

Supplemental Mathematical Operators

Range: 2A00–2AFF

This file contains an excerpt from the character code tables and list of character names for *The Unicode Standard, Version 17.0 BETA REVIEW DRAFT*

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See <https://www.unicode.org/charts/> for access to a complete list of the latest character code charts. See <https://www.unicode.org/charts/PDF/Unicode-17.0/> for charts showing only the characters added in Unicode 17.0. See <https://www.unicode.org/Public/17.0.0/charts/> for a complete archived file of character code charts for Unicode 17.0. See <https://www.unicode.org/charts/About.html#Conventions> for conventions used in these code charts, and other general information.

Disclaimer

These charts are provided as the online reference to the character contents of the Unicode Standard, Version 17.0 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 17.0, online at <https://www.unicode.org/versions/Unicode17.0.0/>, as well as the Unicode Standard Annexes, the other Unicode Technical Reports and Standards, and the Unicode Character Database, which are available online.

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

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

Fonts

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

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	2A0	2A1	2A2	2A3	2A4	2A5	2A6	2A7	2A8	2A9	2AA	2AB	2AC	2AD	2AE	2AF
0	2A00	2A10	2A20	2A30	2A40	2A50	2A60	2A70	2A80	2A90	2AA0	2AB0	2AC0	2AD0	2AE0	2AF0
1	2A01	2A11	2A21	2A31	2A41	2A51	2A61	2A71	2A81	2A91	2AA1	2AB1	2AC1	2AD1	2AE1	2AF1
2	2A02	2A12	2A22	2A32	2A42	2A52	2A62	2A72	2A82	2A92	2AA2	2AB2	2AC2	2AD2	2AE2	2AF2
3	2A03	2A13	2A23	2A33	2A43	2A53	2A63	2A73	2A83	2A93	2AA3	2AB3	2AC3	2AD3	2AE3	2AF3
4	2A04	2A14	2A24	2A34	2A44	2A54	2A64	2A74	2A84	2A94	2AA4	2AB4	2AC4	2AD4	2AE4	2AF4
5	2A05	2A15	2A25	2A35	2A45	2A55	2A65	2A75	2A85	2A95	2AA5	2AB5	2AC5	2AD5	2AE5	2AF5
6	2A06	2A16	2A26	2A36	2A46	2A56	2A66	2A76	2A86	2A96	2AA6	2AB6	2AC6	2AD6	2AE6	2AF6
7	2A07	2A17	2A27	2A37	2A47	2A57	2A67	2A77	2A87	2A97	2AA7	2AB7	2AC7	2AD7	2AE7	2AF7
8	2A08	2A18	2A28	2A38	2A48	2A58	2A68	2A78	2A88	2A98	2AA8	2AB8	2AC8	2AD8	2AE8	2AF8
9	2A09	2A19	2A29	2A39	2A49	2A59	2A69	2A79	2A89	2A99	2AA9	2AB9	2AC9	2AD9	2AE9	2AF9
A	2A0A	2A1A	2A2A	2A3A	2A4A	2A5A	2A6A	2A7A	2A8A	2A9A	2AA0	2ABA	2ACA	2ADA	2AEA	2AFA
B	2A0B	2A1B	2A2B	2A3B	2A4B	2A5B	2A6B	2A7B	2A8B	2A9B	2AAB	2ABB	2ACB	2ADB	2AEB	2AFB
C	2A0C	2A1C	2A2C	2A3C	2A4C	2A5C	2A6C	2A7C	2A8C	2A9C	2AAC	2ABC	2ACC	2ADC	2AEC	2AFC
D	2A0D	2A1D	2A2D	2A3D	2A4D	2A5D	2A6D	2A7D	2A8D	2A9D	2AAD	2ABD	2ACD	2ADD	2AED	2AFD
E	2A0E	2A1E	2A2E	2A3E	2A4E	2A5E	2A6E	2A7E	2A8E	2A9E	2AAE	2ABE	2ACE	2ADE	2AEE	2AFE
F	2A0F	2A1F	2A2F	2A3F	2A4F	2A5F	2A6F	2A7F	2A8F	2A9F	2AAF	2ABF	2ACF	2ADF	2AEF	2AFF

