

Miscellaneous Mathematical Symbols-B

Range: 2980–29FF

This file contains an excerpt from the character code tables and list of character names for *The Unicode Standard, Version 5.1*.

This file may be changed at any time without notice to reflect errata or other updates to the Unicode Standard. See <http://www.unicode.org/errata/> for an up-to-date list of errata.

See <http://www.unicode.org/charts/> for access to a complete list of the latest character code charts. See <http://www.unicode.org/charts/PDF/Unicode-5.1/> for charts showing only the characters added in Unicode 5.1. See <http://www.unicode.org/Public/5.1.0/charts/> for a complete archived file of character code charts for Unicode 5.1.

Disclaimer

These charts are provided as the online reference to the character contents of the Unicode Standard, Version 5.1 but do not provide all the information needed to fully support individual scripts using the Unicode Standard. For a complete understanding of the use of the characters contained in this file, please consult the appropriate sections of The Unicode Standard, Version 5.0 (ISBN 0-321-48091-0), online at <http://www.unicode.org/versions/Unicode5.0.0/>, as well as Unicode Standard Annexes #9, #11, #14, #15, #24, #29, #31, #34, #38, #41, #42, and #44, the other Unicode Technical Reports and Standards, and the Unicode Character Database, which are available online.

See <http://www.unicode.org/ucd/> and <http://www.unicode.org/reports/>

A thorough understanding of the information contained in these additional sources is required for a successful implementation.

Fonts

The shapes of the reference glyphs used in these code charts are not prescriptive. Considerable variation is to be expected in actual fonts. The particular fonts used in these charts were provided to the Unicode Consortium by a number of different font designers, who own the rights to the fonts.

See <http://www.unicode.org/charts/fonts.html> for a list.

Terms of Use

































































































































You may freely use these code charts for personal or internal business uses only. You may not incorporate them either wholly or in part into any product or publication, or otherwise distribute them without express written permission from the Unicode Consortium. However, you may provide links to these charts.

The fonts and font data used in production of these code charts may NOT be extracted, or used in any other way in any product or publication, without permission or license granted by the typeface owner(s).

The Unicode Consortium is not liable for errors or omissions in this file or the standard itself. Information on characters added to the Unicode Standard since the publication of the most recent version of the Unicode Standard, as well as on characters currently being considered for addition to the Unicode Standard can be found on the Unicode web site.

See <http://www.unicode.org/pending/pending.html> and <http://www.unicode.org/alloc/Pipeline.html>.

Copyright © 1991-2008 Unicode, Inc. All rights reserved.

	298	299	29A	29B	29C	29D	29E	29F
0	 2980	 2990	 29A0	 29B0	 29C0	 29D0	 29E0	 29F0
1	 2981	 2991	 29A1	 29B1	 29C1	 29D1	 29E1	 29F1
2	 2982	 2992	 29A2	 29B2	 29C2	 29D2	 29E2	 29F2
3	 2983	 2993	 29A3	 29B3	 29C3	 29D3	 29E3	 29F3
4	 2984	 2994	 29A4	 29B4	 29C4	 29D4	 29E4	 29F4
5	 2985	 2995	 29A5	 29B5	 29C5	 29D5	 29E5	 29F5
6	 2986	 2996	 29A6	 29B6	 29C6	 29D6	 29E6	 29F6
7	 2987	 2997	 29A7	 29B7	 29C7	 29D7	 29E7	 29F7
8	 2988	 2998	 29A8	 29B8	 29C8	 29D8	 29E8	 29F8
9	 2989	 2999	 29A9	 29B9	 29C9	 29D9	 29E9	 29F9
A	 298A	 299A	 29AA	 29BA	 29CA	 29DA	 29EA	 29FA
B	 298B	 299B	 29AB	 29BB	 29CB	 29DB	 29EB	 29FB
C	 298C	 299C	 29AC	 29BC	 29CC	 29DC	 29EC	 29FC
D	 298D	 299D	 29AD	 29BD	 29CD	 29DD	 29ED	 29FD
E	 298E	 299E	 29AE	 29BE	 29CE	 29DE	 29EE	 29FE
F	 298F	 299F	 29AF	 29BF	 29CF	 29DF	 29EF	 29FF

Miscellaneous mathematical symbols

- 2980 \equiv TRIPLE VERTICAL BAR DELIMITER
 → 2AF4 \equiv triple vertical bar binary relation
 → 2AFC \equiv large triple vertical bar operator
- 2981 \bullet Z NOTATION SPOT
 • medium-small-sized black circle
 → 2219 \bullet bullet operator
 → 25CF \bullet black circle
- 2982 $\textcircled{:}$ Z NOTATION TYPE COLON
 → 0F7F $\textcircled{:}$ tibetan sign rnam bcaid

