Mathematical Operators

Range: 2200–22FF

This file contains an excerpt from the character code tables and list of character names for the Unicode Standard, last updated for
The Unicode Standard, Version 4.0.

This file may be updated as necessary to reflect errata without notice. For an up-to-date list of errata, see
http://www.unicode.org/errata/

Disclaimer

These charts are provided as the on-line reference to the character contents of the Unicode Standard, Version 4.0 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 excerpt file, please consult the appropriate sections of The Unicode Standard, Version 4.0 (ISBN 0-321-18578-1), as well as Unicode Standard Annexes #9, #11, #14, #15, #24 and #29, the other Unicode Technical Reports and the Unicode Character Database, which are available on-line.

See http://www.unicode.org/Public/UNIDATA/UCD.html 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

	220	221	222	223	224	225	226	227	228	229	22A	22B	22C	22D	22E	22F
0	∀ 2200	⨆ 2210	∠ 2220	∰ 2230	≀ 2240	≐ 2250	≠ 2260	≰ 2270	≸ 2280	⊐ 2290	⊠ 22A0	⋰ 22B0	⋀ 22C0	⋐ 22D0	≠ 22E0	⋰ 22F0
1	∁ 2201	∑ 2211	∡ 2221	∫ 2231	≁ 2241	÷ 2251	≡ 2261	≱ 2271	≹ 2281	⊑ 2291	⊡ 22A1	⋱ 22B1	⋁ 22C1	⊒ 22D1	≠ 22E1	⋱ 22F1
2	∂ 2202	∓ 2212	∢ 2222	∮ 2232	≈ 2242	≒ 2252	≢ 2262	≲ 2272	⊂ 2282	⊒ 2292	⊢ 22A2	⊲ 22B2	⋂ 22C2	⋒ 22D2	⋢ 22E2	∊ 22F2
3	∃ 2203	∔ 2213	∣ 2223	∯ 2233	≃ 2243	≓ 2253	≣ 2263	≳ 2273	⊃ 2283	⊓ 2293	⊣ 22A3	⊳ 22B3	⋃ 22C3	⋓ 22D3	⋣ 22E3	∊ 22F3
4	∄ 2204	∔ 2214	∤ 2224	∴ 2234	≄ 2244	≔ 2254	≤ 2264	≴ 2274	⊄ 2284	⊔ 2294	⊤ 22A4	⊴ 22B4	⋄ 22C4	⋔ 22D4	⋤ 22E4	⋴ 22F4
5	∅ 2205	∕ 2215	∥ 2225	∵ 2235	≅ 2245	≕ 2255	≥ 2265	≵ 2275	⊅ 2285	⊕ 2295	⊥ 22A5	⊵ 22B5	⋅ 22C5	⋕ 22D5	⋥ 22E5	�Ṡ 22F5
6	∆ 2206	∖ 2216	∦ 2226	∶ 2236	≆ 2246	⊟ 2256	≦ 2266	≶ 2276	⊆ 2286	⊖ 2296	⊦ 22A6	⊶ 22B6	⋆ 22C6	⋖ 22D6	⋦ 22E6	⋶ 22F6
7	∇ 2207	∗ 2217	∧ 2227	∷ 2237	≇ 2247	≗ 2257	≧ 2267	≷ 2277	⊇ 2287	⊗ 2297	⊧ 22A7	⊷ 22B7	⋇ 22C7	⋗ 22D7	⋧ 22E7	⋷ 22F7
8	∈ 2208	∘ 2218	∨ 2228	∸ 2238	≈ 2248	≘ 2258	≨ 2268	≸ 2278	⊈ 2288	⊘ 2298	⊨ 22A8	⊸ 22B8	⋈ 22C8	⋘ 22D8	⋨ 22E8	∈ 22F8
9	∉ 2209	∙ 2219	∩ 2229	∹ 2239	≉ 2249	≙ 2259	≩ 2269	≹ 2279	⊉ 2289	⊙ 2299	⊩ 22A9	⊹ 22B9	⋉ 22C9	⋙ 22D9	⋩ 22E9	∈ 22F9
A	∊ 220A	√ 221A	∪ 222A	∺ 223A	≊ 224A	≚ 225A	≪ 226A	≺ 227A	⊊ 228A	⊚ 229A	⊪ 22AA	⊺ 22BA	⋊ 22CA	⋚ 22DA	⋪ 22EA	∋ 22FA
B	∋ 220B	∛ 221B	∫ 222B	∻ 223B	≋ 224B	≛ 225B	≫ 226B	≻ 227B	⊋ 228B	⊛ 229B	⊫ 22AB	⊻ 22BB	⋋ 22CB	⋛ 22DB	⋫ 22EB	∋ 22FB
C	∌ 220C	∜ 221C	∬ 222C	∼ 223C	≌ 224C	≜ 225C	≬ 226C	≼ 227C	⊌ 228C	⊜ 229C	⊬ 22AC	⊼ 22BC	⋌ 22CC	⋜ 22DC	⋬ 22EC	∋ 22FC
D	∍ 220D	∝ 221D	∭ 222D	∽ 223D	≍ 224D	≝ 225D	≭ 226D	≽ 227D	⊍ 228D	⊝ 229D	⊭ 22AD	⊽ 22BD	⋍ 22CD	⋝ 22DD	⋭ 22ED	∋ 22FD
E	∎ 220E	∞ 221E	∮ 222E	∾ 223E	≎ 224E	≞ 225E	≮ 226E	≾ 227E	⊎ 228E	⊞ 229E	⊮ 22AE	⊾ 22BE	⋎ 22CE	⋞ 22DE	⋮ 22EE	∋ 22FE
F	∏ 220F	∟ 221F	∯ 222F	∿ 223F	≏ 224F	≟ 225F	≯ 226F	≿ 227F	⊏ 228F	⊟ 229F	⊯ 22AF	⊿ 22BF	⋏ 22CF	⋟ 22DF	⋯ 22EF	⊏ 22FF