N-ary operators

- 2A00 \odot N-ARY CIRCLED DOT OPERATOR
→ 2299 \odot circled dot operator
→ 25C9 \odot fisheye
- 2A01 \oplus N-ARY CIRCLED PLUS OPERATOR
→ 2295 \oplus circled plus
- 2A02 \otimes N-ARY CIRCLED TIMES OPERATOR
→ 2297 \otimes circled times
→ 2B59 \otimes heavy circled saltire
- 2A03 \cup N-ARY UNION OPERATOR WITH DOT
→ 228D \cup multiset multiplication
- 2A04 \uplus N-ARY UNION OPERATOR WITH PLUS
→ 228E \uplus multiset union
- 2A05 \sqcap N-ARY SQUARE INTERSECTION OPERATOR
→ 2293 \sqcap square cap
- 2A06 \sqcup N-ARY SQUARE UNION OPERATOR
→ 2294 \sqcup square cup
- 2A07 \pitchfork TWO LOGICAL AND OPERATOR
= merge
→ 2A55 \pitchfork two intersecting logical and
- 2A08 \wp TWO LOGICAL OR OPERATOR
→ 2A56 \wp two intersecting logical or
- 2A09 \times N-ARY TIMES OPERATOR
→ 00D7 \times multiplication sign

Summations and integrals

- 2A0A \sum_2 MODULO TWO SUM
→ 2211 \sum n-ary summation
- 2A0B \int SUMMATION WITH INTEGRAL
- 2A0C \iiint QUADRUPLE INTEGRAL OPERATOR
→ 222D \iiint triple integral
≈ 222B \int 222B \int 222B \int 222B \int
- 2A0D \int FINITE PART INTEGRAL
- 2A0E \int INTEGRAL WITH DOUBLE STROKE
- 2A0F \int INTEGRAL AVERAGE WITH SLASH
- 2A10 \int CIRCULATION FUNCTION
- 2A11 \int ANTICLOCKWISE INTEGRATION
- 2A12 \int LINE INTEGRATION WITH RECTANGULAR PATH AROUND POLE
- 2A13 \int LINE INTEGRATION WITH SEMICIRCULAR PATH AROUND POLE
- 2A14 \int LINE INTEGRATION NOT INCLUDING THE POLE
- 2A15 \int INTEGRAL AROUND A POINT OPERATOR
→ 222E \int contour integral
- 2A16 \int QUATERNION INTEGRAL OPERATOR
- 2A17 \int INTEGRAL WITH LEFTWARDS ARROW WITH HOOK
- 2A18 \int INTEGRAL WITH TIMES SIGN
- 2A19 \int INTEGRAL WITH INTERSECTION
- 2A1A \int INTEGRAL WITH UNION
- 2A1B \int INTEGRAL WITH OVERBAR
= upper integral
- 2A1C \int INTEGRAL WITH UNDERBAR
= lower integral

Miscellaneous large operators

- 2A1D \bowtie JOIN
= large bowtie
• relational database theory
→ 22C8 \bowtie bowtie
→ 27D7 \bowtie full outer join
- 2A1E \triangleleft LARGE LEFT TRIANGLE OPERATOR
• relational database theory
→ 25C1 \triangleleft white left-pointing triangle

- 2A1F \S Z NOTATION SCHEMA COMPOSITION
→ 2A3E \S ; z notation relational composition
- 2A20 \gg Z NOTATION SCHEMA PIPING
→ 226B \gg much greater-than
- 2A21 \uparrow Z NOTATION SCHEMA PROJECTION
→ 21BE \uparrow upwards harpoon with barb rightwards