Brackets

- 2983 $\{$ LEFT WHITE CURLY BRACKET
 2984 $\}$ RIGHT WHITE CURLY BRACKET
 2985 $($ LEFT WHITE PARENTHESIS
 → 2E28 $($ left double parenthesis
 → FF5F $($ fullwidth left white parenthesis
- 2986 $)$ RIGHT WHITE PARENTHESIS
 • used for Bourbakist intervals
 → 2E29 $)$ right double parenthesis
 → FF60 $)$ fullwidth right white parenthesis
- 2987 $\{$ Z NOTATION LEFT IMAGE BRACKET
 2988 $\}$ Z NOTATION RIGHT IMAGE BRACKET
 2989 \langle Z NOTATION LEFT BINDING BRACKET
 298A \rangle Z NOTATION RIGHT BINDING BRACKET
 298B $[$ LEFT SQUARE BRACKET WITH UNDERBAR
 298C $]$ RIGHT SQUARE BRACKET WITH UNDERBAR
 298D $[$ LEFT SQUARE BRACKET WITH TICK IN TOP CORNER
 298E $]$ RIGHT SQUARE BRACKET WITH TICK IN BOTTOM CORNER
 298F $[$ LEFT SQUARE BRACKET WITH TICK IN BOTTOM CORNER
 2990 $]$ RIGHT SQUARE BRACKET WITH TICK IN TOP CORNER
- 2991 \langle LEFT ANGLE BRACKET WITH DOT
 2992 \rangle RIGHT ANGLE BRACKET WITH DOT
 2993 \lessgtr LEFT ARC LESS-THAN BRACKET
 2994 \gtrless RIGHT ARC GREATER-THAN BRACKET
 2995 \lessgtr DOUBLE LEFT ARC GREATER-THAN BRACKET
 2996 \gtrless DOUBLE RIGHT ARC LESS-THAN BRACKET
 2997 $\textcircled{}$ LEFT BLACK TORTOISE SHELL BRACKET
 → 27EC $\textcircled{}$ mathematical left white tortoise shell bracket
 → 3014 $\textcircled{}$ left tortoise shell bracket
 → 3018 $\textcircled{}$ left white tortoise shell bracket
- 2998 $\textcircled{}$ RIGHT BLACK TORTOISE SHELL BRACKET

Fences

- 2999 \vdots DOTTED FENCE
 • four close dots vertical
- 299A $\textcircled{}$ VERTICAL ZIGZAG LINE
 → 2307 $\textcircled{}$ wavy line

Angles

- 299B \sphericalangle MEASURED ANGLE OPENING LEFT
 → 2221 \sphericalangle measured angle
- 299C $\textcircled{}$ RIGHT ANGLE VARIANT WITH SQUARE
 → 221F $\textcircled{}$ right angle
- 299D $\textcircled{}$ MEASURED RIGHT ANGLE WITH DOT
 299E \sphericalangle ANGLE WITH S INSIDE
 299F \sphericalangle ACUTE ANGLE
 29A0 \sphericalangle SPHERICAL ANGLE OPENING LEFT
 → 2222 \sphericalangle spherical angle

- 29A1 \sphericalangle SPHERICAL ANGLE OPENING UP
 29A2 \sphericalangle TURNED ANGLE
 → 2220 \sphericalangle angle
- 29A3 \sphericalangle REVERSED ANGLE
 29A4 \sphericalangle ANGLE WITH UNDERBAR
 29A5 \sphericalangle REVERSED ANGLE WITH UNDERBAR
 29A6 \sphericalangle OBLIQUE ANGLE OPENING DOWN
 29A7 \sphericalangle OBLIQUE ANGLE OPENING DOWN
 29A8 \sphericalangle MEASURED ANGLE WITH OPEN ARM ENDING IN ARROW POINTING UP AND RIGHT
 29A9 \sphericalangle MEASURED ANGLE WITH OPEN ARM ENDING IN ARROW POINTING UP AND LEFT
 29AA \sphericalangle MEASURED ANGLE WITH OPEN ARM ENDING IN ARROW POINTING DOWN AND RIGHT
 29AB \sphericalangle MEASURED ANGLE WITH OPEN ARM ENDING IN ARROW POINTING DOWN AND LEFT
 29AC \sphericalangle MEASURED ANGLE WITH OPEN ARM ENDING IN ARROW POINTING RIGHT AND UP
 29AD \sphericalangle MEASURED ANGLE WITH OPEN ARM ENDING IN ARROW POINTING LEFT AND UP
 29AE \sphericalangle MEASURED ANGLE WITH OPEN ARM ENDING IN ARROW POINTING RIGHT AND DOWN
 29AF \sphericalangle MEASURED ANGLE WITH OPEN ARM ENDING IN ARROW POINTING LEFT AND DOWN