Mathematical operators

2200	∀	FOR ALL
2201	∁	COMPLEMENT
		→ 0297 ɔ latin letter stretched c
2202	∂	PARTIAL DIFFERENTIAL
2203	∃	THERE EXISTS
2204	∄	THERE DOES NOT EXIST
		≡ 2203 ∃ 0338 ◌̸
2205	∅	EMPTY SET
		= null set
		→ 00D8 Ø latin capital letter o with stroke
		→ 2300 ⌀ diameter sign
2206	∆	INCREMENT
		= Laplace operator
		= forward difference
		→ 0394 Δ greek capital letter delta
		→ 25B3 △ white up-pointing triangle
2207	∇	NABLA
		= Laplace operator (written with superscript 2)
		= backward difference
		= del
		→ 25BD ▽ white down-pointing triangle
2208	∈	ELEMENT OF
2209	∉	NOT AN ELEMENT OF
		≡ 2208 ∈ 0338 ◌̸
220A	∊	SMALL ELEMENT OF
		• originates in math pi fonts; not the straight epsilon
		→ 03F5 ϵ greek lunate epsilon symbol
220B	∋	CONTAINS AS MEMBER
		= such that
220C	∌	DOES NOT CONTAIN AS MEMBER
		≡ 220B ∋ 0338 ◌̸
220D	∍	SMALL CONTAINS AS MEMBER
		→ 03F6 ϶ greek reversed lunate epsilon symbol
220E	∎	END OF PROOF
		= Q.E.D.
		→ 2023 ‣ triangular bullet
		→ 25AE ▮ black vertical rectangle
220F	∏	N-ARY PRODUCT
		= product sign
		→ 03A0 Π greek capital letter pi
2210	∐	N-ARY COPRODUCT
		= coproduct sign
2211	∑	N-ARY SUMMATION
		= summation sign
		→ 03A3 Σ greek capital letter sigma
2212	−	MINUS SIGN
		→ 002D - hyphen-minus
2213	∓	MINUS-OR-PLUS SIGN
		→ 00B1 ± plus-minus sign
2214	∔	DOT PLUS

