Mathieu's equation a_n
\Mathieueigvala{n}@{q} \Mathieueigvala{n}@@{q}	$a_n(q)$		
	a_n	828 2(**)	the circurvalues of the Mathiau's equation b
\Mathieueigvalb{n} \Mathieueigvalb{n}@{q}	b_n	$\S 28.2(v)$	the eigenvalues of the Mathieu's equation b_n
\Mathieueigvalb{n}@@{q}	$egin{aligned} b_n(q) \ b_n \end{aligned}$		
/!!grmienerRiginles/dl	Un		continued on next page

$T_{EX} markup$	Expansion	Declared	1 topet tvaine
\Mathieueigvallambda{\nu+2n}	$\lambda_{\nu+2n}$	§28.12(i)	the eigenvalues of Mathieu's equation $\lambda_{\nu+2n}$
\Mathieueigvallambda{\nu+2n}@{c		,	
	$\lambda_{\nu+2n}(q)$		
\Mathieueigvallambda{\nu+2n}@@f			
-	$\lambda_{\nu+2n}$		
\Mathieufe{n}	fe_n	(28.5.1)	the second solution of Mathieu's equation fen
$Mathieufe{n}@{z}{q}$	$fe_n(z,q)$,	•
$Mathieufe{n}@@{z}{q}$	$fe_n(z)$		
\Mathieuge{n}	ge_n	(28.5.2)	the second solution of Mathieu's equation ge,
\Mathieuge{n}@{z}{q}	$ge_n(z,q)$. ,	
$Mathieuge{n}@@{z}{q}$	$ge_n(z)$		
\Mathieume{n}	me_n	§28.12(ii)	the Mathieu function me_n
$Mathieume{n}@{z}{q}$	$me_n(z,q)$,	
$\Mathieume{n}@@{z}{q}$	$me_n(z)$		
\Mathieuse{n}	se_n	§28.2(vi)	the Mathieu function se_n
$Mathieuse{n}@{z}{q}$	$\operatorname{se}_n(z,q)$	0 ()	
$Mathieuse{n}@{z}{q}$	$\operatorname{se}_n(z)$		
\MeijerG{m}{n}{p}{q}	$G_{p,q}^{m,n}$	(16.17.1)	the Meijer G -function
$\label{eq:meigen} $$ \widetilde{p}_{q}@{z}_{a_1\d} $$$	ots,a_p}{b_1,\dots		·
	$G_{p,q}^{m,n}(z;a_1\ldots,a_p;b)$	$(1,\ldots,b_a)$	
	F11 ()	, , 1,	
$\MeijerG{m}{n}{p}{q}@{z}{a_1}$	dots,a_p}{b_1,\dots	s,b_q}	
	$G_{p,q}^{m,n}\left(z; \frac{a_1,a_p}{b_1,,b_q}\right)$		
	$p,q (a,b_1,,b_q)$		
\MeijerGim}in}in}in}indaaiziia 1\	odots a n}{h 1 \dot	ts hal	
\MeijerG{m}{n}{p}{q}@@@{z}{a_1\	\dots,a_p}{b_1,\dot $G^{m,n}_{p,q}(z)$	ts,b_q}	
\MeijerG{m}{n}{p}{q}@@@{z}{a_1\		ts,b_q}	
\MeijerG{m}{n}{p}{q}@@@{z}{a_1\ \MeixnerPollaczekpolyP{\lambda}	$G_{p,q}^{m,n}(z)$		
\MeixnerPollaczekpolyP{\lambda}	$G_{p,q}^{m,n}(z)$ $ ag{n}$ $P_n^{(\lambda)}$	\$18.19	the Meixner–Pollaczek polynomial
	$G_{p,q}^{m,n}(z)$ $\{n\}$ $P_n^{(\lambda)}$ $\{n\}$ 0 $\{x\}$ {\phi}		the Meixner–Pollaczek polynomial
\MeixnerPollaczekpolyP{\lambda}	$G_{p,q}^{m,n}(z)$ $ ag{n}$ $P_n^{(\lambda)}$		the Meixner–Pollaczek polynomial
\MeixnerPollaczekpolyP{\lambda}	$G_{p,q}^{m,n}(z)$ $\{n\}$ $P_n^{(\lambda)}$ $\{n\}$ 0 $\{x\}$ {\phi}		the Meixner–Pollaczek polynomial the Meixner polynomial
\MeixnerPollaczekpolyP{\lambda} \MeixnerPollaczekpolyP{\lambda}	$G_{p,q}^{m,n}(z)$ $P_n^{(\lambda)}$ $P_n^{(\lambda)}$ $P_n^{(\lambda)}(x;\phi)$ $P_n^{(\lambda)}(x;\phi)$	§18.19	
\MeixnerPollaczekpolyP{\lambda} \MeixnerPollaczekpolyP{\lambda} \MeixnerpolyM{n} \MeixnerpolyM{n} \MeixnerpolyM{n}@{x}{\beta}{c} \Mellintrans	$G_{p,q}^{m,n}(z)$ $\{n\}$ $P_n^{(\lambda)}$ $\{n\}$ $\{0\}$ $\{x\}$ $\{phi\}$ $P_n^{(\lambda)}(x;\phi)$ M_n $M_n(x;\beta,c)$ \mathscr{M}	§18.19	
\MeixnerPollaczekpolyP{\lambda} \MeixnerPollaczekpolyP{\lambda} \MeixnerpolyM{n} \MeixnerpolyM{n}@{x}{\beta}{c} \Mellintrans \Mellintrans@{f}	$G_{p,q}^{m,n}(z)$ $P_{n}^{(\lambda)}$ $P_{n}^{(\lambda)}$ $P_{n}^{(\lambda)}(x;\phi)$	§18.19 §18.19	the Meixner polynomial
\MeixnerPollaczekpolyP{\lambda} \MeixnerPollaczekpolyP{\lambda} \MeixnerpolyM{n} \MeixnerpolyM{n}@{x}{\beta}{c} \Mellintrans \Mellintrans@{f} \Mellintrans@@{f}	$G_{p,q}^{m,n}(z)$ $\{\{n\}\}$ $\{P_n^{(\lambda)}\}$ $\{\{n\}\}$ $\{n\}$	§18.19 §18.19	the Meixner polynomial
\MeixnerPollaczekpolyP{\lambda} \MeixnerPollaczekpolyP{\lambda} \MeixnerpolyM{n} \MeixnerpolyM{n}\@{x}{\beta}{c} \Mellintrans \Mellintrans\@{f} \Mellintrans\@{f} \Mellintrans\@{f}	$G_{p,q}^{m,n}(z)$ $P_{n}^{(\lambda)}$ $P_{n}^{(\lambda)}$ $P_{n}^{(\lambda)}(x;\phi)$	§18.19 §18.19	the Meixner polynomial
\MeixnerPollaczekpolyP{\lambda} \MeixnerPollaczekpolyP{\lambda} \MeixnerpolyM{n} \MeixnerpolyM{n}\{n}\{\beta}{c} \Mellintrans \Mellintrans\{f} \Mellintrans\{f}\{mellintrans\{f}\{f}\{mellintrans\{f}\{f}\{mellintrans\{f}\{f}\{mellintrans\{f}\{f}\{mellintrans\{f}\{f}\{mellintrans\{f}\{f}\{mellintrans\{f}\{f}\{f}\{mellintrans\{f}\{f}\{f}\{mellintrans\{f}\{f}\{f}\{f}\{mellintrans\{f}\{f}\{f}\{f}\{f}\{mellintrans\{f}\{f}\{f}\{f}\{f}\{f}\{f}\{f}\{f}\{f}	$G_{p,q}^{m,n}(z)$ $\{\{n\}\}$ $\{P_n^{(\lambda)}\}$ $\{\{n\}\}$ $\{n\}$	§18.19 §18.19 (1.14.32)	the Meixner polynomial the Mellin transform of a function
\MeixnerPollaczekpolyP{\lambda} \MeixnerPollaczekpolyP{\lambda} \MeixnerpolyM{n} \MeixnerpolyM{n}@{x}{\beta}{c} \Mellintrans \Mellintrans@{f} \Mellintrans@{f} \Mellintrans@{f}@{s} \Mellintrans@{f}@{s} \Mellintrans@@{f}@{s} \Mellintrans@@{f}@{s}	$G_{p,q}^{m,n}(z)$ $\{\{n\}\}$ $P_n^{(\lambda)}\}$ $\{\{n\}\}$ $P_n^{(\lambda)}(x;\phi)$ M_n $M_n(x;\beta,c)$ M M f M f M f M f M f f M f	§18.19 §18.19	the Meixner polynomial
\MeixnerPollaczekpolyP{\lambda} \MeixnerPollaczekpolyP{\lambda} \MeixnerpolyM{n} \MeixnerpolyM{n}@{x}{\beta}{c} \Mellintrans \Mellintrans@{f} \Mellintrans@{f} \Mellintrans@{f} \Mellintrans@{f}@{s} \Mellintrans@{f}@{s} \Mellintrans@{f}@{s} \MillsM \MillsM@{x}	$G_{p,q}^{m,n}(z)$ $P\{n\}$ $P_n^{(\lambda)}$ $P\{n\}$ $P_n^{(\lambda)}(x;\phi)$ $P(n)$ P	§18.19 §18.19 (1.14.32)	the Meixner polynomial the Mellin transform of a function Mill's ratio
<pre>\MeixnerPollaczekpolyP{\lambda} \MeixnerPollaczekpolyP{\lambda} \MeixnerpolyM{n} \MeixnerpolyM{n}@{x}{\beta}{c} \Mellintrans \Mellintrans@{f} \Mellintrans@{f} \Mellintrans@{f}@{s} \Mellintrans@{f}@{s} \Mellintrans@{f}@{s} \MillsM \MillsM@{x} \MittagLefflerE{a}{b}</pre>	$G_{p,q}^{m,n}(z)$ $P_{n}^{(\lambda)}$ $P_{n}^{(\lambda)}$ $P_{n}^{(\lambda)}$ $P_{n}^{(\lambda)}(x;\phi)$ $P_{n}^{$	§18.19 §18.19 (1.14.32)	the Meixner polynomial the Mellin transform of a function
\MeixnerPollaczekpolyP{\lambda} \MeixnerPollaczekpolyP{\lambda} \MeixnerpolyM{n} \MeixnerpolyM{n}\@{x}{\beta}{c} \Mellintrans \Mellintrans@{f} \Mellintrans@{f} \Mellintrans@{f}\g{s} \Mellintrans@{f}@{s} \MillsM\willsM\dilsM\dilsMc{x} \MittagLefflerE{a}{b}\@{z}	$G_{p,q}^{m,n}(z)$ $P\{n\}$ $P_n^{(\lambda)}$ $P\{n\}$ $P_n^{(\lambda)}(x;\phi)$ $P(n)$ P	§18.19 §18.19 (1.14.32)	the Meixner polynomial the Mellin transform of a function Mill's ratio the Mittag-Leffler function
<pre>\MeixnerPollaczekpolyP{\lambda} \MeixnerPollaczekpolyP{\lambda} \MeixnerpolyM{n} \MeixnerpolyM{n}@{x}{\beta}{c} \Mellintrans \Mellintrans@{f} \Mellintrans@{f} \Mellintrans@{f}@{s} \Mellintrans@{f}@{s} \Mellintrans@{f}@{s} \MillsM \MillsM@{x} \MittagLefflerE{a}{b}</pre>	$G_{p,q}^{m,n}(z)$ $P_{n}^{(\lambda)}$ $P_{n}^{(\lambda)}$ $P_{n}^{(\lambda)}$ $P_{n}^{(\lambda)}(x;\phi)$ $P_{n}^{$	§18.19 §18.19 (1.14.32)	the Meixner polynomial the Mellin transform of a function Mill's ratio
\MeixnerPollaczekpolyP{\lambda} \MeixnerPollaczekpolyP{\lambda} \MeixnerpolyM{n} \MeixnerpolyM{n}\@{x}{\beta}{c} \Mellintrans \Mellintrans@{f} \Mellintrans@{f} \Mellintrans@{f}\g{s} \Mellintrans@{f}@{s} \MillsM\willsM\dilsM\dilsMc{x} \MittagLefflerE{a}{b}\@{z}	$G_{p,q}^{m,n}(z)$ $P_n^{(\lambda)}$ $P_n^{(\lambda)}$ $P_n^{(\lambda)}(x;\phi)$ $P_n^{(\lambda)}(x;$	§18.19 §18.19 (1.14.32) (7.8.1) (10.46.3)	the Meixner polynomial the Mellin transform of a function Mill's ratio the Mittag-Leffler function
<pre>\MeixnerPollaczekpolyP{\lambda} \MeixnerPollaczekpolyP{\lambda} \MeixnerpolyM{n} \MeixnerpolyM{n}@{x}{\beta}{c} \Mellintrans \Mellintrans@{f} \Mellintrans@{f} \Mellintrans@{f}@{s} \Mellintrans@{f}@{s} \MillsM \MillsM \MillsM@{x} \MittagLefflerE{a}{b} \MittagLefflerE{a}{b}@{z} \modBesselI{\nu}</pre>	$G_{p,q}^{m,n}(z)$ $P_{n}^{(\lambda)}$ $P_{n}^{(\lambda)}$ $P_{n}^{(\lambda)}$ $P_{n}^{(\lambda)}(x;\phi)$ $P_{n}^{$	§18.19 §18.19 (1.14.32) (7.8.1) (10.46.3)	the Meixner polynomial the Mellin transform of a function Mill's ratio the Mittag-Leffler function the modified Bessel function of the first kind
<pre>\MeixnerPollaczekpolyP{\lambda} \MeixnerPollaczekpolyP{\lambda} \MeixnerpolyM{n} \MeixnerpolyM{n}@{x}{\beta}{c} \Mellintrans \Mellintrans@{f} \Mellintrans@{f} \Mellintrans@{f}@{s} \Mellintrans@{f}@{s} \MillsM \MillsM \MillsM@{x} \MittagLefflerE{a}{b} \MittagLefflerE{a}{b}\ \ModBesselI{\nu} \modBesselI{\nu}</pre>	$G_{p,q}^{m,n}(z)$ $P_n^{(\lambda)}$ $P_n^{(\lambda)}$ $P_n^{(\lambda)}$ $P_n^{(\lambda)}(x;\phi)$	§18.19 §18.19 (1.14.32) (7.8.1) (10.46.3) (10.25.2)	the Meixner polynomial the Mellin transform of a function Mill's ratio the Mittag-Leffler function the modified Bessel function of the first kind
<pre>\MeixnerPollaczekpolyP{\lambda} \MeixnerPollaczekpolyP{\lambda} \MeixnerpolyM{n} \MeixnerpolyM{n}@{x}{\beta}{c} \Mellintrans \Mellintrans@{f} \Mellintrans@{f} \Mellintrans@{f}@{s} \Mellintrans@{f}@{s} \MillsM \MillsM \MillsM@{x} \MittagLefflerE{a}{b} \MittagLefflerE{a}{b}\ \ModBesselI{\nu} \modBesselI{\nu}</pre>	$G_{p,q}^{m,n}(z)$ $P_n^{(\lambda)}$ $P_n^{(\lambda)}$ $P_n^{(\lambda)}(x;\phi)$ $P_n^{(\lambda)}(x;$	§18.19 §18.19 (1.14.32) (7.8.1) (10.46.3) (10.25.2)	the Meixner polynomial the Mellin transform of a function Mill's ratio the Mittag-Leffler function the modified Bessel function of the first kind the modified Bessel function of the first kind
<pre>\MeixnerPollaczekpolyP{\lambda} \MeixnerPollaczekpolyP{\lambda} \MeixnerpolyM{n} \MeixnerpolyM{n}\@{x}{\beta}{c} \Mellintrans \Mellintrans@{f} \Mellintrans@{f} \Mellintrans@{f}\@{s} \Mellintrans@{f}\@{s} \MillsM \MillsM \MillsM@{x} \MittagLefflerE{a}{b} \MittagLefflerE{a}{b}\\ \MittagLefflerE{a}{\lambda}\\ \modBesselI{\nu} \modBesselI\{\nu}\@{z} \modBesselIimag{\nu} \end{array}</pre>	$G_{p,q}^{m,n}(z)$ $P\{n\}$ $P_n^{(\lambda)}$ $P\{n\}$ $P_n^{(\lambda)}(x;\phi)$ $P(n)$ P	§18.19 §18.19 (1.14.32) (7.8.1) (10.46.3) (10.25.2)	the Meixner polynomial the Mellin transform of a function Mill's ratio the Mittag-Leffler function the modified Bessel function of the first kind the modified Bessel function of the first kind maginary order
<pre>\MeixnerPollaczekpolyP{\lambda} \MeixnerPollaczekpolyP{\lambda} \MeixnerpolyM{n} \MeixnerpolyM{n} \MeixnerpolyM{n}@{x}{\beta}{c} \Mellintrans \Mellintrans@{f} \Mellintrans@{f} \Mellintrans@{f}@{s} \Mellintrans@{f}@{s} \MillsM \MillsM \MillsM(x) \MittagLefflerE{a}{b} \MittagLefflerE{a}{b}\ \MittagLefflerE{a}{b}\ \modBesselI{\nu} \modBesselIimag{\nu} \modBesselIimag{\nu} \modBesselIimag{\nu} \modBesselIimag{\nu}@{x} \modBesselIimag{\nu}</pre>	$G_{p,q}^{m,n}(z)$ $P\{n\}$ $P_n^{(\lambda)}$ $P\{n\}$ $P_n^{(\lambda)}(x;\phi)$ $P(n)$ P	§18.19 §18.19 (1.14.32) (7.8.1) (10.46.3) (10.25.2) (10.45.2)	the Meixner polynomial the Mellin transform of a function Mill's ratio the Mittag-Leffler function the modified Bessel function of the first kind the modified Bessel function of the first kind maginary order
<pre>\MeixnerPollaczekpolyP{\lambda} \MeixnerPollaczekpolyP{\lambda} \MeixnerpolyM{n} \MeixnerpolyM{n} \MeixnerpolyM{n}@{x}{\beta}{c} \Mellintrans \Mellintrans@{f} \Mellintrans@{f} \Mellintrans@{f}@{s} \Mellintrans@{f}@{s} \MillsM \MillsM \MillsM \MillsM(x) \MittagLefflerE{a}{b} \MittagLefflerE{a}{b}\ \MittagLefflerE{a}\{b}@{z} \modBesselI{\nu} \modBesselIimag{\nu} \modBesselIimag{\nu} \modBesselIimag{\nu}</pre>	$G_{p,q}^{m,n}(z)$ $P\{n\}$ $P_n^{(\lambda)}$ $P\{n\}$ $P_n^{(\lambda)}(x;\phi)$ $P(n)$ P	§18.19 §18.19 (1.14.32) (7.8.1) (10.46.3) (10.25.2) (10.45.2)	the Meixner polynomial the Mellin transform of a function Mill's ratio the Mittag-Leffler function the modified Bessel function of the first kind the modified Bessel function of the first kind

