

# Symbols defined by `unicode-math`

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This document uses the file `unicode-math-table.tex` to print every symbol defined by the `unicode-math` package. Use this document to find the command name or the Unicode glyph slot for a symbol that you wish to use. The following fonts are shown: (with approximate symbol counts)

- L Latin Modern Math (1585)
- X XITS Math (2427)
- S STIX Math Two (2428)
- P TeX Gyre Pagella Math (1638)
- D DejaVu Math TeX Gyre (1640)
- F Fira Math (1039)

Symbols defined in Plain TeX are indicated with <sup>(p)</sup> after their macro name. L<sup>A</sup>T<sub>E</sub>X follows Plain TeX, but defines a handful more, indicated with <sup>(l)</sup>. Symbols defined in `amssymb` are indicated with <sup>(a)</sup>.

Note that this list of fonts is not intended to be exhaustive but I am happy to add new fonts by request if they are distributed in TeX Live.<sup>1</sup>

## Contents

|  |    |
|--|----|
| 1 Opening symbols, <code>\mathopen</code>      | 3  |
| 2 Closing symbols, <code>\mathclose</code>     | 5  |
| 3 Fence symbols, <code>\mathfence</code>       | 7  |
| 4 Punctuation symbols, <code>\mathpunct</code> | 7  |
| 5 ‘Over’ symbols, <code>\mathover</code>       | 7  |
| 6 ‘Under’ symbols, <code>\mathunder</code>     | 7  |
| 7 Accents, <code>\mathaccent</code>            | 9  |
| 8 Bottom accents, <code>\mathbotaccent</code>  | 10 |
| 9 Big operators, <code>\mathop</code>          | 11 |
| 10 Binary relations, <code>\mathbin</code>     | 15 |

<sup>1</sup>Only a single TeX Gyre Math font is shown here by design as they all largely have the same symbol coverage.

|  |            |
|--|------------|
| <b>11 Ordinary symbols, \mathord</b>             | <b>23</b>  |
| <b>12 Relation symbols, \mathrel</b>             | <b>44</b>  |
| <b>13 Alphabetical symbols, \mathalpha</b>       | <b>71</b>  |
| <b>13.1 Normal weight</b>                        | <b>71</b>  |
| 13.1.1 Upright Greek, uppercase                  | 71         |
| 13.1.2 Upright Greek, lowercase                  | 72         |
| 13.1.3 Italic, Latin, uppercase                  | 73         |
| 13.1.4 Italic, Latin, lowercase                  | 74         |
| 13.1.5 Italic Greek, uppercase                   | 76         |
| 13.1.6 Italic Greek, lowercase                   | 77         |
| 13.1.7 Script, Latin, uppercase                  | 78         |
| 13.1.8 Script, Latin, lowercase                  | 79         |
| 13.1.9 Fraktur, Latin, uppercase                 | 80         |
| 13.1.10 Fraktur, Latin, lowercase                | 81         |
| 13.1.11 Blackboard, Latin, uppercase             | 82         |
| 13.1.12 Blackboard, Latin, lowercase             | 83         |
| 13.1.13 Sans serif, Latin, uppercase             | 85         |
| 13.1.14 Sans serif, Latin, lowercase             | 86         |
| 13.1.15 Italic sans serif, Latin, uppercase      | 87         |
| 13.1.16 Italic sans serif, Latin, lowercase      | 88         |
| 13.1.17 Typewriter, Latin, uppercase             | 89         |
| 13.1.18 Typewriter, Latin, lowercase             | 91         |
| <b>13.2 Bold</b>                                 | <b>92</b>  |
| 13.2.1 Bold, Latin, uppercase                    | 92         |
| 13.2.2 Bold, Latin, lowercase                    | 93         |
| 13.2.3 Bold Greek, uppercase                     | 94         |
| 13.2.4 Bold Greek, lowercase                     | 95         |
| 13.2.5 Bold italic, Latin, uppercase             | 97         |
| 13.2.6 Bold italic, Latin, lowercase             | 98         |
| 13.2.7 Bold italic Greek, uppercase              | 99         |
| 13.2.8 Bold italic Greek, lowercase              | 100        |
| 13.2.9 Bold script, Latin, uppercase             | 102        |
| 13.2.10 Bold script, Latin, lowercase            | 103        |
| 13.2.11 Bold fraktur, Latin, uppercase           | 104        |
| 13.2.12 Bold fraktur, Latin, lowercase           | 105        |
| 13.2.13 Bold sans serif, Latin, uppercase        | 107        |
| 13.2.14 Bold sans serif, Latin, lowercase        | 108        |
| 13.2.15 Bold italic sans serif, Latin, uppercase | 109        |
| 13.2.16 Bold italic sans serif, Latin, lowercase | 110        |
| 13.2.17 Bold sans serif Greek, uppercase         | 111        |
| 13.2.18 Bold sans serif Greek, lowercase         | 113        |
| 13.2.19 Bold italic sans serif Greek, uppercase  | 114        |
| 13.2.20 Bold italic sans serif Greek, lowercase  | 115        |
| <b>13.3 Miscellaneous</b>                        | <b>117</b> |