Plus and minus sign operators

- 2A22 \ddagger PLUS SIGN WITH SMALL CIRCLE ABOVE
- 2A23 \dagger PLUS SIGN WITH CIRCUMFLEX ACCENT ABOVE
- 2A24 \ddagger PLUS SIGN WITH TILDE ABOVE
= positive difference or sum
- 2A25 \dagger PLUS SIGN WITH DOT BELOW
→ 2214 \dagger dot plus
- 2A26 \ddagger PLUS SIGN WITH TILDE BELOW
= sum or positive difference
- 2A27 \ddagger PLUS SIGN WITH SUBSCRIPT TWO
= nim-addition
- 2A28 \ddagger PLUS SIGN WITH BLACK TRIANGLE
- 2A29 \dagger MINUS SIGN WITH COMMA ABOVE
- 2A2A \dagger MINUS SIGN WITH DOT BELOW
→ 2238 \dagger dot minus
- 2A2B \ddagger MINUS SIGN WITH FALLING DOTS
- 2A2C \ddagger MINUS SIGN WITH RISING DOTS
- 2A2D \ddagger PLUS SIGN IN LEFT HALF CIRCLE
- 2A2E \ddagger PLUS SIGN IN RIGHT HALF CIRCLE

Multiplication and division sign operators

- 2A2F \times VECTOR OR CROSS PRODUCT
→ 00D7 \times multiplication sign
- 2A30 \times MULTIPLICATION SIGN WITH DOT ABOVE
- 2A31 \times MULTIPLICATION SIGN WITH UNDERBAR
- 2A32 \times SEMIDIRECT PRODUCT WITH BOTTOM CLOSED
- 2A33 \times SMASH PRODUCT
- 2A34 \otimes MULTIPLICATION SIGN IN LEFT HALF CIRCLE
- 2A35 \otimes MULTIPLICATION SIGN IN RIGHT HALF CIRCLE
- 2A36 \otimes CIRCLED MULTIPLICATION SIGN WITH CIRCUMFLEX ACCENT
- 2A37 \otimes MULTIPLICATION SIGN IN DOUBLE CIRCLE
- 2A38 \otimes CIRCLED DIVISION SIGN

Miscellaneous mathematical operators

- 2A39 \triangle PLUS SIGN IN TRIANGLE
- 2A3A \triangle MINUS SIGN IN TRIANGLE
- 2A3B \triangle MULTIPLICATION SIGN IN TRIANGLE
- 2A3C \lrcorner INTERIOR PRODUCT
→ 230B \lrcorner right floor
~ 2A3C FE00 \lrcorner tall variant with narrow foot
- 2A3D \llcorner RIGHTHAND INTERIOR PRODUCT
→ 230A \llcorner left floor
→ 2319 \llcorner turned not sign
~ 2A3D FE00 \llcorner tall variant with narrow foot
- 2A3E \S ; Z NOTATION RELATIONAL COMPOSITION
→ 2A1F \S ; z notation schema composition
- 2A3F \amalg AMALGAMATION OR COPRODUCT
→ 2210 \amalg n-ary coproduct

Intersections and unions

- 2A40 \cap INTERSECTION WITH DOT
→ 2227 \cap logical and
→ 27D1 \cap and with dot
- 2A41 \cup UNION WITH MINUS SIGN
= z notation bag subtraction
→ 228E \cup multiset union

2A42	\cup	UNION WITH OVERBAR
2A43	\cap	INTERSECTION WITH OVERBAR
2A44	$\&$	INTERSECTION WITH LOGICAL AND
2A45	$\&$	UNION WITH LOGICAL OR
2A46	\cup	UNION ABOVE INTERSECTION
2A47	\cap	INTERSECTION ABOVE UNION
2A48	\cup	UNION ABOVE BAR ABOVE INTERSECTION
2A49	\cap	INTERSECTION ABOVE BAR ABOVE UNION
2A4A	\cup	UNION BESIDE AND JOINED WITH UNION
2A4B	\cap	INTERSECTION BESIDE AND JOINED WITH INTERSECTION
2A4C	\cup	CLOSED UNION WITH SERIFS → 222A \cup union
2A4D	\cap	CLOSED INTERSECTION WITH SERIFS → 2229 \cap intersection
2A4E	\boxplus	DOUBLE SQUARE INTERSECTION
2A4F	\boxplus	DOUBLE SQUARE UNION
2A50	\boxtimes	CLOSED UNION WITH SERIFS AND SMASH PRODUCT

