

## 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 13.0*

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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-13.0/> for charts showing only the characters added in Unicode 13.0.  
See <http://www.unicode.org/Public/13.0.0/charts/> for a complete archived file of character code charts for Unicode 13.0.

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*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.

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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  $\upharpoonright$  Z NOTATION SCHEMA PROJECTION  
→ 21BE  $\upharpoonright$  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  $\times$  MULTIPLICATION SIGN IN LEFT HALF CIRCLE
- 2A35  $\times$  MULTIPLICATION SIGN IN RIGHT HALF CIRCLE
- 2A36  $\times$  CIRCLED MULTIPLICATION SIGN WITH CIRCUMFLEX ACCENT
- 2A37  $\times$  MULTIPLICATION SIGN IN DOUBLE CIRCLE
- 2A38  $\times$  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	$\times$	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	$\doteq$	EQUALS WITH ASTERISK → 225B $\doteq$ 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	$\doteq$	EQUALS SIGN ABOVE PLUS SIGN • black stands slightly better (chess notation)
2A72	$\doteq$	PLUS SIGN ABOVE EQUALS SIGN • white stands slightly better (chess notation)
2A73	$\doteq$	EQUALS SIGN ABOVE TILDE OPERATOR
2A74	$\doteq$	DOUBLE COLON EQUAL $\approx$ 003A : 003A : 003D =
2A75	$\doteq$	TWO CONSECUTIVE EQUALS SIGNS $\approx$ 003D = 003D =
2A76	$\doteq$	THREE CONSECUTIVE EQUALS SIGNS $\approx$ 003D = 003D = 003D =
2A77	$\doteq$	EQUALS SIGN WITH TWO DOTS ABOVE AND TWO DOTS BELOW
2A78	$\doteq$	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	$\triangleleft$	LESS-THAN OR APPROXIMATE
2A86	$\triangleright$	GREATER-THAN OR APPROXIMATE
2A87	$\triangleleft$	LESS-THAN AND SINGLE-LINE NOT EQUAL TO → 2268 $\triangleleft$ less-than but not equal to
2A88	$\triangleright$	GREATER-THAN AND SINGLE-LINE NOT EQUAL TO → 2269 $\triangleright$ greater-than but not equal to
2A89	$\triangleleft$	LESS-THAN AND NOT APPROXIMATE
2A8A	$\triangleright$	GREATER-THAN AND NOT APPROXIMATE
2A8B	$\triangleleft$	LESS-THAN ABOVE DOUBLE-LINE EQUAL ABOVE GREATER-THAN → 22DA $\triangleleft$ less-than equal to or greater-than
2A8C	$\triangleleft$	GREATER-THAN ABOVE DOUBLE-LINE EQUAL ABOVE LESS-THAN → 22DB $\triangleleft$ greater-than equal to or less-than
2A8D	$\triangleleft$	LESS-THAN ABOVE SIMILAR OR EQUAL
2A8E	$\triangleright$	GREATER-THAN ABOVE SIMILAR OR EQUAL
2A8F	$\triangleleft$	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	