2215	∕	DIVISION SLASH
		• generic division operator
		→ 002F / solidus
		→ 2044 ⁄ fraction slash
2216	∖	SET MINUS
		→ 005C \ reverse solidus
2217	∗	ASTERISK OPERATOR
		→ 002A * asterisk
2218	∘	RING OPERATOR
		= composite function
		= APL jot
		→ 00B0 ° degree sign
		→ 25E6 ◦ white bullet
2219	∙	BULLET OPERATOR
		→ 00B7 · middle dot
		→ 2022 • bullet
		→ 2024 ․ one dot leader
221A	√	SQUARE ROOT
		= radical sign
		→ 2713 ✓ check mark
221B	∛	CUBE ROOT
221C	∜	FOURTH ROOT
221D	∝	PROPORTIONAL TO
		→ 03B1 α greek small letter alpha
221E	∞	INFINITY
221F	∟	RIGHT ANGLE
2220	∠	ANGLE
2221	∡	MEASURED ANGLE
2222	∢	SPHERICAL ANGLE
		= angle arc
2223	∣	DIVIDES
		= such that
		= APL stile
		→ 007C	vertical line
		→ 01C0 ǀ latin letter dental click
2224	∤	DOES NOT DIVIDE
		≡ 2223 ∣ 0338 ◌̸
2225	∥	PARALLEL TO
		→ 01C1 ǁ latin letter lateral click
		→ 2016 ‖ double vertical line
2226	∦	NOT PARALLEL TO
		≡ 2225 ∥ 0338 ◌̸
2227	∧	LOGICAL AND
		= wedge, conjunction
		→ 22C0 ⋀ n-ary logical and
		→ 2303 ⌃ up arrowhead
2228	∨	LOGICAL OR
		= vee, disjunction
		→ 22C1 ⋁ n-ary logical or
		→ 2304 ⌄ down arrowhead
2229	∩	INTERSECTION
		= cap, hat
		→ 22C2 ⋂ n-ary intersection
222A	∪	UNION
		= cup
		→ 22C3 ⋃ n-ary union