Logical ands and ors

2A51	\wedge	LOGICAL AND WITH DOT ABOVE
2A52	\vee	LOGICAL OR WITH DOT ABOVE
2A53	$\&$	DOUBLE LOGICAL AND
2A54	$\&$	DOUBLE LOGICAL OR
2A55	$\&$	TWO INTERSECTING LOGICAL AND → 2A07 $\&$ two logical and operator
2A56	$\&$	TWO INTERSECTING LOGICAL OR → 2A08 $\&$ two logical or operator
2A57	\sloper	SLOPING LARGE OR
2A58	\sloper	SLOPING LARGE AND
2A59	$\&$	LOGICAL OR OVERLAPPING LOGICAL AND
2A5A	$\&$	LOGICAL AND WITH MIDDLE STEM
2A5B	$\&$	LOGICAL OR WITH MIDDLE STEM
2A5C	$\&$	LOGICAL AND WITH HORIZONTAL DASH
2A5D	$\&$	LOGICAL OR WITH HORIZONTAL DASH
2A5E	$\bar{\cup}$	LOGICAL AND WITH DOUBLE OVERBAR → 2306 $\bar{\cup}$ perspective
2A5F	$\underline{\cup}$	LOGICAL AND WITH UNDERBAR
2A60	$\underline{\cup}$	LOGICAL AND WITH DOUBLE UNDERBAR → 2259 $\underline{\cup}$ estimates
2A61	\sloper	SMALL VEE WITH UNDERBAR → 225A \sloper equiangular to
2A62	$\bar{\vee}$	LOGICAL OR WITH DOUBLE OVERBAR
2A63	$\bar{\vee}$	LOGICAL OR WITH DOUBLE UNDERBAR → 225A $\bar{\vee}$ equiangular to

Miscellaneous mathematical operators

2A64	\triangleleft	Z NOTATION DOMAIN ANTIRESTRICTION
2A65	\triangleleft	Z NOTATION RANGE ANTIRESTRICTION → 2332 \triangleleft conical taper

Relational operators

2A66	\doteq	EQUALS SIGN WITH DOT BELOW → 2250 \doteq approaches the limit
2A67	\equiv	IDENTICAL WITH DOT ABOVE
2A68	$\#$	TRIPLE HORIZONTAL BAR WITH DOUBLE VERTICAL STROKE = identical and parallel to → 22D5 $\#$ equal and parallel to → 29E5 $\#$ identical to and slanted parallel
2A69	$\#$	TRIPLE HORIZONTAL BAR WITH TRIPLE VERTICAL STROKE
2A6A	\sim	TILDE OPERATOR WITH DOT ABOVE