$T_{EX} markup$	Expansion	Declared	Proper Name
\modBesselKimag{\nu}@{x}	$\widetilde{K}_{\nu}(x)$		
\modcylinder{\nu}	$\mathscr{Z}_{ u}$	§10.25	the modified cylinder function
\modcylinder{\nu}@{z}	$\mathscr{Z}_{ u}(z)$		•
\modMathieuCe{\nu}	Ce_{ν}	(28.20.3)	the modified Mathieu function Ce_{ν}
\modMathieuCe{\nu}@{z}{q}	$Ce_{ u}(z,q)$	(=====)	
\modMathieuCe{\nu}@@{z}{q}	$\operatorname{Ce}_{ u}(z)$		
\modMathieuD{j}	D_j	(28 28 24)	the cross-products of modified Mathieu functions
/modriacirred ())	Dj	(20.20.24)	and their derivatives
$\mbox{modMathieuD{j}@{\nu}{\mbox{mu}{z}}$	$D_j(\nu,\mu,z)$		and their derivatives
\modMathieuFe{\nu}	Fe_{ν}	(28.20.6)	the modified Mathieu function Fe_{ν}
\modMathieuFe{\nu}@{z}{q}	$\operatorname{Fe}_{ u}(z,q)$	(20.20.0)	the modified Mathieu function Fe_{ν}
\modMathieuFe{\nu}@@{z}{q} \modMathieuFe{\nu}@@{z}{q}	$\operatorname{Fe}_{ u}(z,q)$ $\operatorname{Fe}_{ u}(z)$		
		(00.00.7)	the medical Mathias Constitut Co
\modMathieuGe{\nu}	Ge_{ν}	(28.20.7)	the modified Mathieu function Ge_{ν}
\modMathieuGe{\nu}@{z}{q}	$\operatorname{Ge}_{\nu}(z,q)$		
\modMathieuGe{\nu}@@{z}{q}	$\operatorname{Ge}_{ u}(z)$	/	
\modMathieuIe{n}	Ie_n	(28.20.17)	the modified Mathieu function Ie_n
$\mbox{modMathieuIe}{n}@{z}{h}$	$\operatorname{Ie}_n(z,h)$		
$\verb \modMathieuIe{n}@@{z}{h} $	$Ie_n(z)$		
$\mbox{\mbox{$\mbox{modMathieuIo}\{n\}$}}$	Io_n	(28.20.18)	the modified Mathieu function Io_n
$\verb \modMathieuIo{n}@{z}{h} $	$Io_n(z,h)$		
$\verb \modMathieuIo{n}@@{z}{h} $	$Io_n(z)$		
\modMathieuKe{n}	Ke_n	(28.20.19)	the modified Mathieu function Ke_n
$\verb \modMathieuKe{n}@{z}{h} $	$\mathrm{Ke}_n(z,h)$		
$\verb \modMathieuKe{n}@@{z}{h} $	$\mathrm{Ke}_n(z)$		
\modMathieuKo{n}	Ko_n	(28.20.20)	the modified Mathieu function Ko_n
$\mbox{modMathieuKo}{n}@{z}{h}$	$Ko_n(z,h)$,	
$\mbox{modMathieuKo}{n}@@{z}{h}$	$\mathrm{Ko}_n(z)$		
\modMathieuM{j}{\nu}	$M_{\nu}^{(j)}$	§28.20(iii)	the modified Mathieu function $\mathcal{M}_{\nu}^{(j)}$
$\label{local_modMathieuM{j}{nu}@{z}{h}} $$ \mathbf{z}_{nu}^{0}(z) = \mathbf{z}_{nu}^{0}(z) $	$M_{\nu}^{(j)}(z,h)$	3()	
\modMathieuM{j}{\nu}@@{z}{h}	$\mathrm{M}_{ u}^{(j)}(z)$		
· · · · · · · · · · · · · · · · · · ·	. ,	(00.00.5)	the medical Methins Constitut Ma
\modMathieuMe{\nu}	Me_{ν}	(28.20.5)	the modified Mathieu function Me_{ν}
\modMathieuMe{\nu}@{z}{q}	$\mathrm{Me}_{ u}(z,q)$		
\modMathieuMe{\nu}@@{z}{q}	$\mathrm{Me}_{ u}(z)$	(22.22.4)	10 136 14 0
\modMathieuSe{\nu}	$\operatorname{Se}_{ u}$	(28.20.4)	the modified Mathieu function Se_{ν}
\modMathieuSe{\nu}@{z}{q}	$\operatorname{Se}_{ u}(z,q)$		
$\label{local_modMathieuSe} $$\modMathieuSe{\nu}@{z}{q}$$	$\operatorname{Se}_{\nu}(z)$		(1)
${\bf n}$	$i_n^{(1)}$	(10.47.7)	the modified spherical Bessel function $i_n^{(1)}$
$\verb \modsphBesseli{1}{n}@{z} $	$i_n^{(1)}(z)$		
\modsphBesseli{2}{n}	$i_n^{(2)}$	(10.47.8)	the modified spherical Bessel function $i_n^{(2)}$
\modsphBesseli{2}{n}@{z}	$i_n^{(2)}(z)$,	•
\modsphBesselK{n}	k_n	(10.47.9)	the modified spherical Bessel function k_n
\modsphBesselK{n}@{z}	$k_n(z)$	(10.11.0)	the modified spherical Desserranceion κ_n
\modStruveL{\nu}	$\mathbf{L}_{ u}$	(11.2.2)	the modified Struve function \mathbf{L}_{ν}
\modStruveL{\nu}@{z}	$\mathbf{L}_{ u}(z)$	(11.2.2)	the modified Strave function \mathbf{L}_{ν}
\modStruveM{\nu}	$\mathbf{M}_{ u}$	(11.2.6)	the modified Struve function \mathbf{M}_{ν}
		(11.2.0)	the modified Strave function W_{ν}
\modStruveM{\nu}@{z}	$\mathbf{M}_{ u}(z)$	(00.15.6)	All a alling tier and dealers from a tr
\modularlambdatau	λ	(23.15.6)	the elliptic modular function
\modularlambdatau@{\tau}	$\lambda(au)$	(OF 3 13)	.1. 26911
\Moebiusmu	μ	(27.2.12)	the Möbius function
\Moebiusmu@{n}	$\mu(n)$		

T _E X markup	Expansion	Declared	Proper Name
$\mathbf{n}_{n_1,n_2,\ldots}$	/ \	005 (0)	
	$\binom{n}{n_1, n_2, \dots, n_k}$	§26.4(i)	the multinomial coefficient
\multivarEulerBeta{m}	\mathbf{B}_m	(35.3.3)	multivariate beta function
\multivarEulerBeta{m}@{a}{b}	$B_m(a,b)$		
\multivarEulerGamma{m}	Γ_m	$\S 35.3(i)$	the multivariate gamma function
\multivarEulerGamma{m}@{a}	$\Gamma_m(a)$		
\natNumbers	N	Intro.	the set of 'natural' numbers (positive integers)
\ncompositions	c	$\S 26.11$	the number of compositions of n
\ncompositions@{n}	c(n)		
\ncompositions[m]	c_m		the number of compositions of n into exactly
\ncompositions[m]@{n}	$c_m(n)$		parts
\ndivisors	$\frac{d}{d}$	§27.2(i)	the number of divisors of n (divisor function)
\ndivisors@{n}	d(n)	3-1.2(1)	and the state of t
\ndivisors[k]	d_k		the number of ways of expressing n as product
,	h		k factors
\ndivisors[k]@{n}	$d_k(n)$		
\NeumannpolyO{n}	O_n	(10.23.12)	Neumann's polynomial
$\verb \NeumannpolyO{n}@{x} $	$O_n(x)$		
\normCoulombC{\ell}	C_ℓ	(33.2.5)	the normalizing constant for Coulomb (radia function
\normCoulombC{\ell}@{\eta}	$C_\ell(\eta)$		
\normincBetaI{x}	I_x	(8.17.2)	the normalized incomplete beta function
$\verb \normincBetaI{x}@{a}{b} $	$I_x(a,b)$		
\normincGammaP	P	(8.2.4)	the normalized incomplete gamma function P
$\verb \normincGammaP@{a}{z} $	P(a,z)		
\normincGammaQ	Q	(8.2.4)	the normalized incomplete gamma function ${\cal Q}$
$\verb \normincGammaQ@{a}{z} $	Q(a,z)		
\npartitions	p	$\S 26.2$	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 parts
\npartitions[m]@{n}	$p_m(n)$		
\npermutations{n}	\mathfrak{S}_n	$\S 26.13$	the number of permutations of n
\nplanepartitions \nplanepartitions@{n}	pp pp(n)	§26.12(i)	the number of plane partitions of 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
$\verb \nprimesdiv@{n} $	u(n)		
\nrestcompositions	c	§26.11	the restricted number of compositions of n in exactly m parts
\nrestcompositions@{co	$c(\operatorname{condition})$ n		-
\nrestpartitions	p	§26.10(i)	the restricted number of partitions of n
\nrestpartitions@{cond	$\begin{array}{c} \texttt{dition}\}\{\texttt{n}\} \\ p(\texttt{condition},n) \end{array}$		
\nrestpartitions[m]	p_m	§26.9(i)	the restricted number of partitions of n into a most m parts
			continued on next pa

E i	Expansion	Declared	Proper Name
\nrestpartitions[m]@{cor			
	$p_m(\text{condition}, n)$		
	r_k	§27.13(iv)	the number of squares
\nsquares{k}@{n}	$r_k(n)$		
\OlverconfhyperM	M	(13.2.3)	Olver's confluent hypergeometric function
$\OlverconfhyperM@{a}{b}{z}$	$\mathbf{M}(a,b,z)$		
$\displaystyle Pade{p}{q}{f}$	$[p/q]_f$	§3.11(iv)	the Padé approximant
$\displaystyle Pade{p}{q}{f}@{z}$	$[p/q]_f(z)$		
\paraU	U	§12.2(i)	the parabolic cylinder (or Weber) function U
\paraU@{a}{z}	U(a,z)		
\paraUbar	$\overline{\overline{U}}$	§12.2(vi)	the parabolic cylinder (or Weber) function \overline{U}
\paraUbar@{a}{x}	$\overline{U}(a,x)$		- , , ,
_	\overline{V}	§12.2(i)	the parabolic cylinder (or Weber) function V
•	V(a,z)	5 ()	
-	\overline{W}	§12.14(i)	the parabolic cylinder (or Weber) function W
	W(a,x)	0 ()	()
-	\widetilde{B}_n	§24.2(iii)	the periodic Bernoulli function
	$\widetilde{B}_n(x)$	0 -()	1
	\widetilde{E}_n	§24.2(iii)	the periodic Euler function
	$\widetilde{E}_n(x)$	324.2(111)	the periodic Edici function
	$\frac{E_n(x)}{F}$	(9f 19 1)	the newic die note function
·F	=	(25.13.1)	the periodic zeta function
-	F(x,s)	CO7 1	11
	(a_1,\ldots,a_n)	§27.1	the greatest common divisor
1	ph	(1.9.7)	the phase of a complex number z
	ph(z)		
	$\frac{\operatorname{ph} z}{\langle \cdot \rangle}$	05 0()	(1 D 11
\Pochhammersym{a}{n}	$(a)_n$	§5.2(iii)	the Pochhammer symbol (or shifted factorial)
	$P_n^{(\lambda)}$	(18.35.4)	the Pollaczek polynomial
$\label{lem:lembda} $$ \Pr{\lambda(x) \in \mathbb{R}^n \ \ } (x) = \frac{1}{n} (x) + \frac{1}$			
	$P_n^{(\lambda)}(x;a,b)$		
1 00	$\psi^{(n)}$	$\S 5.15$	the polygamma function
$\displaystyle polygamma{n}@{z}$	$\psi^{(n)}(z)$		
\polylog{s}	Li_s	(25.12.10)	the polylogarithm
\polylog{s}@{z}	$\mathrm{Li}_s(z)$		
\qAppellPhi{1}	$\Phi^{(1)}$	(17.4.5)	the first q -Appell function
$\qAppellPhi{1}@{a}{b}{b'}{c}{q}{d}$	(x}{y}		
	$\Phi^{(1)}(a;b,b';c;q;x,y)$		
\qAppellPhi{2}	$\Phi^{(2)}$	(17.4.6)	the second q-Appell function
\qAppellPhi{2}@{a}{b}{b'}{c}{c'}		(11.1.0)	the second q rippen function
	$\Phi^{(2)}(a;b,b';c,c';q;x,y)$	<i>y</i>)	
\qAppellPhi{3}	$\Phi^{(3)}$	(17.4.7)	the third q-Appell function
$\qAppellPhi{3}@{a}{a'}{b}{b'}{c}$	=	()	. 1 11
	$\Phi^{(3)}(a,a';b,b';c;q;x,q)$	y)	
\qAppellPhi{4}	$\Phi^{(4)}$	(17.4.8)	the fourth q-Appell function
/4kko+++ ++ (+)	-	(11.1.0)	continued on next

T _E X 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} \qBernoullipolybeta{n}\@{x}{q}	$\beta_n \\ \beta_n(x,q)$	(17.3.7)	the q -Bernoulli polynomial
\qBeta{q} \qBeta{q}@{a}{b}	$egin{aligned} \mathrm{B}_q \ \mathrm{B}_q(a,b) \end{aligned}$	(5.18.11)	the q -Beta function
\qbinom{n}{m}{q}	$\begin{bmatrix} n \\ m \end{bmatrix}_q$	(17.2.27)	the q -binomial coefficient
\qCos{q} \qCos{q}@{x}	$ \cos_q \\ \operatorname{Cos}_q(x) $	(17.3.6)	the q -cosine function \cos_q
\qcos{q} \qcos{q}@{x}	$ cos_q \\ cos_q(x) $	(17.3.5)	the q -cosine function \cos_q
\qDigamma{q} \qDigamma{q}@{z}	$\psi_q \ \psi_q(z)$?	the q -digamma function
\qEulernumberA{m}{s} \qEulernumberA{m}{s}@{q}	$A_{m,s}$ $A_{m,s}(q)$	(17.3.8)	the q -Euler number
\qExp{q} \qExp{q}@{x}	E_q $E_q(x)$	(17.3.2)	the q-exponential function E_q
\qexp{q} \qexp{q}@{x}	$e_q \ e_q(x)$	(17.3.1)	the q -exponential function e_q
\qfactorial{n}{q}	$n!_q$	(5.18.2)	the q -factorial
$\label{eq:qGamma} $$ qGamma{q} \\ qGamma{q}@{z}$	$\Gamma_q \ \Gamma_q(z)$	(5.18.4)	the q -gamma function
\qgenhyperphi{r+1}{s}	$r+1\phi_s$	(17.4.1)	the q-hypergeometric (or basic hypergeometric) function
$$\q enhyperphi\{r+1\}\{s\}@@\{a_0,d\}$$ $$ \q enhyperphi\{r+1\}\{s\}@@@\{a_0,d\}$$ $$$	$_{r+1}\phi_s\left(\begin{smallmatrix}a_0,\ldots,a_r\\b_1,\ldots,b_s\end{smallmatrix};q,z\right)$		
\qgenhyperpsi{r}{s}	$r+1\Psi s(q,z)$ $r\psi_s$	(17.4.3)	the bilateral q -hypergeometric (or bilateral basic
lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	,a_r}{b_1,\dots,b_s} $_r\psi_s(a_0,\ldots,a_r;b_1,\ldots)$	_	hypergeometric) function
$\label{local-state} $$\qenhyperpsi{r}_{s}@@{a_0,\dot}$$	s,a_r}{b_1,\dots,b_s} $_r\psi_s{\left({b_1,,b_s\atop b_1,,b_s}};q,z\right)}$	s}{q}{z}	
lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	ts,a_r}{b_1,\dots,b_ $r\psi_s(q,z)$	s}{q}{z}	
$\label{eq:continuous} $$ \qHahnpolyQ{n}@{x}{\alpha}_{\c}(be) $$ $$ $$ $$$	Q_n ta}{N}{q} $Q_n(x;lpha,eta,N;q)$	(18.27.3)	the q -Hahn polynomial
\qinvAlSalamChiharapolyQ{n} \qinvAlSalamChiharapolyQ{n}@{x	Q_n }{a}{b}{q^{-1}} $Q_n(x;a,b q^{-1})$	(18.28.9)	the q^{-1} -Al-Salam–Chihara polynomial
			continued on next page

T _E X markup	Expansion	Declared	Proper Name
\qLaguerrepolyL{\alpha}{n}	$L_n^{(\alpha)}$	(18.27.15)	the q-Laguerre polynomial
\qLaguerrepolyL{\alpha}{n}@{x	$L_n^{(lpha)}(x;q)$		
$\qquad \qquad $			
	$\begin{bmatrix} n \\ n_1, n_2, \dots, n_3 \end{bmatrix}_q$	$\S 26.16$	the q -multinomial coefficient
a_1,a_2,			
	$(a_1,a_2,\ldots,a_k;q)_n$		
		§17.2(i)	the q-multiple Pochhammer symbol
\q Pochhammer{a}{q}{n}	$(a;q)_n$ $\psi_q^{(n)}$	§17.2(i)	the q -Pochhammer symbol (or q -shifted factorial)
\qpolygamma{n}{q}	$\psi_q^{(n)}$?	the q -polygamma function
$\qpolygamma{n}{q}0{z}$	$\psi_q^{(n)}(z)$		
\qRacahpolyR{n}	R_n		the q -Racah polynomial
$\q Racahpoly R\{n\} @\{x\}{\alpha} = \{(x,y) \in \mathbb{R}^n \} = \{(x,y) \in \mathbb{R}^n $		-{q}	
	$R_n(x; \alpha, \beta, \gamma, \delta \mid q)$		
\qSin{q}	Sin_q	(17.3.4)	the q -sine function Sin_q
$\qSin{q}e(x)$	$\operatorname{Sin}_q^{\mathbf{q}}(x)$,	1
\qsin{q}	\sin_q	(17.3.3)	the q -sine function \sin_q
$\qsin{q}0{x}$	$\sin_q(x)$		
$\verb \qStirlingnumbera{m}{s} $	$a_{m,s}$	(17.3.9)	the q -Stirling number
$\qStirlingnumbera\{m\}\{s\}\{q\}$	$a_{m,s}(q)$		
		010.05	
\RacahpolyR{n} \RacahpolyR{n}@{x(x+\gamma+\d	R_n elta+1)}{\alpha}{\beta} $R_n(x(x+\gamma+\delta+1);$		the Racah polynomial -{\delta}
	$R_n(x(x+y+0+1),$	$\alpha, \beta, \gamma, 0)$	
\radMathieuDc{j}	Dc_j	(28.28.39)	the cross-products of radial Mathieu functions and their derivatives Dc_j
$\label{lem:lembor} $$ \mathbf{m}_{z} \$	$\mathrm{Dc}_j(n,m,z)$		
\radMathieuDs{j}	Ds_j	(28.28.35)	the cross-products of radial Mathieu functions and their derivatives Ds_j
$\label{lem:lembs} $$ \mathbf{y}_{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
$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	$\mathrm{Dsc}_j(n,m,z)$		•
\radMathieuMc{j}{n}	$Mc_n^{(j)}$	(28.20.15)	the radial Mathieu function $Mc_n^{(j)}$
lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	$\mathrm{Mc}_n^{(j)}(z,h)$		
lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	$\mathrm{Mc}_n^{(j)}(z)$		
\radMathieuMs{j}{n}	$Ms_n^{(j)}$	(28.20.16)	the radial Mathieu function $Ms_n^{(j)}$
$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	$Ms_n^{(j)}(z,h)$		
lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	$Ms_n^{(j)}(z)$		
$\radsphwaveS{m}{j}{n}$	$S_n^{m(j)}$	(30.11.3)	the radial spheroidal wave function
lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:			
	$S_n^{m(j)}(z,\gamma)$	(O= 10 1)	<u></u>
\Ramanujansum{k}	c_k	(27.10.4)	Ramanujan's sum
\Ramanujansum{k}@{n}	$c_k(n)$		
\ Domonusion+ou		(97 14 10)	Domanujan's tau function
\Ramanujantau \Ramanujantau@{n}	au $ au(n)$	(27.14.18)	Ramanujan's tau function