222B	∫	INTEGRAL
		→ 0283 ʃ latin small letter esh
222C	∬	DOUBLE INTEGRAL
		≈ 222B ∫ 222B ∫
222D	∭	TRIPLE INTEGRAL
		→ 2A0C ⨌ quadruple integral operator
		≈ 222B ∫ 222B ∫ 222B ∫
222E	∮	CONTOUR INTEGRAL
		→ 2A15 ⨕ integral around a point operator
222F	∯	SURFACE INTEGRAL
		≈ 222E ∮ 222E ∮
2230	∰	VOLUME INTEGRAL
		≈ 222E ∮ 222E ∮ 222E ∮
2231	∱	CLOCKWISE INTEGRAL
2232	∲	CLOCKWISE CONTOUR INTEGRAL
2233	∳	ANTICLOCKWISE CONTOUR INTEGRAL
		• clockwise or anticlockwise arrows do not reverse during layout mirroring
2234	∴	THEREFORE
2235	∵	BECAUSE
2236	∶	RATIO
		→ 003A : colon
2237	∷	PROPORTION
2238	∸	DOT MINUS
		= symmetric difference
2239	∹	EXCESS
223A	∺	GEOMETRIC PROPORTION
223B	∻	HOMOTHETIC
		→ 2A6B ⩫ tilde operator with rising dots
223C	∼	TILDE OPERATOR
		= varies with (proportional to)
		= difference between
		= similar to
		= not
		= cycle
		= APL tilde
		→ 007E ~ tilde
		→ 00AC ¬ not sign
		→ 02DC ˜ small tilde
223D	∽	REVERSED TILDE
		= lazy S
		• reversed tilde and lazy S are glyph variants
223E	∾	INVERTED LAZY S
		= most positive
223F	∿	SINE WAVE
		= alternating current
2240	≀	WREATH PRODUCT
2241	≁	NOT TILDE
		≡ 223C ∼ 0338 ̸
2242	≂	MINUS TILDE
2243	≃	ASYMPTOTICALLY EQUAL TO
2244	≄	NOT ASYMPTOTICALLY EQUAL TO
		≡ 2243 ≃ 0338 ̸
2245	≅	APPROXIMATELY EQUAL TO
2246	≆	APPROXIMATELY BUT NOT ACTUALLY EQUAL TO
2247	≇	NEITHER APPROXIMATELY NOR ACTUALLY EQUAL TO
		≡ 2245 ≅ 0338 ̸
2248	≈	ALMOST EQUAL TO
		= asymptotic to
2249	≉	NOT ALMOST EQUAL TO
		≡ 2248 ≈ 0338 ̸
224A	≊	ALMOST EQUAL OR EQUAL TO
224B	≋	TRIPLE TILDE
224C	≌	ALL EQUAL TO
		• reversed tilde and lazy S are glyph variants
224D	≍	EQUIVALENT TO
224E	≎	GEOMETRICALLY EQUIVALENT TO
224F	≏	DIFFERENCE BETWEEN
2250	≐	APPROACHES THE LIMIT
2251	≑	GEOMETRICALLY EQUAL TO
2252	≒	APPROXIMATELY EQUAL TO OR THE IMAGE OF
		= nearly equals
2253	≓	IMAGE OF OR APPROXIMATELY EQUAL TO
2254	≔	COLON EQUALS
2255	≕	EQUALS COLON
2256	≖	RING IN EQUAL TO
2257	≗	RING EQUAL TO
		= approximately equal to
2258	≘	CORRESPONDS TO
2259	≙	ESTIMATES
		= corresponds to
225A	≚	EQUIANGULAR TO
225B	≛	STAR EQUALS
225C	≜	DELTA EQUAL TO
		= equiangular
		= equal to by definition
225D	≝	EQUAL TO BY DEFINITION
225E	≞	MEASURED BY
225F	≟	QUESTIONED EQUAL TO
2260	≠	NOT EQUAL TO
		→ 003D = equals sign
		→ 01C2 ǂ latin letter alveolar click
		≡ 003D = 0338 ̸
2261	≡	IDENTICAL TO
2262	≢	NOT IDENTICAL TO
		≡ 2261 ≡ 0338 ̸
2263	≣	STRICTLY EQUIVALENT TO
2264	≤	LESS-THAN OR EQUAL TO
2265	≥	GREATER-THAN OR EQUAL TO
2266	≦	LESS-THAN OVER EQUAL TO
2267	≧	GREATER-THAN OVER EQUAL TO
2268	≨	LESS-THAN BUT NOT EQUAL TO
2269	≩	GREATER-THAN BUT NOT EQUAL TO
226A	≪	MUCH LESS-THAN
		→ 00AB « left-pointing double angle quotation mark
226B	≫	MUCH GREATER-THAN
		→ 00BB » right-pointing double angle quotation mark