Empty sets

- 29B0 \emptyset REVERSED EMPTY SET
 → 2205 \emptyset empty set
 → 2349 \emptyset apl functional symbol circle backslash
- 29B1 \emptyset EMPTY SET WITH OVERBAR
 29B2 \emptyset EMPTY SET WITH SMALL CIRCLE ABOVE
 29B3 \emptyset EMPTY SET WITH RIGHT ARROW ABOVE
 29B4 \emptyset EMPTY SET WITH LEFT ARROW ABOVE

Circle symbols

- 29B5 \ominus CIRCLE WITH HORIZONTAL BAR
 → 2296 \ominus circled minus
- 29B6 \odot CIRCLED VERTICAL BAR
 29B7 \odot CIRCLED PARALLEL
 29B8 \odot CIRCLED REVERSE SOLIDUS
 29B9 \odot CIRCLED PERPENDICULAR
 29BA \odot CIRCLE DIVIDED BY HORIZONTAL BAR AND TOP HALF DIVIDED BY VERTICAL BAR
 29BB \otimes CIRCLE WITH SUPERIMPOSED X
 → 2297 \otimes circled times
- 29BC \oslash CIRCLED ANTICLOCKWISE-ROTATED DIVISION SIGN
 29BD \uparrow UP ARROW THROUGH CIRCLE
 29BE \odot CIRCLED WHITE BULLET
 → 229A \odot circled ring operator
 → 233E \odot apl functional symbol circle jot
 → 25CE \odot bullseye
- 29BF \odot CIRCLED BULLET
 • forms part of a graduated set of circles with enclosed black circle of different sizes
 → 2299 \odot circled dot operator
 → 25C9 \odot fisheye
 → 2A00 \odot n-ary circled dot operator
- 29C0 \oslash CIRCLED LESS-THAN
 29C1 \oslash CIRCLED GREATER-THAN
 29C2 \oslash CIRCLE WITH SMALL CIRCLE TO THE RIGHT
 29C3 \oslash CIRCLE WITH TWO HORIZONTAL STROKES TO THE RIGHT

Square symbols

- 29C4 \boxplus SQUARED RISING DIAGONAL SLASH
 → 2341 \boxplus apl functional symbol quad slash
 → 303C \boxplus masu mark
- 29C5 \boxminus SQUARED FALLING DIAGONAL SLASH
 → 2342 \boxminus apl functional symbol quad backslash
- 29C6 \boxtimes SQUARED ASTERISK
- 29C7 \boxdot SQUARED SMALL CIRCLE
 → 233B \boxdot apl functional symbol quad jot
- 29C8 \boxplus SQUARED SQUARE
- 29C9 \boxplus TWO JOINED SQUARES

Triangle symbols

- 29CA \triangleup TRIANGLE WITH DOT ABOVE
- 29CB \trianglebar TRIANGLE WITH UNDERBAR
- 29CC \triangle S IN TRIANGLE
- 29CD \triangle TRIANGLE WITH SERIFS AT BOTTOM
 → 25B3 \triangle white up-pointing triangle
- 29CE \blacktriangleright RIGHT TRIANGLE ABOVE LEFT TRIANGLE
- 29CF \blacktriangleleft LEFT TRIANGLE BESIDE VERTICAL BAR
- 29D0 \blacktriangleright VERTICAL BAR BESIDE RIGHT TRIANGLE

Bowtie symbols

- 29D1 \bowtie BOWTIE WITH LEFT HALF BLACK
 → 22C8 \bowtie bowtie
- 29D2 \bowtie BOWTIE WITH RIGHT HALF BLACK
- 29D3 \bowtie BLACK BOWTIE
- 29D4 \bowtie TIMES WITH LEFT HALF BLACK
 → 22C9 \bowtie left normal factor semidirect product
- 29D5 \bowtie TIMES WITH RIGHT HALF BLACK
 → 22CA \bowtie right normal factor semidirect product
- 29D6 \bowtie WHITE HOURGLASS
 = vertical bowtie
 = white framus
 → 231B \bowtie hourglass
- 29D7 \bowtie BLACK HOURGLASS