2A6B	\approx	TILDE OPERATOR WITH RISING DOTS → 223B \approx homothetic
2A6C	\approx	SIMILAR MINUS SIMILAR
2A6D	$\dot{\approx}$	CONGRUENT WITH DOT ABOVE → 2245 $\dot{\approx}$ approximately equal to
2A6E	\approx	EQUALS WITH ASTERISK → 225B \approx star equals
2A6F	\approx	ALMOST EQUAL TO WITH CIRCUMFLEX ACCENT
2A70	$\dot{\approx}$	APPROXIMATELY EQUAL OR EQUAL TO → 2245 $\dot{\approx}$ approximately equal to
2A71	$\dot{=}$	EQUALS SIGN ABOVE PLUS SIGN • black stands slightly better (chess notation)
2A72	$\dot{=}$	PLUS SIGN ABOVE EQUALS SIGN • white stands slightly better (chess notation)
2A73	$\dot{=}$	EQUALS SIGN ABOVE TILDE OPERATOR
2A74	\equiv	DOUBLE COLON EQUAL \approx 003A : 003A : 003D =
2A75	\equiv	TWO CONSECUTIVE EQUALS SIGNS \approx 003D = 003D =
2A76	\equiv	THREE CONSECUTIVE EQUALS SIGNS \approx 003D = 003D = 003D =
2A77	$\dot{=}$	EQUALS SIGN WITH TWO DOTS ABOVE AND TWO DOTS BELOW
2A78	\equiv	EQUIVALENT WITH FOUR DOTS ABOVE
2A79	\triangleleft	LESS-THAN WITH CIRCLE INSIDE
2A7A	\triangleright	GREATER-THAN WITH CIRCLE INSIDE
2A7B	\triangleleft	LESS-THAN WITH QUESTION MARK ABOVE
2A7C	\triangleright	GREATER-THAN WITH QUESTION MARK ABOVE
2A7D	\triangleleft	LESS-THAN OR SLANTED EQUAL TO → 2264 \triangleleft less-than or equal to
2A7E	\triangleright	GREATER-THAN OR SLANTED EQUAL TO → 2265 \triangleright greater-than or equal to
2A7F	\triangleleft	LESS-THAN OR SLANTED EQUAL TO WITH DOT INSIDE
2A80	\triangleright	GREATER-THAN OR SLANTED EQUAL TO WITH DOT INSIDE
2A81	\triangleleft	LESS-THAN OR SLANTED EQUAL TO WITH DOT ABOVE
2A82	\triangleright	GREATER-THAN OR SLANTED EQUAL TO WITH DOT ABOVE
2A83	\triangleleft	LESS-THAN OR SLANTED EQUAL TO WITH DOT ABOVE RIGHT
2A84	\triangleright	GREATER-THAN OR SLANTED EQUAL TO WITH DOT ABOVE LEFT
2A85	$\dot{\triangleleft}$	LESS-THAN OR APPROXIMATE
2A86	$\dot{\triangleright}$	GREATER-THAN OR APPROXIMATE
2A87	$\dot{\triangleleft}$	LESS-THAN AND SINGLE-LINE NOT EQUAL TO → 2268 $\dot{\triangleleft}$ less-than but not equal to
2A88	$\dot{\triangleright}$	GREATER-THAN AND SINGLE-LINE NOT EQUAL TO → 2269 $\dot{\triangleright}$ greater-than but not equal to
2A89	$\dot{\triangleleft}$	LESS-THAN AND NOT APPROXIMATE
2A8A	$\dot{\triangleright}$	GREATER-THAN AND NOT APPROXIMATE
2A8B	$\dot{\triangleleft}$	LESS-THAN ABOVE DOUBLE-LINE EQUAL ABOVE GREATER-THAN → 22DA $\dot{\triangleleft}$ less-than equal to or greater-than
2A8C	$\dot{\triangleright}$	GREATER-THAN ABOVE DOUBLE-LINE EQUAL ABOVE LESS-THAN → 22DB $\dot{\triangleright}$ greater-than equal to or less-than
2A8D	$\dot{\triangleleft}$	LESS-THAN ABOVE SIMILAR OR EQUAL
2A8E	$\dot{\triangleright}$	GREATER-THAN ABOVE SIMILAR OR EQUAL
2A8F	$\dot{\triangleleft}$	LESS-THAN ABOVE SIMILAR ABOVE GREATER-THAN