226C	⊗	BETWEEN
		= plaintiff, quantic
226D	≭	NOT EQUIVALENT TO
		≡ 224D ≍ 0338 ̸
226E	≮	NOT LESS-THAN
		≡ 003C < 0338 ̸
226F	≯	NOT GREATER-THAN
		≡ 003E > 0338 ̸
2270	≰	NEITHER LESS-THAN NOR EQUAL TO
		≡ 2264 ≤ 0338 ̸
2271	≱	NEITHER GREATER-THAN NOR EQUAL TO
		≡ 2265 ≥ 0338 ̸
2272	≲	LESS-THAN OR EQUIVALENT TO
2273	≳	GREATER-THAN OR EQUIVALENT TO
2274	≴	NEITHER LESS-THAN NOR EQUIVALENT TO
		≡ 2272 ≲ 0338 ̸
2275	≵	NEITHER GREATER-THAN NOR EQUIVALENT TO
		≡ 2273 ≳ 0338 ̸
2276	≶	LESS-THAN OR GREATER-THAN
2277	≷	GREATER-THAN OR LESS-THAN
2278	≸	NEITHER LESS-THAN NOR GREATER-THAN
		≡ 2276 ≶ 0338 ̸
2279	≹	NEITHER GREATER-THAN NOR LESS-THAN
		≡ 2277 ≷ 0338 ̸
227A	≺	PRECEDES
		= lower rank than
		→ 22B0 ⋰ precedes under relation
227B	≻	SUCCEEDS
		= higher rank than
		→ 22B1 ⋱ succeeds under relation
227C	≼	PRECEDES OR EQUAL TO
227D	≽	SUCCEEDS OR EQUAL TO
227E	≾	PRECEDES OR EQUIVALENT TO
227F	≿	SUCCEEDS OR EQUIVALENT TO
2280	⊀	DOES NOT PRECEDE
		≡ 227A ≺ 0338 ̸
2281	⊁	DOES NOT SUCCEED
		≡ 227B ≻ 0338 ̸
2282	⊂	SUBSET OF
		= included in set
2283	⊃	SUPERSET OF
		= includes in set
2284	⊄	NOT A SUBSET OF
		≡ 2282 ⊂ 0338 ̸
2285	⊅	NOT A SUPERSET OF
		≡ 2283 ⊃ 0338 ̸
2286	⊆	SUBSET OF OR EQUAL TO
2287	⊇	SUPERSET OF OR EQUAL TO
2288	⊈	NEITHER A SUBSET OF NOR EQUAL TO
		≡ 2286 ⊆ 0338 ̸

2289	⊉	NEITHER A SUPERSET OF NOR EQUAL TO
		≡ 2287 ⊇ 0338 ̸
228A	⊊	SUBSET OF WITH NOT EQUAL TO
228B	⊋	SUPERSET OF WITH NOT EQUAL TO
228C	⊌	MULTISET
228D	⊍	MULTISET MULTIPLICATION
		→ 2A03 ⊍ n-ary union operator with dot
		→ 2A40 ⩀ intersection with dot
228E	⊎	MULTISET UNION
		= z notation bag addition
		→ 2A04 ⊎ n-ary union operator with plus
228F	⊏	SQUARE IMAGE OF
2290	⊐	SQUARE ORIGINAL OF
2291	⊑	SQUARE IMAGE OF OR EQUAL TO
2292	⊒	SQUARE ORIGINAL OF OR EQUAL TO
2293	⊓	SQUARE CAP
		→ 2A05 ⨅ n-ary square intersection operator
2294	⊔	SQUARE CUP
2295	⊕	CIRCLED PLUS
		= direct sum
		= vector pointing into page
		→ 2641 ♁ earth
		→ 2A01 ⨁ n-ary circled plus operator
2296	⊖	CIRCLED MINUS
		= symmetric difference
		→ 29B5 ⊖ circle with horizontal bar
2297	⊗	CIRCLED TIMES
		= tensor product
		= vector pointing into page
		→ 2A02 ⨂ n-ary circled times operator
2298	⊘	CIRCLED DIVISION SLASH
2299	⊙	CIRCLED DOT OPERATOR
		= direct product
		= vector pointing out of page
		→ 0298 ʘ latin letter bilabial click
		→ 2609 ☉ sun
		→ 2A00 ⨀ n-ary circled dot operator
229A	⊚	CIRCLED RING OPERATOR
		→ 233E ⌾ apl functional symbol circle jot
		→ 25CE ◎ bullseye
229B	⊛	CIRCLED ASTERISK OPERATOR
		→ 235F ⍟ apl functional symbol circle star
229C	⊜	CIRCLED EQUALS
229D	⊝	CIRCLED DASH
229E	⊞	SQUARED PLUS
229F	⊟	SQUARED MINUS
22A0	⊠	SQUARED TIMES
		→ 2612 ☒ ballot box with x
22A1	⊡	SQUARED DOT OPERATOR
22A2	⊢	RIGHT TACK
		= turnstile
		= proves, implies, yields
		= reducible
22A3	⊣	LEFT TACK
		= reverse turnstile
		= non-theorem, does not yield