$ \begin{array}{c} (\text{Nayleighsigma}(n)) & \sigma_{n} \\ \text{Nayleighsigma}(n) \Rightarrow \sigma_{n}(\nu) \\ \text{Nayleighaigma}(n) \Rightarrow \sigma_{n$	T _E X markup	Expansion	Declared	Proper Name
$\begin{tabular}{l l l l l l l l l l l l l l l l l l l $	\Rationals	Q	Intro.	the set of rational numbers
Yeealpart	\Rayleighsigma{n}	σ_n	(10.21.55)	the Rayleigh function
$\label{eq:local_parter} $\mathbb{R}(z)$ R	lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	$\sigma_n(u)$		
$\label{eq:local_part00} \begin{tabular}{l l l l l l l l l l l l l l l l l l l $	\realpart	\Re	(1.9.2)	the real part of a complex number z
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	\realpart@{z}	$\Re\left(z ight)$		
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	\realpart@@{z}	$\Re z$		
$ \text{regCoulombF}\{\text{ell}}\{\text{vrho}\} \\ F_{\ell}(\eta,\rho) \\ \text{regCoulombf} \qquad f \qquad (33.14.4) \text{the regular Coulomb (radial) function (for attrative interactions) } f \\ \text{regCoulombs} \qquad f \\ \text{regCoulombs} \qquad s \qquad (33.14.9) \text{the regular Coulomb (radial) function (for attrative interactions) } s \\ \text{regCoulombs} \qquad s \qquad (33.14.9) \text{the regular Coulomb (radial) function (for attrative interactions) } s \\ \text{regCoulombs} \qquad s \qquad (33.14.9) \text{the regular Coulomb (radial) function (for attrative interactions) } s \\ \text{regCoulombs} \qquad s \qquad (33.14.9) \text{the regular Coulomb (radial) function (for attrative interactions) } s \\ \text{regCoulombs} \qquad s \qquad (33.14.9) \text{the regular Coulomb (radial) function (for attrative interactions) } s \\ \text{regCoulombs} \qquad s \qquad (33.14.9) \text{the regular Coulomb (radial) function (for attrative interactions) } s \\ \text{regCoulombs} \qquad s \qquad (33.14.9) \text{the regular Coulomb (radial) function (for attrative interactions) } s \\ \text{regCoulombs} \qquad s \qquad (33.14.9) \text{the regular Coulomb (radial) function (for attrative interactions) } s \\ \text{regCoulombs} \qquad s \qquad (5.8) \text{the regular Coulomb (radial) function (for attrative interactions) } s \\ \text{regCoulombs} \qquad s \qquad (5.8) \text{Remanns} p \qquad P. symbol for solutions of the general size of the preparation of the gen$	\Reals	\mathbb{R}	Intro.	the set of real numbers
$F_{\ell}(\eta,\rho)$ $\text{regCoulombf} \qquad f \qquad (33.14.4) \qquad \text{the regular Coulomb (radial) function (for attrative interactions) } f$ $\text{regCoulombs0} \qquad s \qquad (33.14.9) \qquad \text{the regular Coulomb (radial) function (for attrative interactions) } s$ $\text{regCoulombs0} \qquad s \qquad (33.14.9) \qquad \text{the regular Coulomb (radial) function (for attrative interactions) } s$ $\text{regCoulombs0} \qquad s \qquad (33.14.9) \qquad \text{the regular Coulomb (radial) function (for attrative interactions) } s$ $\text{regCoulombs0} \qquad s \qquad (33.14.9) \qquad \text{the regular Coulomb (radial) function (for attrative interactions) } s$ $\text{regCoulombs0} \qquad s \qquad (33.14.9) \qquad \text{the regular Coulomb (radial) function (for attrative interactions) } s$ $\text{regCoulombs0} \qquad s \qquad (33.14.9) \qquad \text{the regular Coulomb (radial) function (for attrative interactions) } s$ $\text{regCoulombs0} \qquad s \qquad (33.14.9) \qquad \text{the regular Coulomb (radial) function (for attrative interactions) } s$ $\text{regCoulombs0} \qquad s \qquad (33.14.9) \qquad \text{the regular Coulomb (radial) function (for attrative interactions) } s$ $\text{regCoulombs0} \qquad s \qquad (5.8) \qquad \text{the regular Coulomb (radial) function (for attrative interactions) } s$ $\text{regCoulombs0} \qquad s \qquad (5.8) \qquad \text{the regular Coulomb (radial) function (for attrative interactions) } s$ $\text{regCoulombs0} \qquad s \qquad (5.8) \qquad \text{the regular Coulomb (radial) function (for attrative interactions) } s$ $\text{regCoulombs0} \qquad s \qquad (5.8) \qquad \text{the regular Coulomb (radial) function (for attrative interactions) } s$ $\text{regCoulombs0} \qquad s \qquad (5.8) \qquad \text{the regular Coulomb (radial) function (for attrative interactions) } s$ $\text{regCoulombs0} \qquad s \qquad (5.8) \qquad \text{the regular Coulomb (radial) function (for attrative interactions) } s$ $\text{regCoulombs0} \qquad s \qquad (5.8) \qquad \text{the regular Coulomb (radial) function (for attrative interactions) } s$ $\text{regCoulombs0} \qquad s \qquad (5.8) \qquad \text{the regular Coulomb (radial) function (for attrative interactions) } s$ $\text{regCoulombs0} \qquad s \qquad (5.8) \qquad \text{the regular Coulomb (radial) function (for attrative interactions) } s$ $\text{regCoulombs0} \qquad s \qquad (5.8) \qquad \text{the regular Coulomb (radial) function (for attrative interactions) } s$ \text	\regCoulombF{\ell}		(33.2.3)	the regular Coulomb (radial) function (for repulsive interactions) F_ℓ
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	\regCoulombF{\ell}@{\eta}{\i			
$ \text{tive interactions}) \ f \\ \text{regCoulombf0}\{\text{epsilon}\{\{\text{ell}\}\{r\} \\ f(\epsilon,\ell;r) \\ \text{regCoulombs} \ s \\ \text{(33.14.9)} \ \text{the regular Coulomb (radial) function (for attrative interactions)} \ s \\ \text{regCoulombs}(\text{epsilon}\{\text{ell}\}\{r\} \\ s(\epsilon,\ell;r) \\ \text{repinterfc}(n) \\ \text{i"erfc} \\ \text{(7.18.2)} \ \text{the repeated integrals of complementary error function} \\ \text{repinterfc}(n) \\ \text{li"erfc} \\ \text{(7.18.2)} \ \text{the repeated integrals of complementary error function} \\ \text{repinterfc}(n) \\ \text{li"erfc}(s) \\ \text{li"erfc}(s) \\ \text{li interactions}(s) \\ \text{repinterfc}(n) \\ \text{li interaction}(s) \\ \text{repinterfc}(n) \\ \text{li interaction}(s) \\ \text{repinterfc}(n) \\ \text{li interaction}(s) \\ \text{repinterfc}(n) \\ \text{repinterfc}(n) \\ \text{li interaction}(s) \\ \text{repinterfc}(n) $		$F_\ell(\eta, ho)$		
$ f(\epsilon,\ell;r) \\ \textbf{regCoulombs} \qquad s \qquad (33.14.9) \textbf{the regular Coulomb (radial) function (for attrative interactions)} s \\ \textbf{regCoulombs@{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{\epsilon}{$	\regCoulombf	f	(33.14.4)	
$ \begin{tabular}{l l l l l l l l l l l l l l l l l l l $	$\label{lem:condition} $$\operatorname{Coulombf@{\scriptstyle epsilon}_{\cline{1.5}}} $$$			
$ \text{tive interactions}) \ s \\ \text{regCoulombs@{epsilon}{\{lr\}}} \\ s(\varepsilon,\ell;r) \\ \text{repinterfc{n}} \qquad i^n \text{erfc} \\ \text{i}^n \text{erfc} \\ \text{tive interactions}) \ s \\ \text{the repeated integrals of complementary error function} \\ \text{repinterfc{n}} \text{@{e}} \\ \text{RiemannsymP} \qquad P \\ \text{(15.11.3)} \ \text{Riemann's P-symbol for solutions of the general ized hypergeometric differential equation} \\ \text{RiemannsymP@{begin{Bmatrix}}} \ a \ \& \ b \ \& \ c \ \& \ \ \ & \ \ & \ \ \ & \ \ \ & \ \ \ & \ \ \ \ \ & \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$		$f(\epsilon,\ell;r)$		
$s(\epsilon,\ell;r)$ \repinterfc{n} i^n erfc	\regCoulombs	s	(33.14.9)	the regular Coulomb (radial) function (for attractive interactions) \boldsymbol{s}
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	\regCoulombs@{\epsilon}{\ell	l}{r}		
$\label{eq:localization} $\operatorname{Inerfc}(a) \otimes \{z\} \qquad i^n \operatorname{erfc}(z) \qquad i^n erf$				
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	\repinterfc{n}	i ⁿ erfc	(7.18.2)	the repeated integrals of complementary error function
ized hypergeometric differential equation $P\left\{\begin{array}{cccccccccccccccccccccccccccccccccccc$	\repinterfc{n}@{z}	$i^n \operatorname{erfc}(z)$		
$\label{eq:anntheta} \begin{cases} \beta & (21.2.1) & \text{the Riemann theta function} \\ \text{Riemannthetachar}\{\text{alpha}\}\{\text{beta}\} & (21.2.5) & \text{the Riemann theta function with characteristics} \\ \text{Riemannthetachar}\{\text{alpha}\}\{\text{beta}\} & (21.2.5) & \text{the Riemann theta function with characteristics} \\ \text{Riemannthetachar}\{\text{alpha}\}\{\text{beta}\} & (25.4.4) & \text{the Riemann ξ function} \\ \text{Riemannxi} & \xi & (25.4.4) & \text{the Riemann ξ function} \\ \text{Riemannxie}\{s\} & \xi(s) & (25.2.1) & \text{the Riemann zeta function} \\ \text{Riemannzeta} & \zeta & (25.2.1) & \text{the Riemann zeta function} \\ \text{Riemannzeta0}\{s\} & \zeta(s) & (25.2.1) & \text{the Riemann zeta function} \\ \text{Riemannzeta0}\{s\} & \zeta(s) & (25.2.1) & \text{the Riemann zeta function} \\ \text{Riemannzeta0}\{s\} & \zeta(s) & (25.2.1) & \text{the Riemann ξ function} \\ \text{Riemannzeta0}\{s\} & \zeta(s) & (25.2.1) & \text{the Riemann ξ function} \\ \text{Riemannzeta0}\{s\} & \zeta(s) & (25.2.1) & \text{the Riemann ξ function} \\ \text{Riemannzeta0}\{s\} & \zeta(s) & (25.2.1) & \text{the Riemann ξ function} \\ \text{Riemannzeta0}\{s\} & \zeta(s) & (25.2.1) & \text{the Riemann theta function} \\ \text{Riemannxieta0}\{s\} & \xi(s) & (25.2.1) & \text{the Riemann theta function} \\ \text{Riemannxieta0}\{s\} & \xi(s) & (25.2.1) & \text{the Riemann theta function} \\ \text{Riemannxieta0}\{s\} & \xi(s) & (25.2.1) & \text{the Riemann ξ function} \\ \text{Riemannzeta0}\{s\} & \xi(s) & (25.2.1) & \text{the Riemann ξ function} \\ \text{Riemannzeta0}\{s\} & \xi(s) & (25.2.1) & \text{the Riemann ξ function} \\ \text{Riemannzeta0}\{s\} & \xi(s) & (25.2.1) & \text{the Riemann theta function} \\ \text{Riemannxieta0}\{s\} & \xi(s) & (25.2.1) & \text{the Riemann ξ function} \\ \text{Riemannzeta0}\{s\} & \xi(s) & (25.2.1) & \text{the Riemann theta function} \\ \text{Riemannxieta0}\{s\} & \xi(s) & (25.2.1) & \text{the Riemann theta function} \\ \text{Riemannxieta0}\{s\} & \xi(s) & (25.2.1) & \text{the Riemann theta function} \\ \text{Riemannxieta0}\{s\} & \xi(s) & (25.2.1) & \text{the Riemann theta function} \\ \text{Riemannxieta0}\{s\} & \xi(s) & (25.2.1) & \text{the Riemann theta function} \\ \text{Riemannxieta0}\{s\} & \xi(s) & (25.2.1) & \text{the Riemann theta function} \\ \text{Riemannxieta0}\{s\} & \xi(s) & (25.2.1) & \text{the Riemann theta function} \\ Riemann$	•	a & b & c & \\ a_1 &		ized hypergeometric differential equation
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	\ Diamonnthata	$P \left\{ \begin{array}{cccc} a_1 & b_1 & c_1 & z \\ a_2 & b_2 & c_2 \end{array} \right\}$	(21.2.1)	the Diamonn thate function
$\begin{array}{llllllllllllllllllllllllllllllllllll$		$\theta(\alpha \Omega)$	(21.2.1)	the Riemann theta function
$\theta^{[\alpha]}_{\beta} \hspace{1cm} (21.2.5) \hspace{1cm} \text{the Riemann theta function with characteristics} \\ \text{Riemannthetachar}_{\alpha}^{\beta}_{\beta} (z \Omega) \hspace{1cm} \\ \theta^{[\alpha]}_{\beta}(z \Omega) \hspace{1cm} \\ \text{Riemannxi} \hspace{1cm} \xi \hspace{1cm} (25.4.4) \hspace{1cm} \text{the Riemann } \xi \hspace{1cm} \text{function} \\ \text{Riemannxi0}_{\beta} \hspace{1cm} \xi(s) \hspace{1cm} \\ \text{Riemannzeta} \hspace{1cm} \zeta \hspace{1cm} (25.2.1) \hspace{1cm} \text{the Riemann zeta function} \\ \text{Riemannzeta0}_{\beta} \hspace{1cm} \zeta(s) \hspace{1cm} \\ \text{Rydbergconst} \hspace{1cm} R_{\infty} \hspace{1cm} CODATA \hspace{1cm} \text{the Rydberg constant} \\ \text{ScbigqJacobipolyP}_{\alpha}^{\alpha,\beta} \hspace{1cm} \{n\}_{\alpha,\beta} \hspace{1cm} (18.27.6) \hspace{1cm} \text{the scaled big q-Jacobi polynomial} \\ \text{ScbigqJacobipolyP}_{\alpha}^{\alpha,\beta} \hspace{1cm} \{z,\zeta\} \hspace{1cm} (1.13.20) \hspace{1cm} \text{the Schwarzian} \\ \text{Schwarzian}_{\beta}^{\gamma} \hspace{1cm} (8.2.6) \hspace{1cm} \text{the scaled incomplete gamma function} \\ \text{Scincgamma} \hspace{1cm} \gamma^* \hspace{1cm} (8.2.6) \hspace{1cm} \text{the scaled incomplete gamma function} \\ \text{Scincgamma0}_{\alpha}^{\gamma} \hspace{1cm} (8.2.6) \hspace{1cm} \text{the scaled incomplete gamma function} \\ \text{Scincgamma0}_{\alpha}^{\gamma} \hspace{1cm} (8.2.6) \hspace{1cm} \text{the scaled incomplete gamma function} \\ \text{Scincgamma0}_{\alpha}^{\gamma} \hspace{1cm} (8.2.6) \hspace{1cm} \text{the scaled incomplete gamma function} \\ \text{Scincgamma}_{\alpha}^{\gamma} \hspace{1cm} (8.2.6) \hspace{1cm} \text{the scaled incomplete gamma function} \\ \text{Schwarzian}_{\alpha}^{\gamma} \hspace{1cm} (8.2.6) \hspace{1cm} \text{the scaled incomplete gamma function} \\ \text{Schwarzian}_{\alpha}^{\gamma} \hspace{1cm} (8.2.6) \hspace{1cm} \text{the scaled incomplete gamma function} \\ \text{Schwarzian}_{\alpha}^{\gamma} \hspace{1cm} (8.2.6) \hspace{1cm} \text{the scaled incomplete gamma function} \\ \text{Schwarzian}_{\alpha}^{\gamma} \hspace{1cm} (8.2.6) \hspace{1cm} \text{the scaled incomplete gamma function} \\ \text{Schwarzian}_{\alpha}^{\gamma} \hspace{1cm} (8.2.6) \hspace{1cm} \text{the scaled incomplete gamma function} \\ \text{Schwarzian}_{\alpha}^{\gamma} \hspace{1cm} (8.2.6) \hspace{1cm} \text{the scaled incomplete gamma function} \\ \text{Schwarzian}_{\alpha}^{\gamma} \hspace{1cm} (8.2.6) \hspace{1cm} \text{the scaled incomplete gamma function} \\ \text{Schwarzian}_{\alpha}^{\gamma} \hspace{1cm} (8.2.6) \hspace{1cm} \text{the scaled incomplete gamma}_{\alpha}^{\gamma} \hspace{1cm} (8.2.6) \hspace{1cm} \text{the scaled incomplete gamma}_{\alpha}^{\gamma} \hspace{1cm} (8.2.6) \hspace{1cm} \text{the scaled incomplete gamma}_{\alpha}^{\gamma} \hspace{1cm} (8.2.6) \hspace{1cm} the scaled$		· · · /		
$\theta \begin{bmatrix} \alpha \\ \beta \end{bmatrix}(z \Omega)$ \\Riemannxi \xi \text{(25.4.4)} \text{the Riemann \xi function} \\Riemannxi\empty \xi \xi \xi \text{(s)} \\Riemannzeta \xi \xi \text{(25.2.1)} \text{the Riemann zeta function} \\Riemannzeta\empty \xi \xi \xi \text{(s)} \\Rydbergconst \text{(S)} \\Rydbergconst \text{(S)} \\Rydbergconst \text{(Pach \xi \xi)} \\\SchigqJacobipolyP\alpha\{\beta\}\n\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	-	$ heta igl[egin{array}{c} lpha \ eta \end{array} igr]$	(21.2.5)	the Riemann theta function with characteristics
$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	(ittemannithe tachar (arpha) (it			
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	\ D.i. amannuri		(25.4.4)	the Diemonn & function
$\label{eq:const} $$ \zeta(s)$ $	·		(20.4.4)	the themann & function
$\label{eq:const_relation} $$ \zeta(s)$$ Rydbergconst R_{∞} CODATA the Rydberg constant $$ Rydbergconst R_{∞} CODATA the Rydberg constant $$ chigqJacobipolyP{\alpha}{\beta}_{n}$$ Rydberg constant $$ rhe Rydberg constant $$ chigqJacobipolyP{\alpha}{\beta}_{n}$$ Rydberg constant $$ (18.27.6)$ the scaled big q-Jacobi polynomial $$ chigqJacobipolyP{\alpha}{\beta}_{n}^{(\alpha,\beta)}(x;c,d;q)$$ $			(25.9.1)	the Riemann gots function
$R_{\infty} \qquad \qquad \text{CODATA} \text{the Rydberg constant}$ \scbigqJacobipolyP{\alpha}{\beta}{n} $P_n^{(\alpha,\beta)} \qquad \qquad (18.27.6) \text{the scaled big q-Jacobi polynomial}$ \scbigqJacobipolyP{\alpha}{\alpha}{\beta}{n}\@(x;c,d;q) $P_n^{(\alpha,\beta)}(x;c,d;q)$ \Schwarzian{z}{\zeta} \{z,\zeta} \((1.13.20)\) \text{ the Schwarzian} \scincgamma \(x^* \) \((8.2.6)\) \text{ the scaled incomplete gamma function} \(x^* \) \(x^* \) \(x,z)	·	ζ ((e)	(20.2.1)	the Highlin zeta milchon
$P_n^{(\alpha,\beta)} \qquad (18.27.6) \text{the scaled big q-Jacobi polynomial} \\ \text{ScbigqJacobipolyP{\alpha}{\beta}{n}@{x}{c}{d}{q} \\ P_n^{(\alpha,\beta)}(x;c,d;q) \\ \\ \text{Schwarzian}{z}{\text{Zeta}} \qquad \{z,\zeta\} \qquad (1.13.20) \text{the Schwarzian} \\ \text{Scincgamma} \qquad \gamma^* \qquad (8.2.6) \text{the scaled incomplete gamma function} \\ \text{Scincgamma0{a}{z}} \qquad \gamma^*(a,z) \\ \\ \text{Scincgamma0{a}{z}} \qquad \gamma^*(a,z) \\ \\ \text{Scincgamma0} \\ \text$			СОБАТА	the Rudberg constant
$P_n^{(\alpha,\beta)} \qquad (18.27.6) \text{the scaled big q-Jacobi polynomial} \\ \text{SchigqJacobipolyP}\{\lambda _{n}^{(\alpha,\beta)}(x;c,d;q) \\ P_n^{(\alpha,\beta)}(x;c,d;q) \\ \text{Schwarzian}\{z\}\{\lambda _{n}^{(\alpha,\beta)}(x;c,d;q) \\ \text{Schwarzian}\{$	/irhanet Roomer	n_{∞}	CODATA	the tryuberg constant
$P_n^{(\alpha,\beta)} \qquad (18.27.6) \text{the scaled big q-Jacobi polynomial} \\ \text{SchigqJacobipolyP}\{\lambda _{n}^{(\alpha,\beta)}(x;c,d;q) \\ P_n^{(\alpha,\beta)}(x;c,d;q) \\ \text{Schwarzian}\{z\}\{\lambda _{n}^{(\alpha,\beta)}(x;c,d;q) \\ \text{Schwarzian}\{$	\achimalacohinoluD(\alpha\f\	ho+al/nl		
$\label{eq:localization} $$\operatorname{SchigqJacobipolyP}(\alpha)^{0}(x;c,d;q)$$ Schwarzian\{z\}{\zeta \in \{z,\zeta\}$} (1.13.20) the Schwarzian $$\operatorname{Schwarzian}$$ scincgamma $$\gamma^*$ (8.2.6) the scaled incomplete gamma function $$\operatorname{Schwarzian}^{z}(a,z)$$$	/penigdogeonthoral/athual/		(19 27 6)	the scaled his a Jacobi nelymenial
\scincgamma γ^* (8.2.6) the scaled incomplete gamma function \scincgamma@{a}{z} $\gamma^*(a,z)$	\scbigqJacobipolyP{\alpha}{\	\beta}{n}@{x}{c}{d}{q}	(10.27.0)	the scaled big q-Jacobi polynomial
\scincgamma γ^* (8.2.6) the scaled incomplete gamma function \scincgamma@{a}{z} $\gamma^*(a,z)$	\Schwarzian{z}{\zeta}	$\{z,\zeta\}$	(1.13.20)	the Schwarzian
$\verb \scincgamma0{a}{z} \qquad \qquad \gamma^*(a,z)$	\scincgamma		(8.2.6)	the scaled incomplete gamma function
	\scincgamma@{a}{z}			
	\ScorerGi	Gi	(9.12.4)	the Scorer (or inhomogeneous Airy) function Gi