2A90	⋙	GREATER-THAN ABOVE SIMILAR ABOVE LESS-THAN
2A91	⋙	LESS-THAN ABOVE GREATER-THAN ABOVE DOUBLE-LINE EQUAL
2A92	⋙	GREATER-THAN ABOVE LESS-THAN ABOVE DOUBLE-LINE EQUAL
2A93	⋙	LESS-THAN ABOVE SLANTED EQUAL ABOVE GREATER-THAN ABOVE SLANTED EQUAL
2A94	⋙	GREATER-THAN ABOVE SLANTED EQUAL ABOVE LESS-THAN ABOVE SLANTED EQUAL
2A95	⋙	SLANTED EQUAL TO OR LESS-THAN → 22DC ⋙ equal to or less-than
2A96	⋙	SLANTED EQUAL TO OR GREATER-THAN → 22DD ⋙ equal to or greater-than
2A97	⋙	SLANTED EQUAL TO OR LESS-THAN WITH DOT INSIDE
2A98	⋙	SLANTED EQUAL TO OR GREATER-THAN WITH DOT INSIDE
2A99	⋙	DOUBLE-LINE EQUAL TO OR LESS-THAN → 22DC ⋙ equal to or less-than
2A9A	⋙	DOUBLE-LINE EQUAL TO OR GREATER-THAN → 22DD ⋙ equal to or greater-than
2A9B	⋙	DOUBLE-LINE SLANTED EQUAL TO OR LESS-THAN
2A9C	⋙	DOUBLE-LINE SLANTED EQUAL TO OR GREATER-THAN
2A9D	⋙	SIMILAR OR LESS-THAN ~ 2A9D FE00 ⋙ with similar following the slant of the upper leg
2A9E	⋙	SIMILAR OR GREATER-THAN ~ 2A9E FE00 ⋙ with similar following the slant of the upper leg
2A9F	⋙	SIMILAR ABOVE LESS-THAN ABOVE EQUALS SIGN
2AA0	⋙	SIMILAR ABOVE GREATER-THAN ABOVE EQUALS SIGN
2AA1	⋙	DOUBLE NESTED LESS-THAN = absolute continuity → 226A ⋙ much less-than
2AA2	⋙	DOUBLE NESTED GREATER-THAN → 226B ⋙ much greater-than
2AA3	⋙	DOUBLE NESTED LESS-THAN WITH UNDERBAR
2AA4	⋙	GREATER-THAN OVERLAPPING LESS-THAN
2AA5	⋙	GREATER-THAN BESIDE LESS-THAN
2AA6	⋙	LESS-THAN CLOSED BY CURVE
2AA7	⋙	GREATER-THAN CLOSED BY CURVE
2AA8	⋙	LESS-THAN CLOSED BY CURVE ABOVE SLANTED EQUAL
2AA9	⋙	GREATER-THAN CLOSED BY CURVE ABOVE SLANTED EQUAL
2AAA	⋙	SMALLER THAN
2AAB	⋙	LARGER THAN
2AAC	⋙	SMALLER THAN OR EQUAL TO ~ 2AAC FE00 ⋙ with slanted equal
2AAD	⋙	LARGER THAN OR EQUAL TO ~ 2AAD FE00 ⋙ with slanted equal
2AAE	⋙	EQUALS SIGN WITH BUMPY ABOVE → 224F ⋙ difference between
2AAF	⋙	PRECEDES ABOVE SINGLE-LINE EQUALS SIGN → 227C ⋙ precedes or equal to
2AB0	⋙	SUCCEEDS ABOVE SINGLE-LINE EQUALS SIGN → 227D ⋙ succeeds or equal to
2AB1	⋙	PRECEDES ABOVE SINGLE-LINE NOT EQUAL TO
2AB2	⋙	SUCCEEDS ABOVE SINGLE-LINE NOT EQUAL TO

2AB3	⋙	PRECEDES ABOVE EQUALS SIGN
2AB4	⋙	SUCCEEDS ABOVE EQUALS SIGN
2AB5	⋙	PRECEDES ABOVE NOT EQUAL TO
2AB6	⋙	SUCCEEDS ABOVE NOT EQUAL TO
2AB7	⋙	PRECEDES ABOVE ALMOST EQUAL TO
2AB8	⋙	SUCCEEDS ABOVE ALMOST EQUAL TO
2AB9	⋙	PRECEDES ABOVE NOT ALMOST EQUAL TO
2ABA	⋙	SUCCEEDS ABOVE NOT ALMOST EQUAL TO
2ABB	⋙	DOUBLE PRECEDES
2ABC	⋙	DOUBLE SUCCEEDS