22A4	⊤	DOWN TACK
		= top
22A5	⊥	UP TACK
		= orthogonal to
		= perpendicular
		= base, bottom
22A6	⊢	ASSERTION
		= reduces to
22A7	⊧	MODELS
22A8	⊨	TRUE
		= statement is true, valid
		= is a tautology
		= satisfies
		= results in
22A9	⊩	FORCES
22AA	⊪	TRIPLE VERTICAL BAR RIGHT TURNSTILE
22AB	⊫	DOUBLE VERTICAL BAR DOUBLE RIGHT TURNSTILE
22AC	⊬	DOES NOT PROVE
		≡ 22A2 ⊢ 0338 $\not$
22AD	⊭	NOT TRUE
		≡ 22A8 ⊨ 0338 $\not$
22AE	⊮	DOES NOT FORCE
		≡ 22A9 ⊩ 0338 $\not$
22AF	⊯	NEGATED DOUBLE VERTICAL BAR DOUBLE RIGHT TURNSTILE
		≡ 22AB ⊫ 0338 $\not$
22B0	⊰	PRECEDES UNDER RELATION
		→ 227A < precedes
22B1	⊱	SUCCEEDS UNDER RELATION
		→ 227B > succeeds
22B2	⊲	NORMAL SUBGROUP OF
		→ 25C5 ◁ white left-pointing pointer
22B3	⊳	CONTAINS AS NORMAL SUBGROUP
		→ 25BB ▷ white right-pointing pointer
22B4	⊴	NORMAL SUBGROUP OF OR EQUAL TO
22B5	⊵	CONTAINS AS NORMAL SUBGROUP OR EQUAL TO
22B6	⊶	ORIGINAL OF
22B7	⊷	IMAGE OF
22B8	⊸	MULTIMAP
22B9	⊹	HERMITIAN CONJUGATE MATRIX
22BA	⊺	INTERCALATE
22BB	⊻	XOR
22BC	⊼	NAND
		→ 2305 ⌅ projective
22BD	⊽	NOR
22BE	⊾	RIGHT ANGLE WITH ARC
22BF	⊿	RIGHT TRIANGLE
22C0	⋀	N-ARY LOGICAL AND
		→ 2227 ∧ logical and
22C1	⋁	N-ARY LOGICAL OR
		→ 2228 ∨ logical or
22C2	⋂	N-ARY INTERSECTION
		= z notation generalised intersection
		→ 2229 ∩ intersection
22C3	⋃	N-ARY UNION
		= z notation generalised union
		→ 222A ∪ union
22C4	⋄	DIAMOND OPERATOR
		→ 25C7 ◇ white diamond
22C5	⋅	DOT OPERATOR
		→ 00B7 · middle dot
22C6	⋆	STAR OPERATOR
		• APL
		→ 066D ٭ arabic five pointed star
		→ 2605 ★ black star
22C7	⋇	DIVISION TIMES
22C8	⋈	BOWTIE
		→ 2445 ⑅ ocr bow tie
22C9	⋉	LEFT NORMAL FACTOR SEMIDIRECT PRODUCT
22CA	⋊	RIGHT NORMAL FACTOR SEMIDIRECT PRODUCT
22CB	⋋	LEFT SEMIDIRECT PRODUCT
22CC	⋌	RIGHT SEMIDIRECT PRODUCT
		→ 2041 ⁁ caret insertion point
22CD	⋍	REVERSED TILDE EQUALS
22CE	⋎	CURLY LOGICAL OR
22CF	⋏	CURLY LOGICAL AND
22D0	⋐	DOUBLE SUBSET
22D1	⋑	DOUBLE SUPERSET
22D2	⋒	DOUBLE INTERSECTION
22D3	⋓	DOUBLE UNION
22D4	⋔	PITCHFORK
		= proper intersection
22D5	⋕	EQUAL AND PARALLEL TO
		→ 2317 ⌗ viewdata square
22D6	⋖	LESS-THAN WITH DOT
22D7	⋗	GREATER-THAN WITH DOT
22D8	⋘	VERY MUCH LESS-THAN
22D9	⋙	VERY MUCH GREATER-THAN
22DA	⋚	LESS-THAN EQUAL TO OR GREATER-THAN
22DB	⋛	GREATER-THAN EQUAL TO OR LESS-THAN
22DC	⋜	EQUAL TO OR LESS-THAN
22DD	⋝	EQUAL TO OR GREATER-THAN
22DE	⋞	EQUAL TO OR PRECEDES
22DF	⋟	EQUAL TO OR SUCCEEDS
22E0	⋠	DOES NOT PRECEDE OR EQUAL
		≡ 227C ≼ 0338 $\not$
22E1	⋡	DOES NOT SUCCEED OR EQUAL
		≡ 227D ≽ 0338 $\not$
22E2	⋢	NOT SQUARE IMAGE OF OR EQUAL TO
		≡ 2291 ⊑ 0338 $\not$
22E3	⋣	NOT SQUARE ORIGINAL OF OR EQUAL TO
		≡ 2292 ⊒ 0338 $\not$