$T_{E\!X}\ markup$	Expansion	Declared	Proper Name
\ScorerGi@{z}	Gi(z)		
\ScorerHi	Hi	(9.12.5)	the Scorer (or inhomogeneous Airy) function Hi
\ScorerHi@{z}	$\operatorname{Hi}(z)$		
\scRiemanntheta	$\hat{ heta}$	(21.2.2)	the scaled Riemann theta function (or oscillatory part of the theta function)
$\scRiemanntheta 0{z}{\Omega ega}$	$\hat{ heta}(z \Omega)$		
\sec	sec	(4.14.6)	the secant function
\sec@{z}	$\sec(z)$		
\sec@@{z}	$\sec z$		
\sech	sech	(4.28.6)	the hyperbolic secant function
\sech@{z}	$\operatorname{sech}(z)$		
\sech@@{z}	$\operatorname{sech} z$		
\setmod	/	§21.1	the set modulus operator
\shiftChebyshevpolyT{n}	T_n^*	§18.3	the shifted Chebyshev polynomial of the first kind
\shiftChebyshevpolyT{n}@{x}	$T_n^*(x)$	3-0.0	
\shiftChebyshevpolyU{n}	U_n^*	§18.3	the shifted Chebyshev polynomial of the second kind
\shiftChebyshevpolyU{n}@{x}	$U_n^*(x)$		
\shiftfactorial{a}{k}	$[a]_k$	(35.4.1)	the partitional shifted factorial
\shiftJacobipolyG{n}	G_n	(18.1.2)	the shifted Jacobi polynomial
\shiftJacobipolyG{n}@{p}{q}{x}	$G_n(p,q,x)$	(10.11.2)	the shirted vaccost polynomial
\shiftLegendrepolyP{n}	P_n^*	§18.3	the shifted Legendre polynomial
\shiftLegendrepolyP{n}@{x}	$P_n^*(x)$	310.0	the shirted Legendre polynomial
\shiftsinint	si	(6.2.10)	the shifted sine integral
\shiftsinint@{z}	$\operatorname{si}(z)$	(0.2.10)	the shirted sine integral
\sign	sign	Intro.	the sign of a number x
\sign@{x}	sign(x)	111010.	
\sign@0{x}	$\operatorname{sign} x$		
\sin	sin	(4.14.1)	the sine function
\sin@{z}	$\sin(z)$	(1.11.1)	the sine ranetion
\sin@@{z}	$\sin z$		
\sinh	sinh	(4.28.1)	the hyperbolic sine function
\sinh@{z}	$\sinh(z)$	(4.20.1)	the hyperbone sine runetion
\sinh@@{z}	$\sinh z$		
\sinhint	Shi	(6.2.15)	the hyperbolic sine integral
\sinhint \sinhint@{z}	Shi(z)	(0.2.10)	the hyperbone sine integral
\sinint \(\sinint \)	Sin(z)	(6.2.9)	the sine integral Si
\sinint \sinint0{z}		(0.2.9)	the sine integral of
· · · · · · · · · · · · · · · · · · ·	$\operatorname{Si}(z)$	(10.47.9)	the spherical Bessel function of the first kind
\sphBesselJ{n}	\int_{n}	(10.47.3)	the spherical Bessel function of the first kind
\sphBesselJ{n}@{z}	$j_n(z)$	(10 47 4)	
\sphBesselY{n}	y_n	(10.47.4)	the spherical Bessel function of the second kind
\sphBesselY{n}@{z}	$y_n(z)$		1 6 1 1 11 1100
$\spheigvalLambda\{m\}\{n\}$			
	λ_n^m	§30.3(i)	the eigenvalues of the spheroidal differential equa- tion
\spheigvalLambda{m}{n}@{\gamma^	λ_n^m	§30.3(i)	
	λ_n^m (2) $\lambda_n^m(\gamma^2)$	- ,,	tion
\sphHankelh{1}{n}	λ_n^m $ \lambda_n^m (\gamma^2) $ $ h_n^{(1)} $	- ,,	
\sphHankelh{1}{n} \sphHankelh{1}\n}@{z}	$\begin{array}{c} \lambda_n^m \\ \lambda_n^m (\gamma^2) \\ h_n^{(1)} \\ h_n^{(1)}(z) \end{array}$	(10.47.5)	tion the spherical Hankel function of the first kind
\sphHankelh{1}{n}	λ_{n}^{m} 72} $\lambda_{n}^{m}(\gamma^{2})$ $h_{n}^{(1)}$ $h_{n}^{(2)}$	(10.47.5)	tion
\sphHankelh{1}{n} \sphHankelh{1}\n}@{z}	$\begin{array}{c} \lambda_n^m \\ \lambda_n^m (\gamma^2) \\ h_n^{(1)} \\ h_n^{(1)}(z) \end{array}$	(10.47.5)	the spherical Hankel function of the first kind

$T_{EX} \ markup$	Expansion	Declared	Proper Name
lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	$Y_{l,m}(heta,\phi)$		
\sphwavePs{m}{n}	$\frac{Ps_n^m(\theta, \phi)}{Ps_n^m}$	§30.6	the spheroidal wave function of complex argume
\sphwavePs{m}{n}@{z}{\gamma^2}	$Ps_n^m(z,\gamma^2)$	500.0	
\sphwavePsreal{m}{n}	$\frac{Ps_n^m(z,\gamma^2)}{Ps_n^m}$	§30.4(i)	the spheroidal wave function of first kind
\sphwavePsreal{m}{n}@{x}{\gamma	a^2}	3 ()	r
1	$Ps_n^m(x,\gamma^2)$		
\sphwaveQs{m}{n}	$\frac{Ps_n^m\big(x,\gamma^2\big)}{Qs_n^m}$	§30.6	the spheroidal wave function of complex argume
$\sphwaveQs{m}{n}@{z}{\gamma^2}$	$Qs_n^m(z,\gamma^2)$		
\sphwaveQsreal{m}{n}	Qs^m_n	§30.5	the spheroidal wave function of second kind
$\sphwaveQsreal{m}{n}@{x}{\gamma}$	a^2}		
	$Qs_n^mig(x,\gamma^2ig)$		
\Stieltjestrans	S	(1.14.47)	the Stieltjes transform of a function
\Stieltjestrans@{f}	$\mathcal{S}\left(f\right)$		
\Stieltjestrans@@{f}	$\mathcal{S} f$		
\Stieltjestrans@{f}@{s}	$\mathcal{S}\left(f\right)\left(s\right)$		
$\Stieltjestrans@@{f}@{s}$	Sf(s)		
\StieltjesWigertpolyS{n}	S_n	(18.27.18)	the Stieltjes-Wigert polynomial
$\label{lem:stieltjesWigertpolyS} $$ \StieltjesWigertpolyS{n}@{x}{q}$ $$$	}		
	$S_n(x;q)$		
\StirlingnumberS	S	§26.8(i)	the Stirling number of the second kind
$\verb \StirlingnumberS@{n}{k} $	S(n,k)		
\Stirlingnumbers	s	§26.8(i)	the Stirling number of the first kind
$\verb \Stirlingnumbers@{n}{k} $	s(n,k)		
\StruveH{\nu}	$\mathbf{H}_{ u}$	(11.2.1)	the Struve function \mathbf{H}_{ν}
$\Time {nu}@{z}$	$\mathbf{H}_{ u}(z)$		
\StruveK{\nu}	$\mathbf{K}_{ u}$	(11.2.5)	the Struve function \mathbf{K}_{ν}
\StruveK{\nu}@{z}	$\mathbf{K}_{ u}(z)$		
\sumdivisors{\alpha}	σ_{lpha}	(27.2.10)	the sum of powers of divisors of n
$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	$\sigma_{\alpha}(n)$		
\surfharmonicY{1}{m}	Y_l^m	(14.30.2)	the surface harmonic of the first kind
$\script{surfharmonicY{1}{m}@{\theta}{\columnwdef}}$			
	$Y_l^m(\theta,\phi)$		
\tan	tan	(4.14.4)	the tangent function
$\tan Q\{z\}$	$\tan(z)$		
\tan@@{z}	$\tan z$		
\tanh	tanh	(4.28.4)	the hyperbolic tangent function
$\tanh Q\{z\}$	$\tanh(z)$		
\tanh@@{z}	$\tanh z$		
\terminant{p}	F_p	(2.11.11)	the terminant function
$ ext{terminant}\{p\}@\{z\}$	$F_p(z)$		
\trace	tr_	Intro.	the trace of a matrix
$\transpose{\mathbf{X}}$	\mathbf{X}^{T}	?	the transpose of a matrix
lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	gamma}{m}{n}		
	$P_{m,n}^{\alpha,\beta,\gamma}$	(18.37.7)	the triangle polynomial
$\trianglepoly{\alpha}{\beta}{\c}$			
-	$P_{m,n}^{\alpha,\beta,\gamma}(x,y)$		
\ultrasphpoly{\lambda}{n}	$C_n^{(\lambda)}$	§18.3	the ultraspherical (or Gegenbauer) polynomial
	$C_n^{(\lambda)}(x)$		_

38 C MACROS

T _E X markup	Expansion	Declared	Proper Name
\umbcanonint	$\Psi^{(\mathrm{U})}$	(36.2.5)	the umbilic canonical integral function
\umbcanonint@{x}	$\Psi^{(\mathrm{U})}(x)$		
\umbcatastrophe	$\Phi^{(\mathrm{U})}$	$\S 36.2$	the umbilic catastrophe
$\label{lem:lembcatastrophe} $$ \operatorname{umbcatastrophe}(s)_{t}(x) $$$	$\Phi^{(\mathrm{U})}(s,t;x)$		
\umbdiffrcanonint	$\Psi^{ m (U)}$	(36.2.11)	the umbilic diffraction canonical integral function
$\verb \umbdiffrcanonint@{x}{k} $	$\Psi^{(\mathrm{U})}(x;k)$		
7			
\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}	$\mathcal{V}_{a,b}(f)$	(= 10 t)	
\VoigtH	H	(7.19.4)	the line broadening function
\VoigtH@{a}{u}	H(a,u)	(= 10.1)	
\VoigtU	U	(7.19.1)	the Voigt function U
\VoigtU@{x}{t}	U(x,t)	(- 10.0)	
\VoigtV	V	(7.19.2)	the Voigt function V
\VoigtV@{x}{t}	V(x,t)		
V		00=10(***)	
\WaringG	G	§27.13(111)	Waring's function G
\WaringG@{k}	G(k)	00=10(***)	***
\Waringg	g	§27.13(iii)	Waring's function g
\Waringg@{k}	g(k)	(11.10.0)	11 777 1 6 4
\WeberE{\nu}	$\mathbf{E}_{ u}$	(11.10.2)	the Weber function
\WeberE{\nu}@{z}	$\mathbf{E}_{ u}(z)$	(00.0.0)	(1. 117.
\Weierstrasspinvar	β)	(23.3.8)	the Weierstrass \wp -function (on invariants)
$\label{lem:weighted} $$ \end{subarole} Weierstrasspinvar@{z}_{g_2}_{g_2}.$			
\Weierstrasspinvar@@{z}{g_2}{g	$\wp(z;g_2,g_3)$		
(weierstrasspinvareetz;tg_z;tg	$\wp(z)$		
\Weierstrassplatt	β ^(~)	(23.2.4)	the Weierstrass φ-function (on Lattice)
\Weierstrassplatt@{z}{L}	$\wp(z L)$	(20.2.4)	the vectoriass printetion (on Lauree)
\Weierstrassplatt@{z}{L}	$\wp(z E)$		
\Weierstrasssigmainvar	σ	§23.3(i)	the Weierstrass sigma function σ (on invariants)
\Weierstrasssigmainvar@{z}{g_2		320.0(1)	the vectoriass signa function o (on invariants)
(""" 10101111111111111111111111111111111	$\sigma(z;g_2,g_3)$		
\Weierstrasssigmainvar@@{z}{g_			
	$\sigma(z)$		
\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}		· ()	3 (
-	$\zeta(z;g_2,g_3)$		
\Weierstrasszetainvar@@{z}{g_2			
	$\zeta(z)$		
\Weierstrasszetalatt	ζ	(23.2.5)	the Weierstrass zeta function ζ (on Lattice)
$\verb \Weierstrasszetalatt0{z}{L} $	$\zeta(z L)$		
$\verb \Weierstrasszetalatt@@{z}{L} $	$\zeta(z)$		
\WhittakerconfhyperM{\kappa}{\			
	$M_{\kappa,\mu}$	(13.14.2)	the Whittaker confluent hypergeometric function
			$M_{\kappa,\mu}$ continued on next pa

T _E X markup	Expansion	Declared	Proper Name
$\WhittakerconfhyperM{\kappa}$			
	$M_{\kappa,\mu}(z)$		
\kappa			
	$W_{\kappa,\mu}$	(13.14.3)	the Whittaker confluent hypergeometric function $W_{\kappa,\mu}$
\kappa	}{\mu}@{z} $W_{\kappa,\mu}(z)$		
\WhittakerparaD{\nu}	$D_{ u}$	§12.1	Whittaker's notation for the parabolic cylinder function
$\WhittakerparaD{\nu}@{z}$	$D_{ u}(z)$		
\Wignerninejsym	9j	(34.6.1)	
\Wignerninejsym0{j_{11}}{j_	$ \begin{cases} \{12\} \} \{j_{13}\} \{j_{21}\} \{j_{11} & j_{12} & j_{13} \\ j_{21} & j_{22} & j_{23} \\ j_{31} & j_{32} & j_{33} \end{cases} $	[j_{22}}{j_	.{23}}{j_{31}}{j_{32}}{j_{33}}
	$(j_{31} j_{32} j_{33})$		
\Wignersixjsym	6j	(34.4.1)	the Wigner $6j$ symbol
$\label{limits} $$ \widetilde{j_1}_{j_2}_{j} $$$	$ \begin{cases} j_1 & j_2 & j_3 \\ l_1 & l_2 & l_3 \end{cases} $ $ 3j$		
\Wignerthreejsym	3j	(34.2.4)	the Wigner $3j$ symbol
\Wignerthreejsym@{j_1}{j_2}	{j_3}{m_1}{m_2}{m_3}		
	$egin{pmatrix} j_1 & j_2 & j_3 \ m_1 & m_2 & m_3 \end{pmatrix}$		
	$\begin{pmatrix} m_1 & m_2 & m_3 \end{pmatrix}$		
$\label{linear_section} $$ \WilsonpolyW{n}@{x^2}{a}{b}$$	{c}{d} $W_nig(x^2;a,b,c,dig)$	§18.25	the Wilson polynomial
\Wronskian	W	(1.13.4)	the Wronskian
\Wronskian@{w_1,w_2}	$\mathscr{W}\left\{w_1,w_2\right\}$		
\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}	eta_k	§9.9(i)	the $k^{\rm th}$ complex zero of Airy Bi
\zBesselj{\nu}{m}	$j_{ u,m}$	§10.21(i)	$J_{ u}$
\zBessely{\nu}{m}	$y_{ u,m}$	§10.21(i)	the $m^{ m th}$ zero of the Bessel function of the second kind $Y_{ u}$
\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}	eta_k'	§9.9(i)	the k^{th} complex zero of Airy Bi'
\zderivBesselj{\nu}{m}	$j_{ u,m}$	§10.21(i)	<u> </u>
\zderivBessely{\nu}{m}	$y'_{ u,m}$	§10.21(i)	
\zonalpolyZ{\kappa} \zonalpolyZ{\kappa}@{\mathb	Z_{κ} f{T}}	§35.4(i)	the zonal polynomial
The Jacobs Comments	$Z_{\kappa}(\mathbf{T})$		
	~ \ /		continued on next page