Fences

- 29D8 $\}$ LEFT WIGGLY FENCE
 → FE34 $\}$ presentation form for vertical wavy low line
- 29D9 $\}$ RIGHT WIGGLY FENCE
- 29DA $\}$ LEFT DOUBLE WIGGLY FENCE
- 29DB $\}$ RIGHT DOUBLE WIGGLY FENCE

Miscellaneous mathematical symbols

- 29DC ∞ INCOMPLETE INFINITY
 = ISOTech entity ⧜
 → 221E ∞ infinity
- 29DD ∞ TIE OVER INFINITY
- 29DE ∞ INFINITY NEGATED WITH VERTICAL BAR
- 29DF ∞ DOUBLE-ENDED MULTIMAP
 → 22B8 ∞ multimap
- 29E0 \square SQUARE WITH CONTOURED OUTLINE
 = D'Alembertian
 → 274F \square lower right drop-shadowed white square
- 29E1 \leq INCREASES AS
 → 22B4 \leq normal subgroup of or equal to
- 29E2 \sqcup SHUFFLE PRODUCT
 → 22FF \sqcup z notation bag membership

Relations

- 29E3 \neq EQUALS SIGN AND SLANTED PARALLEL
 → 0023 \neq number sign
 → 22D5 \neq equal and parallel to
- 29E4 \neq EQUALS SIGN AND SLANTED PARALLEL WITH TILDE ABOVE
- 29E5 \neq IDENTICAL TO AND SLANTED PARALLEL
 → 2A68 \neq triple horizontal bar with double vertical stroke
- 29E6 \equiv GLEICH STARK
 = tautological equivalent

Miscellaneous mathematical symbols

- 29E7 \neq THERMODYNAMIC
 • vertical bar crossed by two horizontals
 → 2260 \neq not equal to
- 29E8 \blacktriangledown DOWN-POINTING TRIANGLE WITH LEFT HALF BLACK
 → 25ED \blacktriangledown up-pointing triangle with left half black
- 29E9 \blacktriangledown DOWN-POINTING TRIANGLE WITH RIGHT HALF BLACK
 → 25EE \blacktriangledown up-pointing triangle with right half black
- 29EA \blacklozenge BLACK DIAMOND WITH DOWN ARROW
- 29EB \blacklozenge BLACK LOZENGE
 → 25CA \blacklozenge lozenge
- 29EC \circ WHITE CIRCLE WITH DOWN ARROW
- 29ED \bullet BLACK CIRCLE WITH DOWN ARROW

Error bar symbols

- 29EE \boxplus ERROR-BARRED WHITE SQUARE
- 29EF \boxplus ERROR-BARRED BLACK SQUARE
- 29F0 \boxplus ERROR-BARRED WHITE DIAMOND
- 29F1 \boxplus ERROR-BARRED BLACK DIAMOND
- 29F2 \boxplus ERROR-BARRED WHITE CIRCLE
- 29F3 \boxplus ERROR-BARRED BLACK CIRCLE

Miscellaneous mathematical symbols

- 29F4 \Rightarrow RULE-DELAYED
 = colon right arrow
- 29F5 \setminus REVERSE SOLIDUS OPERATOR
 → 005C \setminus reverse solidus
 → 2216 \setminus set minus
- 29F6 $\overline{\setminus}$ SOLIDUS WITH OVERBAR
- 29F7 \setminus REVERSE SOLIDUS WITH HORIZONTAL STROKE
 → 2340 \setminus apl functional symbol backslash bar

Large operators

- 29F8 $\big/$ BIG SOLIDUS
 → 2215 $\big/$ division slash
- 29F9 $\big\setminus$ BIG REVERSE SOLIDUS
 = z notation schema hiding
 → 2216 $\big\setminus$ set minus

Specialized plus sign operators

- 29FA $\#$ DOUBLE PLUS
- 29FB $\#\#$ TRIPLE PLUS

Brackets

- 29FC \langle LEFT-POINTING CURVED ANGLE BRACKET
 → 227A \langle precedes
 → 2329 \langle left-pointing angle bracket

29FD > RIGHT-POINTING CURVED ANGLE BRACKET
→ 227B > succeeds
→ 232A > right-pointing angle bracket

Miscellaneous mathematical symbols

29FE + TINY
→ 002B + plus sign
29FF - MINY
→ 2212 - minus sign