Subset and superset relations

2ABD	⋙	SUBSET WITH DOT
2ABE	⋙	SUPERSET WITH DOT
2ABF	⋙	SUBSET WITH PLUS SIGN BELOW
2AC0	⋙	SUPERSET WITH PLUS SIGN BELOW
2AC1	⋙	SUBSET WITH MULTIPLICATION SIGN BELOW
2AC2	⋙	SUPERSET WITH MULTIPLICATION SIGN BELOW
2AC3	⋙	SUBSET OF OR EQUAL TO WITH DOT ABOVE
2AC4	⋙	SUPERSET OF OR EQUAL TO WITH DOT ABOVE
2AC5	⋙	SUBSET OF ABOVE EQUALS SIGN
2AC6	⋙	SUPERSET OF ABOVE EQUALS SIGN
2AC7	⋙	SUBSET OF ABOVE TILDE OPERATOR
2AC8	⋙	SUPERSET OF ABOVE TILDE OPERATOR
2AC9	⋙	SUBSET OF ABOVE ALMOST EQUAL TO
2ACA	⋙	SUPERSET OF ABOVE ALMOST EQUAL TO
2ACB	⋙	SUBSET OF ABOVE NOT EQUAL TO ~ 2ACB FE00 ⋙ with stroke through bottom members
2ACC	⋙	SUPERSET OF ABOVE NOT EQUAL TO ~ 2ACC FE00 ⋙ with stroke through bottom members
2ACD	⋙	SQUARE LEFT OPEN BOX OPERATOR
2ACE	⋙	SQUARE RIGHT OPEN BOX OPERATOR
2ACF	⋙	CLOSED SUBSET → 2282 ⋙ subset of
2AD0	⋙	CLOSED SUPERSET → 2283 ⋙ superset of
2AD1	⋙	CLOSED SUBSET OR EQUAL TO
2AD2	⋙	CLOSED SUPERSET OR EQUAL TO
2AD3	⋙	SUBSET ABOVE SUPERSET
2AD4	⋙	SUPERSET ABOVE SUBSET
2AD5	⋙	SUBSET ABOVE SUBSET
2AD6	⋙	SUPERSET ABOVE SUPERSET
2AD7	⋙	SUPERSET BESIDE SUBSET
2AD8	⋙	SUPERSET BESIDE AND JOINED BY DASH WITH SUBSET

Forks

2AD9	⋙	ELEMENT OF OPENING DOWNWARDS → 2208 ⋙ element of → 27D2 ⋙ element of opening upwards
2ADA	⋙	PITCHFORK WITH TEE TOP → 22D4 ⋙ pitchfork
2ADB	⋙	TRANSVERSAL INTERSECTION → 22D4 ⋙ pitchfork
2ADC	⋙	FORKING = not independent • an equational logic symbol, not a computing science symbol • non-independence (original concept) is related to forking ≡ 2ADD ⋙ 0338 ⋙

- 2ADD ↯ NONFORKING
= independent
- an equational logic symbol, not a computing science symbol
 - independence (original concept) is related to non-forking

Tacks and turnstiles

- 2ADE † SHORT LEFT TACK
→ 22A3 † left tack
- 2ADF † SHORT DOWN TACK
→ 22A4 † down tack
- 2AE0 † SHORT UP TACK
→ 22A5 † up tack
- 2AE1 ⊥ PERPENDICULAR WITH S
- 2AE2 ≡ VERTICAL BAR TRIPLE RIGHT TURNSTILE
= ordinarily satisfies
- 2AE3 ≡ DOUBLE VERTICAL BAR LEFT TURNSTILE
→ 22A9 ≡ forces
- 2AE4 ≡ VERTICAL BAR DOUBLE LEFT TURNSTILE
→ 22A8 ≡ true
- 2AE5 ≡ DOUBLE VERTICAL BAR DOUBLE LEFT TURNSTILE
- 2AE6 ≡ LONG DASH FROM LEFT MEMBER OF DOUBLE VERTICAL
→ 22A9 ≡ forces
- 2AE7 † SHORT DOWN TACK WITH OVERBAR
→ 22A4 † down tack
→ 2351 † apl functional symbol up tack overbar
→ 3012 † postal mark
- 2AE8 ± SHORT UP TACK WITH UNDERBAR
→ 22A5 † up tack
→ 234A ± apl functional symbol down tack underbar
- 2AE9 ± SHORT UP TACK ABOVE SHORT DOWN TACK
- 2AEA † DOUBLE DOWN TACK
- 2AEB † DOUBLE UP TACK
= independence
- probability theory
- 2AEC ≡ DOUBLE STROKE NOT SIGN
→ 00AC ≡ not sign
- 2AED ≡ REVERSED DOUBLE STROKE NOT SIGN
→ 2310 ≡ reversed not sign