C MACROS

 $T_{\!E\!X}$ markup Expansion Declared Proper Name

D Macros sorted by notation

Expansion	$T_{EX} markup$	Declared	Proper Name
$\frac{f x}{\overline{z}}$	\conj{z}	(1.9.11)	the complex conjugate of a complex number z
$\stackrel{\sim}{n!_q}$	\qfactorial{n}{q}	(5.18.2)	the q-factorial
· · · q	\dotprod	?	the vector dot product operator
/	\setmod	§21.1	the set modulus operator
/ ×	\cartprod	§23.1	the Cartesian product operator
×	\crossprod	?	the vector cross product operator
~	\asympeq	(2.1.1)	asymptotically equal
~	\asympexp	§2.1(iii)	asymptotic expansion (the right-hand side is the
	/gp/mbexb	,	asymptotic expansion (the light-hand side is the
	\divides	?	the divides operator operator
x	\abs{x}		the absolute value of x
x	\card{x}	$\S 26.1$	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
$[p/q]_f(z)$	$\displaystyle \P_{q}_{f}@{z}$	§3.11(iv)	the Padé approximant
$[p/q]_f(z)$ $\begin{bmatrix} n \\ m \end{bmatrix}_q$	$\displaystyle \qbinom\{n\}\{m\}\{q\}$	(17.2.27)	the q -binomial coefficient
$\begin{bmatrix} n & n \\ n_1, n_2, \dots, n_3 \end{bmatrix}_q$	$\q multinomial {n} {n_1,n_2, l}$	$dots,n_3$ {q}	
*		$\S 26.16$	the q -multinomial coefficient
$(a)_n$	$\P \$	§5.2(iii)	the Pochhammer symbol (or shifted factorial)
(a_1,\ldots,a_n)	$\pgcd{a_1,\ldots,a_n}$	$\S 27.1$	the greatest common divisor
(n p)	$\Jacobisym{n}{p}$	$\S 27.9$	the Jacobi symbol
(n p)	\Legendresym{n}{p}	§27.9	the Legendre symbol
$(a;q)_m$	\q Pochhammer $\{a\}\{q\}\{n\}$	§17.2(i)	the q-Pochhammer symbol (or q-shifted factorial)
$(a_1, a_2, \ldots, a_k; q)_n$			
	$\qquad \qquad $	$[2,\ldots,a_k]$	}{q}{n}
			the q -multiple Pochhammer symbol
$(j_1 \ m_1 \ j_2 \ m_2 j_1 \ j_2$			
	$\ClebschGordan{j_1}{m_1}{j_1}$		
		§34.1	the Clebsch-Gordan coefficients
$\binom{z}{m}$	\binom{z}{m}	$\S 1.2(i)$	the binomial coefficient
$\binom{z}{m}_{n}_{n_1,n_2,,n_k}$	$\mathbf{n}_{n_1,n_2,\ldots}$	lots,n_k}	
		§26.4(i)	the multinomial coefficient
$\begin{pmatrix} j_1 & j_2 & j_3 \\ m_1 & m_2 & m_2 \end{pmatrix}$	$\Wignerthreejsym@{j_1}{j_2}$	·{j_3}{m_1}{m_	_2}{m_3}
(1111 1112 1113)		(34.2.4)	the Wigner $3j$ symbol
$\{z,\zeta\}$	$\Schwarzian\{z\}\{\zeta\}$	The second secon	the Schwarzian
$ \begin{cases} j_1 & j_2 & j_3 \\ l_1 & l_2 & l_3 \end{cases} $	$\label{limits} $$ \widetilde{j_1}_{j_2}_{j_2} = \sum_{j=1}^{\infty} \frac{1}{j_2} \left(\frac{1}{j_2} \right) \left(\frac{1}{j_2} \right)$	_3}{1_1}{1_2}	}{1_3}
("1 "2 "3)		(34.4.1)	the Wigner $6j$ symbol
$ \left\{ \begin{array}{cccc} j_{11} & j_{12} & j_{13} \\ j_{21} & j_{22} & j_{23} \\ j_{31} & j_{32} & j_{33} \end{array} \right\} $			
(301 302 303)			continued on next page

Expansion	$T_{EX} markup$	Declared	Proper Name
\Wignerninejsym@{j	_{11}}{j_{12}}{j_{13}}{j_{21}}{j		
		(34.6.1)	the Wigner $9j$ symbol
$\langle \Lambda, \phi \rangle$	$\displaystyle \prod_{x \in A} \operatorname{Lambda}_{\phi}$	§1.16(i)	the inner-product (by integration)
$\binom{n}{k}$	\Euleriannumber{n}{k}	§26.14(i)	the Eulerian number
A			
a_0	\Bohrradius	CODATA	the Bohr radius
a_k	\zAirya{k}	$\S 9.9(i)$	the k^{th} zero of Airy Ai
a_k'	\zderivAirya{k}		the k^{th} zero of Airy Ai'
${f A}_ u(z)$	\AngerWeberA{\nu}@{z}	(11.10.4)	the Anger–Weber function
$A_{\nu}(\mathbf{T})$	$\label{lem:besselAmat} $$ \BesselAmat{\nu}@{\mathbb{T}}$$	§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
$a_{\nu}^{n}(k^{2})$	\Lameeigvala{n}{\nu}@{k^2}	§29.3(i)	the eigenvalues of Lamé's equation a_{ν}^{n}
$A_k(z,p)$	\genAiryintA{k}@{z}{p}	§9.13(ii)	the generalized Airy function (integral) A_k
$\operatorname{Ai}(z)$	\AiryAi@{z}	§9.2(i)	the Airy function Ai
α	\finestructureconst		the fine-structure constant
$\operatorname{am}(x,k)$	\Jacobiamk@{x}{k}	(22.16.1)	the Jacobi's amplitude function (of modulus k)
$\operatorname{arccd}(x,k)$	\aJacobiellcdk@{x}{k}	§22.15(i)	the inverse of the Jacobian elliptic function cd (of
		322.10(1)	modulus k)
$\operatorname{arccn}(x,k)$	\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
Arccos(z)	$\Lambda\cos(z)$	(4.23.2)	the multivalued inverse of the cosine function
$\operatorname{arccosh}(z)$	$\acosh@{z}$	§4.37(ii)	the inverse of the hyperbolic cosine function
$\operatorname{Arccosh}(z)$	$\Lambda cosh0{z}$	(4.37.2)	the multivalued inverse of the hyperbolic cosine function
$\operatorname{arccot}(z)$	\acot@{z}	(4.23.9)	the inverse of the cotangent function
$\operatorname{Arccot}(z)$	\Acot@{z}	(4.23.6)	the multivalued inverse of the cotangent function
$\operatorname{arccoth}(z)$	$\acoth @{z}$	(4.37.9)	the inverse of the hyperbolic cotangent function
$\operatorname{Arccoth}(z)$	$\Lambda \subset \mathbb{Z}$	(4.37.6)	the multivalued inverse of the hyperbolic cotangent function
arccs(x,k)	$\aggreen a Jacobiellcsk@{x}{k}$	§22.15(i)	the inverse of the Jacobian elliptic function cs (of modulus k)
$\operatorname{arccsc}(z)$	\acsc@{z}	(4.23.7)	the inverse of the cosecant function
$\operatorname{Arccsc}(z)$	\Acsc@{z}	(4.23.4)	the multivalued inverse of the cosecant function
$\operatorname{arccsch}(z)$	\acsch@{z}	(4.37.7)	the inverse of the hyperbolic cosecant function
$\operatorname{Arccsch}(z)$	\Acsch@{z}	(4.37.4)	the multivalued inverse of the hyperbolic cosecant
$\operatorname{arcdc}(x,k)$	$\verb \aJacobielldck@{x}{k} $	§22.15(i)	function the inverse of the Jacobian elliptic function dc (of
$\operatorname{arcdn}(x,k)$	$\verb \aJacobielldnk@{x}{k} $		modulus k) the inverse of the Jacobian elliptic function dn (of
arcds(x,k)	$\verb \aJacobielldsk0{x}{k} $		modulus k) the inverse of the Jacobian elliptic function ds (of modulus k)
$\operatorname{arcnc}(x,k)$	$\adjacobiellnck@\{x\}\{k\}$		the inverse of the Jacobian elliptic function nc (of modulus k)
$\operatorname{arcnd}(x,k)$	$\verb \aJacobiellndk@{x}{k} $		the inverse of the Jacobian elliptic function nd (of modulus k)
arcns(x,k)	$\verb \aJacobiellnsk@{x}{k} $		the inverse of the Jacobian elliptic function ns (of modulus k)
			continued on next page

Expansion	$T_{E\!X}\ markup$	Declared	Proper Name
$\operatorname{arcpq}(x,k)$	$\agenJacobiellk{p}{q}@{x}{k}$?	the inverse of the generic Jacobian elliptic function
			pq (of modulus k)
$\operatorname{arcsc}(x,k)$	$\adjacobiellsck@{x}{k}$	§22.15(i)	the inverse of the Jacobian elliptic function sc (o modulus k)
$\operatorname{arcsd}(x,k)$	lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:		the inverse of the Jacobian elliptic function ds (o modulus k)
arcsec(z)	\ac{z}	(4.23.8)	the inverse of the secant function
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
Arcsech(z)	\Asech@{z}	(4.37.5)	the multivalued inverse of the hyperbolic secan
()	((=13713)	function
$\arcsin(z)$	$\asin@{z}$	§4.23(ii)	the inverse of the sine function
Arcsin(z)	\Asin@{z}	(4.23.1)	the multivalued inverse of the sine function
$\arcsin(z)$	\asinh@{z}	§4.37(ii)	the inverse of the hyperbolic sine function
Arcsinh(z)	\Asinh@{z}	(4.37.1)	the multivalued inverse of the hyperbolic sine func
Arcsiiii(2)	(ASIIII e (Z)	(4.57.1)	tion
$\arcsin(x,k)$	$\adjacobiellsnk@{x}{k}$	§22.15(i)	the inverse of the Jacobian elliptic function sn (o
			modulus k)
$\arctan(z)$	$\lambda = 0$	§4.23(ii)	the inverse of the tangent function
Arctan(z)	\Atan@{z}	(4.23.3)	the multivalued inverse of the tangent function
$\operatorname{arctanh}(z)$	$\alpha \$	§4.37(ii)	the inverse of the hyperbolic tangent function
Arctanh(z)	$\Lambda = \Lambda $	(4.37.3)	the multivalued inverse of the hyperbolic tangen
			function
3)	00.0(1)	ath CA: D:
b_k	\zAiryb{k}	§9.9(i)	the k^{th} zero of Airy Bi
b'_k	\zderivAiryb{k}	000 = (1)	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
$B_{\nu}(\mathbf{T})$	$\label{lem:besselBmat} $$\BesselBmat{\nu}@{\mathbb{T}}$$	(35.5.3)	the Bessel function of matrix argument (second kind)
$b_n(q)$	$Mathieueigvalb\{n\}$	$\S 28.2(v)$	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
$b_{\nu}^{n}(k^{2})$	$\Lameeigvalb{n}{\n}$	§29.3(i)	the eigenvalues of Lamé's equation b_{ν}^{n}
$B_n^{(\ell)}(x)$	\genBernoullipolyB{\ell}{n}@{x		the eigenvalues of Lame 5 equation op
D_n (x)	/genpernourriporyb(/err//n/e/x	§24.16	the generalized Bernoulli polynomial
B_n	\BernoullinumberB{n}	§24.10	the Bernoulli number
B(a,b)	\EulerBeta@{a}{b}	(5.12.1)	the Euler beta function
		(35.3.3)	
$B_m(a,b)$	\multivarEulerBeta{m}@{a}{b}	· /	multivariate beta function
$B_q(a,b)$	\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
$B_x(a,b)$	\incBeta{x}@{a}{b}	(8.17.1)	the incomplete beta function
$\mathrm{bei}_{\nu}(x)$	\Kelvinbei{\nu}@{x}	(10.61.1)	the Kelvin function bei _{\nu}
$\operatorname{ber}_{\nu}(x)$	\Kelvinber{\nu}@{x}	00.0(1)	the Kelvin function ber $_{\nu}$
β_k	\zAirybeta{k}	§9.9(i)	the k^{th} complex zero of Airy Bi
β_k'	\zderivAirybeta{k}	/a = = =>	the k^{th} complex zero of Airy Bi'
$\beta_n(x,q)$	\qBernoullipolybeta{n}@{x}{q}	(17.3.7)	the q-Bernoulli polynomial
$\operatorname{Bi}(z)$	\AiryBi@{z}	§9.2(i)	the Airy function Bi
	\	T 4	the set of secondary second
C	\Complexes	Intro.	the set of complex numbers the speed of light
c	\lightspeed	CODATA	continued on next page

Expansion	$T_{FX} \ markup$	Declared	Proper Name
C(n)	\Catalannumber@{n}	(26.5.1)	the Catalan number
C(z)	\Fresnelcosint@{z}	(7.2.7)	the Fresnel cosine integral
$c_k(n)$	\mathbb{R}_{n}	(27.10.4)	Ramanujan's sum
$\mathscr{C}_{ u}(z)$	\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)
~(1)		,	function
c(n)	\ncompositions@{n}	$\S 26.11$	the number of compositions of n
$c_m(n)$	\ncompositions[m]@{n}	Ü	the number of compositions of n into exactly m
- 110 ()			parts
$C\left(a,b\right)$	\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 <i>n</i> -times differen-
(, .)	(3	tiable on the interval (a, b)
$C_n^{(\lambda)}(x)$	$\displaystyle \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	§18.3	the ultraspherical (or Gegenbauer) polynomial
c(condition, n)	(urtrasphpory ((rambda) (h) @(x)	310.0	the ditraspherical (of degenbader) polynomial
c(condition, n)	\nrestcompositions@{con	ditionll.	nl
	/mrestcompositionse (/mathrm (con	$\S26.11$	the restricted number of compositions of n into
		320.11	exactly m parts
$C_n(x;a)$	\CharlierpolyC{n}@{x}{a}	§18.19	the Charlier polynomial
$c_n(x,u)$ $c(\epsilon,\ell;r)$	\irregCoulombc@{\epsilon}{\ell}		the Charner polynomian
$c(\epsilon, \epsilon, \tau)$	/illegcoulompce/(ebsilon)/(ell)	(33.14.9)	the irregular Coulomb (radial) function (for attrac-
		(55.14.9)	tive interactions) c
$C_n(x;\beta \mid q)$	$\contqultrasphpoly{n}@{x}{\beta}$	}{a}	tive interactions) c
$C_n(x, \beta \mid q)$	(consider trasphpory (ii) @(x) (\best	_	the continuous q -ultraspherical (or Rogers) poly-
		(10.20.13)	nomial
$\operatorname{cd}\left(u,k\right)$	$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	(22.2.8)	the Jacobian elliptic function cd (of modulus k)
$cdE_{2n+2}^m(z,k^2)$	\LamepolycdE $\{m\}$ $\{2n+2\}$ $\{k^2\}$	(29.12.7)	the Lamé polynomial cdE_{2n+2}^m
$\operatorname{ce}_n(z,q)$	\Mathieuce{n}@{z}{q}	§28.2(vi)	the Mathieu function ce_n
$\operatorname{Ce}_ u(z,q)$	\machieuce\ny@\z\\q\ \modMathieuCe\\nu\@\z\\q\	(28.20.3)	the modified Mathieu function Ce_{ν}
$cE_{2n+1}^m(z,k^2)$	\LamepolycE $\{m\}$ $\{2n+1\}$ 0 $\{z\}$ $\{k^2\}$	(29.12.3)	the Lamé polynomial cE_{2n+1}^m
$\operatorname{cel}(k_c, p, a, b)$	\LamepolyCE\mf\2\m+1f@\2f\k 2f	(29.12.3)	the Lame polynomial c_{L2n+1}
$\operatorname{cci}(\kappa_c, p, a, o)$	\Bulirschcompellintcel@{k_c}{p}	イッナイレナ	
	(bullibencompetitingcore(k_c)(p)	(19.2.11)	Bulirsch's complete elliptic integral
Chi(z)	\coshint@{z}	(6.2.16)	the hyperbolic cosine integral
$\chi(n,k)$	\Dirichletchar@{n}{k}	§27.8	the Dirichlet character
$\chi_r(n,k) = \chi_r(n,k)$	\Dirichletchar[r]@{n}{k}	321.0	the Dirichlet character
$\operatorname{Ci}(z)$	\cosint@{z}	(6.2.11)	the cosine integral Ci
Ci(z) Ci(a,z)	\gencosint@{z} \gencosint@{a}{z}	(8.21.1)	the generalized cosine integral
$\operatorname{ci}(a,z)$	\genshiftcosint@{a}{z}	(8.21.2) $(8.21.1)$	the generalized cosine integral
Cin(z)	\cosintCin@{z}	(6.21.1) $(6.2.12)$	the cosine integral Cin
$\operatorname{cn}(u,k)$	\Jacobiellcnk@{u}{k}	(0.2.12) $(22.2.5)$	the Jacobian elliptic function on (of modulus k)
$\cos(z)$	\cos@{z}	(4.14.2)	the cosine function k
$\cos(z)$ $\cos_q(x)$	\qCos\{q}\@{x}	(4.14.2) $(17.3.6)$	the q-cosine function Cos_q
$\cos_q(x)$		(17.3.5) $(17.3.5)$	the q-cosine function \cos_q the q-cosine function \cos_q
cosh(z)	\qcos{q}@{x} \cosh@{z}	(4.28.2)	the hyperbolic cosine function \cos_q
$\cot(z)$	\cot@{z}	(4.26.2) $(4.14.7)$	the cotangent function
coth(z)	\coth@{z}	(4.28.7) $(22.2.9)$	the hyperbolic cotangent function the Jacobian elliptic function cs (of modulus k)
cs(u,k)	\Jacobiellcsk@{u}{k} \csc@{z}	(22.2.9) $(4.14.5)$	the Jacobian elliptic function cs (of modulus κ) the cosecant function
$\csc(z) \\ \operatorname{csch}(z)$			
$\operatorname{cscn}(z)$ curl	\csch@{z} \curl	(4.28.5) $(1.6.22)$	the hyperbolic cosecant function the curl operator
D	/cut I	(1.0.22)	inc curr operator
r			