22E4	⋢	SQUARE IMAGE OF OR NOT EQUAL TO
22E5	⋣	SQUARE ORIGINAL OF OR NOT EQUAL TO
22E6	⋦	LESS-THAN BUT NOT EQUIVALENT TO
22E7	⋧	GREATER-THAN BUT NOT EQUIVALENT TO
22E8	⋨	PRECEDES BUT NOT EQUIVALENT TO
22E9	⋩	SUCCEEDS BUT NOT EQUIVALENT TO
22EA	⋪	NOT NORMAL SUBGROUP OF

≡ 22B2 ⊲ 0338 ◌̸

22EB	⋫	DOES NOT CONTAIN AS NORMAL SUBGROUP

≡ 22B3 ⊳ 0338 ◌̸

22EC	⋬	NOT NORMAL SUBGROUP OF OR EQUAL TO

≡ 22B4 ⊴ 0338 ◌̸

22ED	⋭	DOES NOT CONTAIN AS NORMAL SUBGROUP OR EQUAL

≡ 22B5 ⊵ 0338 ◌̸

22EE	⋮	VERTICAL ELLIPSIS

• these four ellipses are used for matrix row/column elision
→ 2026 … horizontal ellipsis

22EF	⋯	MIDLINE HORIZONTAL ELLIPSIS
22F0	⋰	UP RIGHT DIAGONAL ELLIPSIS
22F1	⋱	DOWN RIGHT DIAGONAL ELLIPSIS
22F2	⋲	ELEMENT OF WITH LONG HORIZONTAL STROKE
22F3	⋳	ELEMENT OF WITH VERTICAL BAR AT END OF HORIZONTAL STROKE
22F4	⋴	SMALL ELEMENT OF WITH VERTICAL BAR AT END OF HORIZONTAL STROKE
22F5	⋵	ELEMENT OF WITH DOT ABOVE
22F6	⋶	ELEMENT OF WITH OVERBAR
22F7	⋷	SMALL ELEMENT OF WITH OVERBAR
22F8	⋸	ELEMENT OF WITH UNDERBAR
22F9	⋹	ELEMENT OF WITH TWO HORIZONTAL STROKES
22FA	⋺	CONTAINS WITH LONG HORIZONTAL STROKE
22FB	⋻	CONTAINS WITH VERTICAL BAR AT END OF HORIZONTAL STROKE
22FC	⋼	SMALL CONTAINS WITH VERTICAL BAR AT END OF HORIZONTAL STROKE
22FD	⋽	CONTAINS WITH OVERBAR
22FE	⋾	SMALL CONTAINS WITH OVERBAR
22FF	⋿	Z NOTATION BAG MEMBERSHIP