Vertical line operators

- 2AEE † DOES NOT DIVIDE WITH REVERSED NEGATION SLASH
→ 2224 † does not divide
- 2AEF † VERTICAL LINE WITH CIRCLE ABOVE
- 2AF0 † VERTICAL LINE WITH CIRCLE BELOW
- 2AF1 † DOWN TACK WITH CIRCLE BELOW
= necessarily satisfies
→ 27DF † up tack with circle above
- 2AF2 † PARALLEL WITH HORIZONTAL STROKE
→ 2226 † not parallel to
→ 27CA † vertical bar with horizontal stroke
- 2AF3 † PARALLEL WITH TILDE OPERATOR
- 2AF4 † TRIPLE VERTICAL BAR BINARY RELATION
= interleave
→ 2980 † triple vertical bar delimiter
- 2AF5 † TRIPLE VERTICAL BAR WITH HORIZONTAL STROKE
→ 27CA † vertical bar with horizontal stroke

Miscellaneous mathematical operator

- 2AF6 † TRIPLE COLON OPERATOR
- logic
 - 205D † tricolon
 - 22EE † vertical ellipsis

Relations

- 2AF7 ≪≪ TRIPLE NESTED LESS-THAN
→ 22D8 ≪≪ very much less-than
- 2AF8 ≫≫ TRIPLE NESTED GREATER-THAN
→ 22D9 ≫≫ very much greater-than
- 2AF9 ≧≧ DOUBLE-LINE SLANTED LESS-THAN OR EQUAL TO
→ 2266 ≧≧ less-than over equal to
- 2AFA ≧≧ DOUBLE-LINE SLANTED GREATER-THAN OR EQUAL TO
→ 2267 ≧≧ greater-than over equal to
- 2AFB † TRIPLE SOLIDUS BINARY RELATION
→ 2AF4 † triple vertical bar binary relation

Operators

- 2AFC † LARGE TRIPLE VERTICAL BAR OPERATOR
- often n-ary
 - 2AF4 † triple vertical bar binary relation
 - 2980 † triple vertical bar delimiter
- 2AFD † DOUBLE SOLIDUS OPERATOR
→ 2225 † parallel to
- 2AFE † WHITE VERTICAL BAR
= Dijkstra choice
- 2AFF † N-ARY WHITE VERTICAL BAR
= n-ary Dijkstra choice

Standardized Variation Sequences

2A3C



INTERIOR PRODUCT

2A3C



tall variant with narrow foot

2A3C FE00

2A3D



RIGHTHAND INTERIOR PRODUCT

2A3D



tall variant with narrow foot

2A3D FE00

2A9D



SIMILAR OR LESS-THAN

2A9D



with similar following the slant of the upper leg

2A9D FE00

2A9E



SIMILAR OR GREATER-THAN

2A9E



with similar following the slant of the upper leg

2A9E FE00

2AAC



SMALLER THAN OR EQUAL TO

2AAC



with slanted equal

2AAC FE00

2AAD



LARGER THAN OR EQUAL TO

2AAD



with slanted equal

2AAD FE00

2ACB



SUBSET OF ABOVE NOT EQUAL TO

2ACB



with stroke through bottom members

2ACB FE00

2ACC



SUPERSET OF ABOVE NOT EQUAL TO

2ACC



with stroke through bottom members

2ACC FE00