Expansion	$T_{E}X \ markup$	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 o k factors
$D_{ u}(z)$	lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	§12.1	Whittaker's notation for the parabolic cylinder function
$D(\phi,k)$	$\label{lintDk0{phi}{k}} $$ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	(19.2.6)	the incomplete elliptic integral of Janke (of modulus k)
$D_j(\nu,\mu,z)$	lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	(28.28.24)	the cross-products of modified Mathieu functions and their derivatives
dc(u,k)	$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	(22.2.8)	the Jacobian elliptic function dc (of modulus k)
$\mathrm{Dc}_j(n,m,z)$	$\label{lem:lembor} $$ \mathbf{m}_{z} = \mathbb{C}_{j}^{m}_{m}(z) .$		the cross-products of radial Mathieu functions and their derivatives Dc_j
$dE_{2n+1}^m(z,k^2)$	$\label{lamepolydE(m){2n+1}@{z}{k^2}} $$ LamepolydE(m){2n+1}@{z}{k^2}$	(29.12.4)	the Lamé polynomial dE_{2n+1}^m
$\delta_{j,k}$	\Kroneckerdelta{j}{k}	Intro.	the Kronecker delta
$\Delta(au)$	\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
dn(u,k)	$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	(22.2.6)	the Jacobian elliptic function dn (of modulus k)
ds(u,k)	$\Jacobielldsk@{u}{k}$	(22.2.7)	the Jacobian elliptic function ds (of modulus k)
$\mathrm{Ds}_j(n,m,z)$	lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:		the cross-products of radial Mathieu functions and their derivatives Ds_j
$\mathrm{Dsc}_j(n,m,z)$	lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	(28.28.40)	the cross-products of radial Mathieu functions and their derivatives Dsc_j
			J
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)
$E_q(x)$	$\qExp{q}0{x}$	(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
$E_1(z)$) : . naf]	(0.0.4)	
	$\ensuremath{\texttt{expintE0\{z\}}}$	(6.2.1)	the exponential integral E_1
$E_p(z)$	\expintE@{z} \genexpintE{p}@{z}	(6.2.1) $(8.19.1)$	the exponential integral E_1 the generalized exponential integral
$E_p(z) \ \mathbf{E}_{ u}(z)$	=		
$\mathbf{E}_{\nu}(z) \\ E_{a,b}(z)$	\genexpintE{p}@{z}	(8.19.1)	the generalized exponential integral
	\genexpintE{p}@{z} \WeberE{\nu}@{z}	(8.19.1) $(11.10.2)$	the generalized exponential integral the Weber function the Mittag-Leffler function
$E_{\nu}(z)$ $E_{a,b}(z)$ $E'(k)$	\genexpintE{p}@{z} \WeberE{\nu}@{z} \MittagLefflerE{a}{b}@{z}	(8.19.1) (11.10.2) (10.46.3) (19.2.9)	the generalized exponential integral the Weber function the Mittag-Leffler function (Legendre's) complementary complete elliptic in
$\begin{aligned} \mathbf{E}_{\nu}(z) \\ E_{a,b}(z) \\ E'(k) \end{aligned}$ $\widetilde{E}_{n}(x)$	<pre>\genexpintE{p}@{z} \WeberE{\nu}@{z} \MittagLefflerE{a}{b}@{z} \ccompellintEk@{k} \perEulerE{n}@{x}</pre>	(8.19.1) (11.10.2) (10.46.3) (19.2.9) §24.2(iii)	the generalized exponential integral the Weber function the Mittag-Leffler function (Legendre's) complementary complete elliptic in tegral of the second kind (of modulus k) the periodic Euler function
$\begin{aligned} \mathbf{E}_{\nu}(z) \\ E_{a,b}(z) \\ E'(k) \end{aligned}$ $\widetilde{E}_{n}(x) \\ E_{n}^{(\ell)}(x)$	<pre>\genexpintE{p}@{z} \WeberE{\nu}@{z} \MittagLefflerE{a}{b}@{z} \ccompellintEk@{k} \perEulerE{n}@{x} \genEulerpolyE{\ell}{n}@{x}</pre>	(8.19.1) (11.10.2) (10.46.3) (19.2.9) §24.2(iii) §24.16	the generalized exponential integral the Weber function the Mittag-Leffler function (Legendre's) complementary complete elliptic in tegral of the second kind (of modulus k)
$\begin{aligned} \mathbf{E}_{\nu}(z) \\ E_{a,b}(z) \\ E'(k) \end{aligned}$ $\widetilde{E}_{n}(x)$	<pre>\genexpintE{p}@{z} \WeberE{\nu}@{z} \MittagLefflerE{a}{b}@{z} \ccompellintEk@{k} \perEulerE{n}@{x}</pre>	(8.19.1) (11.10.2) (10.46.3) (19.2.9) §24.2(iii)	the generalized exponential integral the Weber function the Mittag-Leffler function (Legendre's) complementary complete elliptic in tegral of the second kind (of modulus k) the periodic Euler function the generalized Euler polynomial the Euler number (Legendre's) incomplete elliptic integral of the second
$\begin{aligned} \mathbf{E}_{\nu}(z) \\ E_{a,b}(z) \\ E'(k) \\ \widetilde{E}_{n}(x) \\ E_{n}^{(\ell)}(x) \\ E_{n} \\ E(\phi,k) \end{aligned}$	<pre>\genexpintE{p}@{z} \WeberE{\nu}@{z} \MittagLefflerE{a}{b}@{z} \ccompellintEk@{k} \perEulerE{n}@{x} \genEulerpolyE{\ell}{n}@{x} \EulernumberE{n} \incellintEk@{\phi}{k}</pre>	(8.19.1) (11.10.2) (10.46.3) (19.2.9) §24.2(iii) §24.16 §24.2(ii) (19.2.5)	the generalized exponential integral the Weber function the Mittag-Leffler function (Legendre's) complementary complete elliptic in tegral of the second kind (of modulus k) the periodic Euler function the generalized Euler polynomial the Euler number (Legendre's) incomplete elliptic integral of the second kind (of modulus k)
$\begin{aligned} \mathbf{E}_{\nu}(z) \\ E_{a,b}(z) \\ E'(k) \end{aligned}$ $\widetilde{E}_{n}(x) \\ E_{n}^{(\ell)}(x) \\ E_{n} \\ E(\phi, k) $ $\mathcal{E}(x, k)$	<pre>\genexpintE{p}@{z} \WeberE{\nu}@{z} \MittagLefflerE{a}{b}@{z} \ccompellintEk@{k} \perEulerE{n}@{x} \genEulerpolyE{\ell}{n}@{x} \EulernumberE{n} \incellintEk@{\phi}{k}</pre>	(8.19.1) (11.10.2) (10.46.3) (19.2.9) §24.2(iii) §24.16 §24.2(ii) (19.2.5) (22.16.14)	the generalized exponential integral the Weber function the Mittag-Leffler function (Legendre's) complementary complete elliptic in tegral of the second kind (of modulus k) the periodic Euler function the generalized Euler polynomial the Euler number (Legendre's) incomplete elliptic integral of the second kind (of modulus k) Jacobi's Epsilon function (of modulus k)
$\begin{aligned} \mathbf{E}_{\nu}(z) \\ E_{a,b}(z) \\ E'(k) \\ \widetilde{E}_{n}(x) \\ E_{n}^{(\ell)}(x) \\ E_{n} \\ E(\phi,k) \\ \mathcal{E}(x,k) \\ Ec_{\nu}^{w}(z,k^{2}) \end{aligned}$	<pre>\genexpintE{p}@{z} \WeberE{\nu}@{z} \MittagLefflerE{a}{b}@{z} \ccompellintEk@{k} \perEulerE{n}@{x} \genEulerpolyE{\ell}{n}@{x} \EulernumberE{n} \incellintEk@{\phi}{k} \JacobiEpsilonk@{x}{k} \LameEc{m}{\nu}@{z}{k^2}</pre>	(8.19.1) (11.10.2) (10.46.3) (19.2.9) §24.2(iii) §24.16 §24.2(ii) (19.2.5) (22.16.14) §29.3(iv)	the generalized exponential integral the Weber function the Mittag-Leffler function (Legendre's) complementary complete elliptic in tegral of the second kind (of modulus k) the periodic Euler function the generalized Euler polynomial the Euler number (Legendre's) incomplete elliptic integral of the second kind (of modulus k) Jacobi's Epsilon function (of modulus k) the Lamé function Ec^m_{ν}
$\begin{aligned} \mathbf{E}_{\nu}(z) \\ E_{a,b}(z) \\ E'(k) \end{aligned}$ $\widetilde{E}_{n}(x) \\ E_{n}^{(\ell)}(x) \\ E_{n} \\ E(\phi, k) $ $\mathcal{E}(x, k)$	<pre>\genexpintE{p}@{z} \WeberE{\nu}@{z} \MittagLefflerE{a}{b}@{z} \ccompellintEk@{k} \perEulerE{n}@{x} \genEulerpolyE{\ell}{n}@{x} \EulernumberE{n} \incellintEk@{\phi}{k}</pre>	(8.19.1) (11.10.2) (10.46.3) (19.2.9) §24.2(iii) §24.16 §24.2(ii) (19.2.5) (22.16.14)	the generalized exponential integral the Weber function the Mittag-Leffler function (Legendre's) complementary complete elliptic in tegral of the second kind (of modulus k) the periodic Euler function the generalized Euler polynomial the Euler number (Legendre's) incomplete elliptic integral of the second kind (of modulus k) Jacobi's Epsilon function (of modulus k)

Expansion	$T_{E\!X}\ markup$		Proper Name
		(19.2.15)	Bulirsch's incomplete elliptic integral of the firs
			kind
$el2(x, k_c, a, b)$	\D_1.	26262	
	$\Bulirschincellintel{2}@{x}{k_{\underline{0}}}$		
		(19.2.12)	Bulirsch's incomplete elliptic integral of the second
19/ 1	/ D 2 : 1 : 22 : 2 (0) e() (1	2 ()	kind
$el3(x, k_c, p)$	\Bulirschincellintel{3}@{x}{k_	-	Dulinghia in complete allinetic intermed of the thin
		(19.2.16)	Bulirsch's incomplete elliptic integral of the third
onr f	\env@{f}	?	kind the envelope of a function
$\operatorname{env} f \\ \operatorname{envAi}(z)$	\env@\1} \envAiryAi@{z}	§2.8(iii)	the envelope of the Airy function Ai
$\operatorname{envBi}(z)$	\envAiryBi@{z}	32.8(III)	the envelope of the Airy function Bi
$\operatorname{env} J_{\nu}(x)$	2; \envBesselJ{\nu}@{x}	§2.8(iv)	the envelope of the Bessel function J_{ν}
` '	\envbessel3{\hdfs{x}} \envparaU@{c}{x}		the envelope of the parabolic cylinder function U
$\operatorname{env} U(c,x)$		§14.15(v)	the envelope of the parabolic cylinder function \overline{U}
$\operatorname{env} \overline{U}(c,x)$	\envparaUbar@{c}{x}	(20.0(:)	
$\operatorname{env}Y_{\nu}(x)$	\envBesselY{\nu}@{x}	$\S2.8(iv)$	the envelope of the Bessel function Y_{ν} the electric constant or vacuum permitivity
€0	\electricconst		
$\begin{cases} i j k \\ onf(x) \end{cases}$	\LeviCivitasym{i}{j}{k}	(1.6.14)	the Levi-Civita symbol
$\operatorname{erf}(z)$	\erf0{z} \erfc0{z}	(7.2.1)	the error function
$\operatorname{erfc}(z)$		(7.2.2) $(7.2.3)$	the complementary error function erfc
w(z)	\erfw@{z}	N / /	the complementary error function w
$Es_{\nu}^{m}(z,k^{2})$	\LameEs{m}{\nu}@{z}{k^2}	§29.3(iv)	the Lamé function Es_{ν}^{m}
$\eta(au)$	\Dedekindeta@{\tau}		
$\operatorname{etr}(\mathbf{X})$	\exptrace@{\mathbf{X}}	§35.1	the exponential of the trace
$\exp(z)$	\exp0{z}	(4.2.19)	the exponential function
E()	\	(7.0.5)	D1
F(z)	\DawsonsintF@{z}	(7.2.5)	Dawson's integral
f(x)	\EulerPhi@{x}	(27.14.2)	Euler's reciprocal function
f(z)	\auxFresnelf@{z}	(7.2.10)	the auxiliary function for Fresnel integrals f
f(z)	$\acksincosintf0{z}$	(6.2.17)	the auxiliary function for sine and cosine integral
$\mathscr{T}(f)$	\ Four i ont non ad [f]	?	the Fourier transform of a function
$\mathscr{F}(f)$	\Fouriertrans@{f}		the Fourier transform of a function
$\mathcal{F}(z)$	\FresnelintF@{z} \Fouriercostrans@{f}	(7.2.6)	the Fresnel integral the Fourier cosine transform of a function
$\mathscr{F}_c(f)$		4	
$\mathscr{F}_s(f)$	\Fouriersintrans@{f}	(9.11.11)	the Fourier sine transform of a function the terminant function
$F_p(z)$	\terminant{p}@{z}	(2.11.11)	
$F(\phi, k)$	$\displaystyle \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	(19.2.4)	(Legendre's) incomplete elliptic integral of the firs kind (of modulus k)
F(x,s)	\perZeta@{x}{s}	(25.13.1)	the periodic zeta function
$F_{\ell}(\eta, ho)$	\regCoulombF{\ell}@{\eta}{\rho		portodio zota ranotion
* ×('1) P)	(10800010mp) (1011) # (1000) (1111)	(33.2.3)	the regular Coulomb (radial) function (for repu
		(55.4.5)	sive interactions) F_{ℓ}
$f(\epsilon,\ell;r)$	\regCoulombf@{\epsilon}{\ell}+	[r}	SIVE IIIUGI ACUIOIIS) I' (
J(c,c,r)	/reRoomrompra//ebstroml//ettl/	(33.14.4)	the regular Coulomb (radial) function (for attrac
		(55.14.4)	, ,
$F_{\alpha}(a,b,a,a)$			tive interactions) f
$_2F_1(a,b;c;z)$	\ manhunarE{?}\{11}@{a h}\{a}\{-}	816.9	Cause' hypergeometric function $E = E$
F. (a. h. ~)	\genhyperF{2}{1}@{a,b}{c}{z}	§16.2	Gauss' hypergeometric function, ${}_{2}F_{1} = F$
$_1F_1(a;b;z)$	$\genhyperF{1}{1}0{a}{b}{z}$		Kummer confluent hypergeometric function, $_1F_1 = M$
TD (~	k)		M
$_{p}\mathbf{F}_{q}(a_{1},\ldots,a_{p};b_{1},$.+a o1 ft-	1 \data b alfal
	$\verb \genhyperOlverF{p}{q}@{a_1,\do} $	(16.2.5)	1, \dots, b_q1{z} Olver's scaled generalized hypergeometric function

Expansion	$T_{E}X \ markup$	Declared	Proper Name
$_{p}F_{q}(a_{1},\ldots,a_{p};b_{1},\ldots$			
	lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:		
		§16.2	the generalized hypergeometric function
F(a,b;c;z)	$\hyperF@{a}{b}{c}{z}$	(15.2.1)	(Gauss') hypergeometric function
$\mathbf{F}(a,b;c;z)$ $F_1(\alpha;\beta,\beta';\gamma;x,y)$	$\hyperOlverF@{a}{b}{c}{z}$	(15.2.2)	Olver's scaled hypergeometric function
$F_1(\alpha, \beta, \beta, \gamma, x, y)$	$\AppellF{1}@{\alpha}{\beta}{\be}$.+ ~ }	~~ \√\$\\.
	(whheirtiles (arhuals (necals (ne		the first Appell function
$F_2(\alpha; \beta, \beta'; \gamma, \gamma'; x, y)$	A)	(10.10.1)	the first Appen function
$12(\alpha, \beta, \beta, \gamma, \gamma, x, y)$	$^{\prime\prime}$ \AppellF{2}@{\alpha}{\beta}{\be}	ta,}{/aam	ma}{\gamma'}{\v}
	(inpporting 2) of (arpha) ((book) ((bo		the second Appell function
$F_3(\alpha, \alpha'; \beta, \beta'; \gamma; x, y)$	<i>(</i>)	(1011012)	the becond ripped runotion
-3(,,-,-,-,-,-,-,-,-,-,-,-,-,-,-,-,-	$^{\prime\prime}$ \Appel1F{3}@{\alpha}{\alpha'}{\	beta}{\be	ta'}{\gamma}{x}{v}
			the third Appell function
$F_4(\alpha, \beta; \gamma, \gamma'; x, y)$		(=31=313)	
4(//-////////////////////////////////	lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	mma}{\gam	ma'}{x}{v}
		(16.13.4)	the fourth Appell function
$F_D(x; y; z; p)$	$\LauricellaFD0{x}{y}{z}{p}$	§19.15	Lauricella's (multivariate) hypergeometric fun
2 (, 9 , , 17)	, , , , , , , , , , , , , , , , , , , ,	0	tion
$\mathrm{Fe}_{\nu}(z,q)$	$\mbox{modMathieuFe}{\nu}@{z}{q}$	(28.20.6)	the modified Mathieu function Fe_{ν}
$fe_n(z,q)$	$Mathieufe{n}@{z}{q}$	(28.5.1)	the second solution of Mathieu's equation fe_n
	*	, ,	•
g(z)	\auxFresnelg@{z}	(7.2.11)	the auxiliary function for Fresnel integrals g
g(z)	\auxsincosintg@{z}	(6.2.18)	the auxiliary function for sine and cosine integral
3(*)		(g
G(z)	\BarnesG@{z}	(5.17.1)	the Barne's G-function (or double gamma) fun
		(- ')	tion
G(z)	\GoodwinStatonint@{z}	(7.2.12)	the Goodwin–Staton integral
G(k)	\WaringG@{k}		Waring's function G
g(k)	\Waringg@{k}	0 ()	Waring's function g
$G(n,\chi)$	\Gausssum@{n}{\Dirichletchar}	(27.10.9)	the Gauss sum
$G_\ell(\eta, ho)$	\irregCoulombG{\ell}@{\eta}{\rh	- No. 1	
~(1)1)	. 6	(33.2.11)	the irregular Coulomb (radial) function (for repu
		,	sive interactions) G_{ℓ}
$G_n(p,q,x)$	$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	(18.1.2)	the shifted Jacobi polynomial
$G_{p,q}^{m,n}(z;a_1\ldots,a_p;b_1$			- v
F,1 () / 1 /	$MeijerG{m}{n}{p}{q}@{z}{a_1}dc$	ts,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
$\Gamma_q(z)$	$\qGamma{q}0{z}$	(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
$\Gamma(a,z)$	$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	(8.2.2)	the upper incomplete gamma function
$\gamma^*(a,z)$	$\scincgamma@{a}{z}$	(8.2.6)	the scaled incomplete gamma function
gd(z)	\Gudermannian@{z}	(4.23.39)	the Gudermannian function
$\mathrm{gd}^{-1}(z)$	$\aggreen addition = a Gudermannian = a$	(4.23.41)	the inverse of the Gudermannian function
$Ge_{\nu}(z,q)$	$\label{local_modMathieuGe} $$\modMathieuGe{\nu}@{z}{q}$$	(28.20.7)	the modified Mathieu function Ge_{ν}
$ge_n(z,q)$	$Mathieuge{n}@{z}{q}$	(28.5.2)	the second solution of Mathieu's equation ge_n
Gi(z)	\ScorerGi@{z}	(9.12.4)	the Scorer (or inhomogeneous Airy) function Gi
grad	\gradient	(1.6.20)	the gradient operator

Expansion	$T_{EX}\ markup$	Declared	Proper Name
H(s)	\EulersumH@{s}	§25.16(ii)	the Euler sum
H(x)	$\HeavisideH0{x}$	(1.16.13)	the Heaviside function
$\mathcal{H}\left(f\right)$	\Hilberttrans@{f}	$\S 1.14(v)$	the Hilbert transform of a function
$H_n(x)$	$\HermitepolyH{n}@{x}$	$\S 18.3$	the Hermite polynomial
$\mathbf{H}_{ u}(z)$	$\Time {\mathbb{Z}}$	(11.2.1)	the Struve function \mathbf{H}_{ν}
$H_{ u}^{(1)}(z)$	$\label{locality} $$ \A = H_1_{\sum_{z} C_z} $$$	(10.2.5)	the Hankel function of the first kind(or Bessel function of the third kind)
$H_{\nu}^{(2)}(z)$	$\HankelH{2}{ u}@{z}$	(10.2.6)	the Hankel function of the second kind(or Bessel function of the third kind)
$h_n^{(1)}(z)$	$\sphHankelh{1}{n}@{z}$	(10.47.5)	the spherical Hankel function of the first kind
$h_n^{(2)}(z)$	\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}		the line broadening random
$m(w \mid q)$	(00110411111011111001011)11(11) 0 (11) (41		the continuous q^{-1} -Hermite polynomial
$H_n(x \mid q)$	$\contqHermitepolyH{n}@{x}{q}$		the continuous q -Hermite polynomial
$h_n(x;q)$	\discqHermitepolyhI{n}@{x}{q}		the discrete q-Hermite I polynomial
$\tilde{h}_n(x;q)$	\discqHermitepolyhII{n}@{x}{q}		the discrete q-Hermite II polynomial
$H_{\ell}^{\pm}(\eta,\rho)$	\irregCoulombH{\pm}{\ell}@{\eta	· /	the discrete q-Hermite II polynomial
Π_{ℓ} (η, ρ)	/IIIegcodiomon/\pm/\(\ell\ell\ell\ell\ell\ell\ell\ell\ell\e	(33.2.7)	the irregular Coulomb (radial) function (for repul-
		(55.2.1)	sive interactions) H_{ℓ}^{\pm}
$h(\epsilon, \ell; r)$	\irregCoulombh@{\epsilon}{\ell]	L/~l	sive interactions) H_{ℓ}
$n(\epsilon, \epsilon, \tau)$	/iiie8coniompue//ebziioul///eii	(33.14.7)	the irregular Coulomb (radial) function (for attractive interactions) h
$_{p}H_{q}(a_{1},\ldots,a_{p};b_{1})$	h . ~)		tive interactions) n
$_{p}II_{q}(a_{1},\ldots,a_{p},o_{1})$	(q,z) \genhyperH{p}{q}@{a_1,\dots,a_p	.l/h 1 \do:	ta halfal
	\gennypern\p\\q\@\a_1,\dots,a_p		
II - ()	\ 1:111:	(16.4.16)	the bilateral hypergeometric function
$He_n(x)$	\dilHermitepolyHe{n}@{x}	§18.3	the dilated Hermite polynomial
$(s_1, s_2) Hf_m(a, q_m)$	$(\alpha, \beta, \gamma, \sigma, z)$ \HeunHf{m}{s_1}{s_2}@{a}{q_m}{'}	01226015\h	0+0)(\mamma){(\dol+0){m}
	\neuini\ms\s_is\s_2;@\as\q_ms\	\aipnas\\b §31.4	the Heun function
(351.4	the neun function
$(s_1,s_2)Hf_m^{\nu}(a,q_m)$	$(x, \beta, \gamma, \delta, z)$ \Heun\f[\nu]\{m}\{s_1\}\{s_2\}\@{a}\{\daggerightarrow}\	_m}{\alph	$a}{\beta}{\gamma}{\delta}{z}$
$Hh_n(z)$	\FishersHh{n}@{z}	(7.18.12)	Fischer's probability function
$\operatorname{Hi}(z)$	\ScorerHi@{z}	(9.12.5)	the Scorer (or inhomogeneous Airy) function Hi
$H\ell(a,q;\alpha,\beta,\gamma,\delta;$, ,
1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1	$\label{eq:lem:heunHl0{a}{q}{\alpha}{\beta}{\}$	\gamma}{\d	elta}{z}
		(31.3.1)	the (fundamental) Heun function
$Hp_{n,m}(a,q_{n,m};-$	$n, \beta, \gamma, \delta; z$	(3-13.1)	
r n,m (~, 4n,m)	$\begin{array}{c} (n,\beta,\gamma,0,z) \\ \text{$$ \text{HeunpolyHp}(n)_{m}@{a}_{q_{n,m}}$} \end{array}$	-n}{\beta	}{\gamma}{\delta}{z}
	(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	(31.5.2)	the Heun polynomial
		(01.0.2)	The Head polynomia
i	\iunit	?	the imaginary unit
$I_{ u}(z)$	\modBesselI{\nu}@{z}	(10.25.2)	the modified Bessel function of the first kind
' '			
$\widetilde{I}_{ u}(x)$	$\label{limag} $$\mathbf{x}$$	(10.45.2)	the modified Bessel function of the first kind of imaginary order
$i_n^{(1)}(z)$	$\verb \modsphBesseli{1}{n}@{z} $	(10.47.7)	the modified spherical Bessel function $i_n^{(1)}$
$i_n^{(2)}(z)$	$\mbox{modsphBesseli}{2}{n}@{z}$	(10.47.8)	the modified spherical Bessel function $i_n^{(2)}$
$I_x(a,b)$	\normincBetaI{x}@{a}{b}	(8.17.2)	the normalized incomplete beta function
$\operatorname{Ie}_n(z,h)$	\modMathieuIe{n}@{z}{h}	(28.20.17)	the modified Mathieu function Ie_n
" () · ·)		()	continued on next page

Expansion	$T_{E\!X}\ markup$	Declared	Proper Name
$i^n \operatorname{erfc}(z)$	\repinterfc{n}@{z}	(7.18.2)	the repeated integrals of complementary error
$\Im\left(z ight)$	\	(1.9.2)	function the imaginary part of a complex number z
$\operatorname{inverf}(x)$	<pre>\imagpart0{z} \inverf0{x}</pre>	(7.17.1)	the inverse error function
$\operatorname{inverfc}(x)$	\inverie(x) \inverfc@{x}	(1.11.1)	the inverse complementary error function
$Io_n(z,h)$	\modMathieuIo{n}@{z}{h}	(28 20 18)	the modified Mathieu function Io_n
$\operatorname{idem}(\chi_1;\chi_2\ldots\chi_n)$	(modification (ii) & (2) (ii)	(20.20.10)	the modified washed fullesion ion
$\operatorname{radim}(\chi_1,\chi_2\ldots\chi_n)$	\idem@{\chi_1}{\chi_2\dots\chi	_n}	
		§17.1	the idem function
J			41
$j_{ u,m}$	\zBesselj{\nu}{m}	§10.21(i)	the $m^{\rm th}$ zero of the Bessel function of the first kind
$j'_{ u,m}$	\zderivBesselj{\nu}{m}		J_{ν} the $m^{\rm th}$ zero of the derivative of the Bessel function
$J\nu,m$	/Zdelivbesselj//Hd/fm/		of the first kind J'_{ν}
J(au)	\KleincompinvarJtau@{\tau}	(23.15.7)	Klein's complete invariant
$J_k(n)$	\JordanJ{k}@{n}	(27.2.11)	Jordan's function
$\mathbf{J}_{ u}(z)$	\AngerJ{\nu}@{z}	(11.10.1)	the Anger function
$J_ u(z)$	\BesselJ{\nu}@{z}	(10.2.2)	the Bessel function of the first kind
$j_n(z)$	\sphBesselJ{n}@{z}	(10.47.3)	the spherical Bessel function of the first kind
$\widetilde{J}_{ u}(x)$	\BesselJimag{\nu}@{x}	§10.24	the Bessel function of the first kind of imaginary
ο _ν (ω)	(202010 Imag ((na) o (n)	510.21	order
K			
k_{\perp}	\BoltzmannConstant	CODATA	the Boltzmann constant
$\widetilde{K}_{\nu}(x)$	$\verb \modBesselKimag{\nu}@{x} $	(10.45.2)	the modified Bessel function of the second kind of
			imaginary order
$K_{ u}(z)$	\modBesselK{\nu}@{z}	(10.25.3)	the modified Bessel function of the second kind
$k_n(z)$	\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 $\mathbf{K}_{ u}$
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
II(h)	(x) wantification	(13.2.0)	kind (of modulus k)
$K_n(x; p, N)$	$\KrawtchoukpolyK{n}@{x}{p}{N}$	§18.19	the Krawtchouk polynomial
$\operatorname{Ke}_n(z,h)$	\modMathieuKe{n}@{z}{h}	(28.20.19)	
$\ker_{\nu}(x)$	\Kelvinkei{\nu}@{x}	(10.61.2)	the Kelvin function \ker_{ν}
$\ker_{\nu}(x)$	\Kelvinker{\nu}@{x}	()	the Kelvin function \ker_{ν}
$\operatorname{Ki}_{\alpha}(x)$	\BickleyKi{\alpha}@{x}	(10.43.11)	the Bickley function
$\mathrm{Ko}_n(z,h)$	$\mbox{modMathieuKo}\{n\}$		the modified Mathieu function Ko_n
L			
$\mathscr{L}\left(f\right)$	\Laplacetrans@{f}	(1.14.17)	the Laplace transform of a function
$\mathbf{L}_{ u}(z)$	$\verb \modStruveL{\nu}@{z} $	(11.2.2)	the modified Struve function $\mathbf{L}_{ u}$
$L_n(x)$	$\LaguerrepolyL{n}@{x}$	§18.1	$=L_n^{(0)}$, shorthand for the Laguerre polynomial
$L_n^{(\alpha)}(x)$	$\label{laguerrepolyL[alpha]{n}@{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}-	· · · · · · · · · · · · · · · · · · ·	
ω_n (ω, γ)	(4-apactabating (arbua) (m) a(v)	_	the q-Laguerre polynomial
$\lambda(au)$	\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}@{o		
ν 2m (1/		§28.12(i)	the eigenvalues of Mathieu's equation $\lambda_{\nu+2n}$
		3 ()	continued on next page

Expansion	$T_{E\!X}$ markup	Declared	Proper Name
$\lambda_n^m(\gamma^2)$	$\label{lem:lembda} $$\left(n\right)^{n}(\gamma^{n}) = \left(\frac{1}{n}\right)^{n} .$		
		§30.3(i)	the eigenvalues of the spheroidal differential equation
$\Lambda(n)$	$\MangoldtLambda@{n}$	(27.2.14)	Mangoldt's function
$\mathrm{Li}_2(z)$	\dilog@{z}	(25.12.1)	the dilogarithm
li(z)	\logint@{z}	(6.2.8)	the logarithmic integral
$\mathrm{Li}_s(z)$	\polylog{s}@{z}	(25.12.10)	the polylogarithm
$\operatorname{Ln}(z)$	$\ln(z)$	(4.2.1)	the multivalued logarithm function
$\ln(z)$	$\ln 2$	(4.2.2)	the principal branch of logarithm function
$\log(z)$	$\log {z}$	$\S4.2$	the logarithm to base 10
$\log_a(z)$	$\glue{2}$		the logarithm to general base a
M			
M(x)	\MillsM@{x}	(7.8.1)	Mill's ratio
$\mathcal{M}(f)$	\Mellintrans@{f}	(1.14.32)	the Mellin transform of a function
M(z)	\AirymodM@{z}	(9.8.3)	the modulus of Airy functions
$\mathbf{M}_{ u}(z)$	\modStruveM{\nu}@{z}	(11.2.6)	the modified Struve function \mathbf{M}_{ν}
$M_{\nu}(x)$	$\Model{MankelmodM}{\nu}@{x}$	(10.18.1)	the modulus of the Hankel function of the first kind
$M_{\kappa,\mu}(z)$	\WhittakerconfhyperM{\kappa}{\m	ıu}@{z}	
		(13.14.2)	the Whittaker confluent hypergeometric function
			$M_{\kappa,\mu}$
M(a,g)	$\Delta GM@{a}{g}$	§19.8(i)	arithmetic-geometric mean
$M_\ell(\eta, ho)$	\envCoulumbM{\ell}@{\eta}{\rho}		
		(33.3.1)	the envelope of the Coulomb function M_ℓ
$\mathrm{M}_{ u}^{(j)}(z,h)$	$\label{locality} $$\modMathieuM{j}{\nu}@{z}{h}$$	§28.20(iii)	the modified Mathieu function $M_{\nu}^{(j)}$
$\mathbf{M}(a,b,z)$	\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
$\mathrm{Mc}_n^{(j)}(z,h)$	$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	-	the radial Mathieu function $Mc_n^{(j)}$
$\operatorname{me}_n(z,q)$	\mathbb{N}_{q}	§28.12(ii)	the Mathieu function me_n
$\mathrm{Me}_{ u}(z,q)$	$\mbox{modMathieuMe}_{nu}^{q}$	(28.20.5)	the modified Mathieu function Me_{ν}
$\operatorname{Ms}_n^{(j)}(z,h)$	\radMathieuMs{j}{n}@{z}{h}		the radial Mathieu function $Ms_n^{(j)}$
$\mu(n)$	\Moebiusmu@{n}	(27.2.12)	the Möbius function
N	,	(')	
N	\natNumbers	Intro.	the set of 'natural' numbers (positive integers)
N(z)	\AirymodderivN@{z}	(9.8.7)	the modulus of derivatives of Airy functions
$N_{ u}(x)$	\HankelmodderivN{\nu}@{x}	(10.18.2)	the modulus of derivatives of the Hankel function of the first kind
$\operatorname{nc}(u,k)$	$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	(22.2.5)	the Jacobian elliptic function nc (of modulus k)
$\operatorname{nd}(u,k)$	\Jacobiellndk@{u}{k}	(22.2.6)	the Jacobian elliptic function nd (of modulus k)
$\operatorname{ns}(u,k)$	\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
0	1	0 · ()	· · · · · · · · · · · · · · · · · · ·
o(x)	\littleo@{x}	(2.1.2)	the order less than
O(x)	\big0@{x}	(2.1.3)	the order not exceeding
$O_n(x)$	$\label{lem:lem:npoly0} \label{lem:lem:npoly0} \label{lem:lem:npoly0} \label{lem:lem:npoly0} \label{lem:lem:npoly0} \label{lem:lem:npoly0} \label{lem:lem:npoly0} \label{lem:lem:npoly0} \label{lem:lem:npoly0} \label{lem:lem:lem:npoly0} \label{lem:lem:lem:lem:npoly0} \label{lem:lem:lem:lem:npoly0} lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:$	(10.23.12)	Neumann's polynomial
P	. v	,	. v
$P_n(x)$	\LegendrepolyP{n}@{x}	§18.3	the Legendre (or spherical) polynomial
p(n)	\npartitions@{n}	$\S 26.2$	the total number of partitions of n
	\npartitions[m]@{n}	§26.9(i)	the total number of partitions of n into at most m
$p_m(n)$	(iipar cretons [iii] @ (ii)	3-0.0(1)	the total named of partitions of it mice at most in
$p_m(n)$ $P_n^*(x)$	/npar cretons [m] * (n)	320.0(1)	parts the shifted Legendre polynomial

Expansion	$T_{FX} markup$	Declared	Proper Name
$P_{ u}(z)$	\assLegendreP{\nu}@{z}	§14.2(ii)	$=P_{\nu}^{0}$, shorthand for the associated Legendre func-
D#/))	01401/1	tion of the first kind
$P^{\mu}_{\nu}(z)$	\assLegendreP[\mu]{\nu}@{z}	§14.21(i)	the associated Legendre function of the first kind
$P_{\nu}(x)$	\FerrersP{\nu}@{x}	§14.2(ii)	$= P_{\nu}^{0}$, shorthand for the Ferrers function of the first kind
$P^\mu_ u(x)$	\FerrersP[\mu]{\nu}@{x}	(14.3.1)	the Ferrers function of the first kind
$P_n^{(\alpha,\beta)}(x)$	lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	0{x}	
		$\S 18.3$	the Jacobi polynomial
$P \left\{ \begin{array}{cccc} a & b & c \\ a_1 & b_1 & c_1 & z \\ a_2 & b_2 & c_2 \end{array} \right\}$			
\RiemannsymP@{\be	gin{Bmatrix} a & b & c & \\ a_1 &		1 & z \\ a_2 & b_2 & c_2 & \end{Bmatrix}} Diamonn's P graph of far golutions of the general
		(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
$\wp(z L)$	\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(condition, n)			
	\nrestpartitions@{cond		
$p_m(\text{condition}, n)$		§26.10(i)	the restricted number of partitions of n
$p_m(\text{condition},n)$	\nrestpartitions[m]@{c	ondition}}	-{n}
	/111 02 of all olollo [m] o (/mao111m (o	§26.9(i)	the restricted number of partitions of n into at
			most m parts
$P_n^{(\lambda)}(x;\phi)$	\lambda		
- (a, B)		§18.19	the Meixner–Pollaczek polynomial
$P_n^{(\alpha,\beta)}(x;c)$	\assJacobipolyP{\alpha}{\beta}		
$P_{m,n}^{\alpha,\beta,\gamma}(x,y)$	\trianglepoly{\alpha}{\beta}{\	(18.30.4)	1 0
$\Gamma_{m,n}$ (x,y)	/triangrepory/(arphas/(becas/(ganmartmrt (18.37.7)	the triangle polynomial
$\wp(z;g_2,g_3)$	$\Weierstrasspinvar@{z}{g_2}{g_{}}$		the triangle polynomia
0 (7,527,507	1 1 10 1 10 1	(23.3.8)	the Weierstrass \wp -function (on invariants)
$P_n^{(\lambda)}(x;a,b)$	$\verb \PollaczekpolyP{\lambda}{n}@{x} $	}{a}{b}	
		(18.35.4)	the Pollaczek polynomial
$p_n(x;a,b;q)$	$\left(\begin{array}{c} \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 + 1 \right) \\ \left(1 + 1 \right) \\ \left(1 + 1 \right) & \left(1 +$	-	
$\mathbf{p}(\alpha,\beta)$		(18.27.13)	the little q -Jacobi polynomial
$P_n^{(\alpha,\beta)}(x;c,d;q)$	\scbigqJacobipolyP{\alpha}{\be	+~Jl~J@l~J	["][4]["]
			the scaled big q -Jacobi polynomial
$p_n(x; a, b, \overline{a}, \overline{b})$		(10.21.0)	the sealed big q bacosi polynomial
<i>Fit</i> ()))	$\contHahnpolyp{n}@{x}{a}{b}{c}$	onj{a}}{\c	onj{b}}
		§18.19	the continuous Hahn polynomial
$P_n(x; a, b, c; q)$			
	$\begin{array}{c} \begin{array}{c} \begin{array}{c} \\ \\ \end{array} \end{array}$		
$p_n(x; a, b, c, d \mid q)$		(18.27.5)	the big q -Jacobi polynomial
$p_n(x, a, o, c, a \mid q)$	\AskeyWilsonpolyp{n}@{x}{a}{b}	{c}{d}{d}	
	(monoy arroanpory b (m) a (v) (a) (b)	(18.28.1)	the Askey–Wilson polynomial
ph(z)	$\beta \$	(1.9.7)	the phase of a complex number z
			continued on next page

Expansion	$T_{EX} markup$		Proper Name
$\phi(z)$	$\Lambda = \Lambda $	(9.8.8)	the phase of derivatives of Airy functions
$\phi_{ u}(x)$	\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
$\phi_{\lambda}^{(\alpha,\beta)}(t)$	$\Jacobiphi{\alpha}{\beta}{\amble}$	oda}@{t}	
		(15.9.11)	the Jacobi function
$\phi(z,s)$	$\Jonquierephi@{z}{s}$	§25.12(ii)	
$\Phi_K(t;x)$	$\c \c \$	(36.2.1)	the cuspoid catastrophe of codimension K
$\varphi_{n,m}(z,q)$	$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $		
		§20.11(v)	the combined theta function
$\Phi(z,s,a)$	$\LerchPhiQ{z}{s}{a}$	(25.14.1)	Lerch's transcendent
$\phi(\rho, \beta; z)$	$\genBesselphi@{\rho}{\beta}{z}$	(10.46.1)	the generalized Bessel function
$\Phi^{(\mathrm{E})}(s,t;x)$	$\left(s\right) = \left(s\right) $	(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
$_{r+1}\phi_s(a_0,\ldots,a_r;b_1)$		0	1
, 11,0(0) , , , 1	\qgenhyperphi{r+1}{s}@{a_0,\dot	ts,a_r}{b	_1,\dots,b_s}{q}{z}
	10 71 1 1 1 1 1 1 1 1 1	(17.4.1)	the q-hypergeometric (or basic hypergeometric) function
$\Phi^{(1)}(a;b,b';c;q;x,y)$	w)		
$\mathbf{r} = (u, v, v, v, q, w, v)$	lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	-	the first a Appell function
x(2)/ 1 1/ /	,	(17.4.5)	the first q -Appell function
$\Phi^{(2)}(a;b,b';c,c';q;a)$,,,,,,,,	1
	$\qAppellPhi{2}@{a}{b}{b'}{c}{c}$	_	
- (2)	,	(17.4.6)	the second q -Appell function
$\Phi^{(3)}(a, a'; b, b'; c; q;$			_
	$\qAppellPhi{3}@{a}{a}{b}{b}{b}{b}{b}{b}{b}{b}{b}{b}{b}{b}{b}$	_	
(4)		(17.4.7)	the third q -Appell function
$\Phi^{(4)}(a,b;c,c';q;x,y)$			
	\q AppellPhi{4}@{a}{b}{c}{c'}{q}		
		(17.4.8)	the fourth q -Appell function
π	\cpi	(3.12.1)	the ratio of the circumference of a circle to its diameter
$\pi(x)$	$\nprimes 0{x}$	(27.2.2)	the number of primes not exceeding x
$\Pi(\alpha^2, k)$	$\verb \compellintPik@{\alpha^2}_{k} $	(19.2.8)	(Legendre's) complete elliptic integral of the third kind (of modulus k)
$\Pi(\phi,\alpha^2,k)$	$\incellintPik@{\pi}{\alpha^2}$	{k}	,
(,,,,,		(19.2.7)	(Legendre's) incomplete elliptic integral of the third kind (of modulus k)
pp(n)	$\nplanepartitions @{n}$	§26.12(i)	the number of plane partitions of n
pq(u,k)	\genJacobiellk{p}{q}@{u}{k}	(22.2.10)	the generic Jacobian elliptic function pq (of modulus k)
$Ps_n^m(z,\gamma^2)$ $Ps_n^m(x,\gamma^2)$	$\sphwavePs\{m\}\{n\}@\{z\}\{\gamma^2\}\\ sphwavePsreal\{m\}\{n\}@\{x\}\{\gamma^2\}\\ $	§30.6	the spheroidal wave function of complex argument
$n (\omega, \gamma)$	(Shumaror program) (m) a(v) (Ramma	§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
$\psi(z)$ $\psi_q(z)$	\dIgamma\{z} \qDigamma\{q}@{z}	(0.2.2) ?	the q -digamma function
Ψq(~)	/4518amma (4) @ (5)	•	continued on next neces

Expansion	$T_{E\!X}\ markup$	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}	$\S 5.15$	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
$\Psi_K(x,\kappa)$ $\Psi^{(\mathrm{E})}(x;k)$			
$\Psi^{\leftarrow}(x;\kappa)$	\ellumbdiffrcanonint@{x}{k}	(36.2.11)	the elliptic umbilic diffraction canonical integral function
$\Psi^{(\mathrm{H})}(x;k)$	$\verb \hyperumbdiffrcanonint@{x}{k} $		the hyperbolic umbilic diffraction canonical inte- gral function
$\Psi^{(\mathrm{U})}(x;k)$	$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $		the umbilic diffraction canonical integral function
$\Psi(a;b;\mathbf{T})$	\genhyperPsimat@{a}{b}{\mathbf-	(T}}	J
((35.6.2)	the confluent hypergeometric function of matrix argument (second kind)
$_r\psi_s(a_0,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_r;b_1,\ldots,a_$	$\ldots, b_s; q, z)$,
	\qgenhyperpsi{r}{s}@{a_0,\dots	,a_r}{b_1,	$\displaystyle dots,b_s}{q}{z}$
		(17.4.3)	the bilateral q -hypergeometric (or bilateral basic
			hypergeometric) function
Q			
Q	\Rationals	Intro.	the set of rational numbers
$\hat{m{Q}}_{ u}(z)$	$\verb \assLegendreOlverQ{\nu}@{z} $	§14.2(ii)	$= Q_{\nu}^{0}$, shorthand for Olver's associated Legendre function
$oldsymbol{Q}^{\mu}_{ u}(z)$	\assLegendreOlverQ[\mu]{\nu}@{2	z}	
ν (~)	/mpppePerrar epr. er 45 /mm	§14.21(i)	Olver's associated Legendre function
$Q_{ u}(z)$	\assLegendreQ{\nu}@{z}	§14.2(ii)	$=Q_{\nu}^{0}$, shorthand for the associated Legendre func-
Ψ ν(≈)	(approgenared (ma) (2)	311.2(11)	tion of the second kind
$Q^{\mu}_{ u}(z)$	\assLegendreQ[\mu]{\nu}@{z}	§14.21(i)	the associated Legendre function of the second
$\mathcal{Q}_{\nu}(z)$	(abblegenarew [\ma] [\ma] e (2)	311.21(1)	kind
$Q_{ u}(x)$	\FerrersQ{\nu}@{x}	§14.2(ii)	$= Q_{\nu}^{0}$, shorthand for the Ferrers function of the
$\mathbf{Q}\nu(x)$	(refreso, tua) e(v)	314.2(11)	$=\mathbf{Q}_{\nu}$, shorthand for the refress function of the second kind
$Q^{\mu}_{\nu}(x)$	\FerrersQ[\mu]{\nu}@{x}	(14.3.2)	the Ferrers function of the second kind
	\DunsterQ{-\mu}{-\tfrac{1}{2}+\	· · · · · · · · · · · · · · · · · · ·	
$\widehat{Q}_{-rac{1}{2}+\mathrm{i} au}^{-\mu}(x)$	\Dunsterq\-\mus\-\tirac\istz\+	\Iunit\tau	I, e (x)
2		(14.20.2)	Dunster's conical function
Q(a,z)	$\normincGammaQ@{a}{z}$	(8.2.4)	the normalized incomplete gamma function Q
$Q_n(x;a,b q^{-1})$			
- (\qinvAlSalamChiharapolyQ{n}@{x}	}{a}{b}{q^	{-1}}
			the q^{-1} -Al-Salam-Chihara polynomial
$Q_n(x; a, b \mid q)$	$\AlSalamChiharapolyQ{n}@{x}{a}$		• • •
	• • •	(18.28.7)	the Al-Salam-Chihara polynomial
$Q_n(x;\alpha,\beta,N)$	$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	a}{N}	
• • • • • • • • • • • • • • • • • • • •		§18.19	the Hahn polynomial
$Q_n(x;\alpha,\beta,N;q)$		Ü	1 0
•	\q HahnpolyQ $\{n\}$ @ $\{x\}$ {\alpha}{\beta	ta}{N}{q}	
		(18.27.3)	the q -Hahn polynomial
$Qs_n^m(z,\gamma^2)$	$\sphwaveQs{m}{n}@{z}{\gamma^2}$	§30.6	the spheroidal wave function of complex argument
$egin{aligned} Qs_n^mig(z,\gamma^2ig)\ Qs_n^mig(x,\gamma^2ig) \end{aligned}$	\sphwaveQsreal{m}{n}@{x}{\gamma		
(/ / /	•	$\S 30.5$	the spheroidal wave function of second kind
R			•
\mathbb{R}	\Reals	Intro.	the set of real numbers
R_{∞}	\Rydbergconst		the Rydberg constant
	, 0		continued on next page

Expansion	$T_{E\!X}\ markup$	Declared	Proper Name
$r_k(n)$	\nsquares{k}@{n}	§27.13(iv)	the number of squares
$R_{m,n}^{(\alpha)}(z)$	$\diskpoly{\alpha}_{m}_{n}@{z}$	(18.37.1)	the disk polynomial
$r_{ m tp}(\epsilon,\ell)$	\Coulombturnr@{\epsilon}{\ell}	(33.14.3)	the outer turning point for Coulomb (radial) func-
			tions (for repulsive interactions)
$R_{-a}(b_1,\ldots,b_n;z_1,\ldots$	(z, z_n)		
	$\Carlsonmultivarhyper{-a}0{b_1}$	\dots,b_n	${z_1,\det z_n}$
		(19.16.9)	Carlson's multivariate hypergeometric function
$R_n(x(x+\gamma+\delta+1);$	(γ,δ,N)		
	$\displaystyle \operatorname{dualHahnpolyR{n}@{x(x+\geq +)}}$	delta+1)}	${\gamma}_{N}$
		$\S 18.25$	the dual Hahn polynomial
$R_n(x(x+\gamma+\delta+1);$			
	$\RacahpolyR{n}@{x(x+\gamma)}$		
		$\S 18.25$	the Racah polynomial
$R_n(x; \alpha, \beta, \gamma, \delta \mid q)$			
	$\qRacahpolyR{n}@{x}{lpha}{\begin{picture}(\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	-	
			the q -Racah polynomial
$R_C(x,y)$	$\CarlsonellintRCQ{x}{y}$	(19.2.17)	Carlson's elliptic integral combining inverse circu-
- (lar and hyperbolic functions
$R_D(x,y,z)$	$\verb \CarlsonsymellintRD@{x}{y}{z} $	(19.16.5)	Carlson's elliptic integral symmetric in only two
22 ()		/ · >	variables
$\Re(z)$	\realpart0{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
$ ho_{ ext{tp}}(\eta,\ell)$	\Coulombturnrho@{\eta}{\ell}	(33.2.2)	the outer turning point for Coulomb (radial) func-
D (\	2	tions (for attractive interactions)
$R_J(x,y,z,p)$	$\CarlsonsymellintRJ0{x}{y}{z}{p}$		
$\overline{\mathbf{S}}$		(19.16.2)	Carlson's symmetric elliptic integral of third kind
$rac{\mathtt{s}}{\mathfrak{S}_n}$	\	COC 19	the number of noncontations of m
S(z)	<pre>\npermutations{n} \Fresnelsinint@{z}</pre>	§26.13 (7.2.8)	the number of permutations of n the Fresnel sine integral
$\mathcal{S}(z)$ $\mathcal{S}(f)$	\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}	(10.1.5) $(11.9.5)$	the Lommel function $S_{\mu,\nu}$
$s_{\mu, u}(z)$	\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)	\StirlingnumberSQ{n}{k}	§26.8(i)	the Stirling number of the second kind
$S_n(x;q)$	\StieltjesWigertpolyS{n}@{x}{q}		8
~ n (~, 1)	(n 2)		the Stieltjes-Wigert polynomial
$S_n^{m(j)}(z,\gamma)$	$\rac{1}{radsphwaveS{m}{j}{n}@{z}{\gamma}}$		J
$\mathcal{S}n (z, \gamma)$	(radspirwaves (m) (j) (n) @ (2) ((gamm	(30.11.3)	the radial spheroidal wave function
		(00.11.0)	the radial spheroraal wave falletion
$s(\epsilon \ell \cdot r)$	\regCoulombs@{\ensilon}{\ell}{r	·}	
$s(\epsilon,\ell;r)$	\regCoulombs@{\epsilon}{\ell}{r		the regular Coulomb (radial) function (for attrac-
$s(\epsilon,\ell;r)$	\regCoulombs@{\epsilon}{\ell}{r	(33.14.9)	the regular Coulomb (radial) function (for attractive interactions) s
	\regCoulombs@{\epsilon}{\ell}{r		the regular Coulomb (radial) function (for attractive interactions) \boldsymbol{s}
$s(\epsilon, \ell; r)$ $S_n(x^2; a, b, c)$		(33.14.9)	_ , , , , , , , , , , , , , , , , , , ,
	lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	(33.14.9) [b]{c}	tive interactions) s
$S_n(x^2; a, b, c)$	\contdualHahnpolyS{n}@{x^2}{a}+	(33.14.9) (b){c} §18.25	tive interactions) s the continuous dual Hahn polynomial
$S_n(x^2; a, b, c)$ $\operatorname{sc}(u, k)$	lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	(33.14.9) (b){c} §18.25 (22.2.9)	tive interactions) s
$S_n(x^2; a, b, c)$	\contdualHahnpolyS{n}@{x^2}{a}+	(33.14.9) (b){c} §18.25 (22.2.9)	tive interactions) s the continuous dual Hahn polynomial the Jacobian elliptic function sc (of modulus k)
$S_n(x^2; a, b, c)$ $sc(u, k)$ $scdE_{2n+3}^m(z, k^2)$	lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	(33.14.9) (b){c} §18.25 (22.2.9)	tive interactions) s the continuous dual Hahn polynomial the Jacobian elliptic function sc (of modulus k) the Lamé polynomial $scdE_{2n+3}^m$
$S_n(x^2; a, b, c)$ $\operatorname{sc}(u, k)$ $\operatorname{scd}E^m_{2n+3}(z, k^2)$ $\operatorname{sc}E^m_{2n+2}(z, k^2)$	\contdualHahnpolyS{n}@{x^2}{a}{ \Jacobiellsck@{u}{k} \LamepolyscdE{m}{2n+3}@{z}{k^2}	(33.14.9) (b){c} §18.25 (22.2.9) (29.12.8) (29.12.5)	tive interactions) s the continuous dual Hahn polynomial the Jacobian elliptic function sc (of modulus k) the Lamé polynomial $scdE^m_{2n+3}$ the Lamé polynomial scE^m_{2n+2}
$S_n(x^2; a, b, c)$ $sc(u, k)$ $scdE_{2n+3}^m(z, k^2)$	lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:	(33.14.9) (b){c} §18.25 (22.2.9) (29.12.8)	tive interactions) s the continuous dual Hahn polynomial the Jacobian elliptic function sc (of modulus k) the Lamé polynomial $scdE_{2n+3}^m$

Expansion	$T_{E\!X}\ markup$	Declared	Proper Name
$sdE_{2n+2}^m(z,k^2)$	$\label{lamepolysdE(m){2n+2}0{z}{k^2}} \\$	(29.12.6)	the Lamé polynomial sdE_{2n+2}^m
$\operatorname{se}_n(z,q)$	$Mathieuse{n}@{z}{q}$	§28.2(vi)	the Mathieu function se_n
$\mathrm{Se}_{ u}(z,q)$	$\verb \modMathieuSe{\nu}@{z}{q} $	(28.20.4)	the modified Mathieu function Se_{ν}
$sE_{2n+1}^m(z,k^2)$	$\label{lamepolysE(m){2n+1}@{z}{k^2}} \\$	(29.12.2)	the Lamé polynomial sE_{2n+1}^m
$\sec(z)$	$\sc 0{z}$	(4.14.6)	the secant function
$\operatorname{sech}(z)$	$\sch0{z}$	(4.28.6)	the hyperbolic secant function
Shi(z)	\sinhint@{z}	(6.2.15)	the hyperbolic sine integral
$\operatorname{si}(z)$	\shiftsinint@{z}	(6.2.10)	the shifted sine integral
$\mathrm{Si}(z)$	$\left(z\right)$	(6.2.9)	the sine integral Si
si(a, z)	$\genshiftsinint0{a}{z}$	(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		
	. 0	(33.2.10)	the phase shift of the irregular Coulomb function H_{ℓ}^{\pm}
$\sigma_n(u)$	$\Rayleighsigma{n}@{\n}$	(10.21.55)	the Rayleigh function
$\sigma_{\alpha}(n)$	\sumdivisors{\alpha}@{n}	(27.2.10)	the sum of powers of divisors of n
$\sigma(z L)$	\Weierstrasssigmalatt@{z}{L}	(23.2.6)	the Weierstrass sigma function σ (on Lattice)
$\sigma(z;g_2,g_3)$	\Weierstrasssigmainvar@{z}{g_2		(
· (~, 92, 93)	("01010110018"""1", 010 (5) (8-1	§23.3(i)	the Weierstrass sigma function σ (on invariants)
sign(x)	$\sigma(x)$	Intro.	the sign of a number x
$\sin(z)$	\sin@{z}	(4.14.1)	the sine function
$\operatorname{Sin}_q(x)$	\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
$\sinh(z)$	\qsin(q)@(x) \sinh@{z}	(4.28.1)	the hyperbolic sine function
$\operatorname{snin}(z)$ $\operatorname{sn}(u,k)$	\Jacobiellsnk@{u}{k}	(22.2.4)	the Jacobian elliptic function sn (of modulus k)
$\frac{\sin(u,\kappa)}{\mathbf{T}}$	(a) (b) sanctioned	(22.2.4)	the sacobian emptic function sir (or modulus k)
\mathbf{X}^{T}	\\\	?	the transpage of a matrix
	\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)	
$\theta(z)$	\Airyphasetheta@{z}	(9.8.4)	the phase of Airy functions
$\theta_{ u}(x)$	$\Hankelphasetheta{nu}@{x}$	(10.18.3)	the phase of the Hankel function of the first kind
$\theta(z \Omega)$	$\Riemanntheta@{z}{\Omega ega}$	(21.2.1)	the Riemann theta function
$\theta {lpha igl brace eta}(z \Omega)$	$\Riemannthetachar{lpha}{\betachar}$	a}@{z}{\Om	lega}
		(21.2.5)	the Riemann theta function with characteristics
$ heta_j(z au)$	$\displaystyle \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	$\S 20.2(i)$	the Jacobi theta function of τ
$ heta_j(z,q)$	$\Jacobithetaq{j}@{z}{q}$		the Jacobi theta function of q
$ heta_\ell(\eta, ho)$	$\verb \Coulombphasetheta{\ell}@{\eta} $	}{\rho}	
• • • •	-	(33.2.9)	the phase of the irregular Coulomb function H_{ℓ}^{\pm}
$\hat{ heta}(z \Omega)$	$\verb \scRiemanntheta@{z}{\normalfont{0}{mega}} $	(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
$II(\alpha, \alpha)$	\	\$19.9(:)	
U(a,z)	\paraU0{a}{z}	§12.2(i)	the parabolic cylinder (or Weber) function U
$\frac{U(x,t)}{U(x,t)}$	\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 continued on next page

Expansion	$T_{FX} \ markup$	Declared	Proper Name
$uE_{2n}^m(z,k^2)$	\LamepolyuE{m}{2n}@{z}{k^2}	(29.12.1)	the Lamé polynomial uE_{2n}^m
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
$V_n(x)$	$\ChebyshevpolyV{n}@{x}$	$\S 18.3$	the Chebyshev polynomial of the third kind
V(a,z)	\paraV@{a}{z}	§12.2(i)	the parabolic cylinder (or Weber) function V
V(x,t)	\VoigtV@{x}{t}	(7.19.2)	the Voigt function V
\mathbf{W}		,	
W(x)	\LambertW@{x}	(4.13.1)	the Lambert W-function
$\mathscr{W}\left\{ \overset{\smile}{w_{1}},w_{2} ight\}$	\Wronskian@{w_1,w_2}	(1.13.4)	the Wronskian
$W_n(x)$	\ChebyshevpolyW{n}@{x}	$\S18.3$	the Chebyshev polynomial of the fourth kind
$W_{\kappa,\mu}(z)$	\WhittakerconfhyperW{\kappa}{\r	-	v I v
ν,μ ()	71 - 11 - 2 - 1	(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
$W_n(x^2; a, b, c, d)$	1	0 ()	1 ,
(, , , , ,)	$\WilsonpolyW{n}@{x^2}{a}{b}{c}$	{d}	
		$\S 18.25$	the Wilson polynomial
$\operatorname{Wm}(x)$	\LambertWmQ{x}	$\S 4.13$	the non-principal branch of the Lambert W -
()		· ·	function
Wp(x)	\LambertWp@{x}		the principal branch of the Lambert W -function
Y	*		* *
$\frac{\mathbf{X}}{\xi(s)}$	\Riemannxi@{s}	(25.4.4)	the Riemann ξ function
Y	· · · · · · · · · · · · · · · · · ·	,	,
$y_{ u,m}$	$\label{local_problem} $$\zBessely{ m}$$	§10.21(i)	the $m^{ m th}$ zero of the Bessel function of the second kind $Y_{ u}$
$y'_{\nu,m}$	lem:lem:lem:lem:lem:lem:lem:lem:lem:lem:		the m^{th} zero of the derivative of the Bessel function of the second kind Y'_{ν}
$Y_{ u}(z)$	\BesselY{\nu}@{z}	(10.2.3)	the Bessel function of the second kind
$y_n(z)$	\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
$I_{\nu}(x)$	(Desserlimag () naj e (x)	310.24	order
$y_n(x;a)$	$\Besselpolyy{n}@{x}{a}$	(18.34.1)	the Bessel polynomial
$Y_{l,m}(\theta,\phi)$	\sphharmonicY{1}{m}@{\theta}{\		F J
- 1,111 (* , +)	(af	(14.30.1)	the spherical harmonic
$Y_l^m(\theta,\phi)$	\surfharmonicY{1}{m}@{\theta}{		F
- ((, , ,)	(======================================	(14.30.2)	the surface harmonic of the first kind
$\overline{\mathbf{Z}}$		()	
<u> </u>	\Integers	Intro.	the set of integers
$\mathscr{Z}_ u(z)$	\modcylinder{\nu}@{z}	§10.25	the modified cylinder function
$Z_{\kappa}(\mathbf{T})$	\zonalpolyZ{\kappa}@{T		the meaning symmetrialistics
2κ(-)	,	§35.4(i)	the zonal polynomial
Z(x k)	\JacobiZetak@{x}{k}	(22.16.32)	
$\zeta(s)$	\Riemannzeta@{s}	(25.2.1)	the Riemann zeta function
$\zeta(s,a)$	\Hurwitzzeta@{s}{a}	(25.2.1) $(25.11.1)$	the Hurwitz zeta function
$\zeta(z L)$	\Weierstrasszetalatt@{z}{L}	(23.2.5)	the Weierstrass zeta function ζ (on Lattice)
$\zeta(z;B) = \zeta(z;g_2,g_3)$	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		
\$ (~, 92, 93)	("OTOTOUTUDD2000THV0T 0 [8_2]	§23.3(i)	the Weierstrass zeta function ζ (on invariants)