# 1 Opening symbols, \mathopen

| USV     | L  | X  | S | P | D | F  | Macro                      | Description                                     |
|---------|----|----|---|---|---|----|----------------------------|---|
| u+00028 | (  | (  | ( | ( | ( | (  | \lparen                    | left parenthesis                                |
| u+0005b | [  | [  | [ | [ | [ | [  | \lbrack                    | left square bracket                             |
| u+0007b | {  | {  | { | { | { | {  | \lbrace <sup>(p)</sup>     | left curly bracket                              |
| u+0221a | ✓  | ✓  | ✓ | ✓ | ✓ | ✓  | \sqrt <sup>(p)</sup>       | radical   |
| u+0221b | ³√ | ³√ |   |   |   | ³√ | \cuberoot                  | cube root                                       |
| u+0221c | ⁴√ | ⁴√ |   |   |   | ⁴√ | \fourthroot                | fourth root                                     |
| u+02308 | ⌈  | ⌈  | ⌈ | ⌈ | ⌈ | ⌈  | \lceil <sup>(p)</sup>      | left ceiling                                    |
| u+0230a | ⌊  | ⌊  | ⌊ | ⌊ | ⌊ | ⌊  | \lfloor <sup>(p)</sup>     | left floor                                      |
| u+0231c | ⌜  | ⌜  | ⌜ | ⌜ | ⌜ | ⌜  | \ulcorner                  | upper left corner                               |
| u+0231e | ⌞  | ⌞  | ⌞ | ⌞ | ⌞ | ⌞  | \llcorner                  | lower left corner                               |
| u+023b0 | ⌢  | ⌢  |   |   |   |    | \lmoustache <sup>(p)</sup> | upper left or lower right curly bracket section |
| u+02772 | ⧼  | ⧼  |   |   |   |    | \lbrbrak                   | light left tortoise shell bracket ornament      |
| u+027c5 | ⌧  | ⌧  |   |   |   |    | \lbag                      | left s-shaped bag delimiter                     |
| u+027cc | ⌨  | ⌨  |   |   |   |    | \longdivision              | long division                                   |
| u+027e6 | 〚  | 〛  | 〚 | 〛 | 〚 | 〛  | \lBrack                    | mathematical left white square bracket          |
| u+027e8 | 〈  | 〈  | 〈 | 〈 | 〈 | 〈  | \langle <sup>(p)</sup>     | mathematical left angle bracket                 |
| u+027ea | ⟨  | ⟨  | ⟨ | ⟨ | ⟨ | ⟨  | \lAngle                    | mathematical left double angle bracket          |
| u+027ec | 〚  | 〛  |   |   |   |    | \Lbrbrak                   | mathematical left white tortoise shell bracket  |
| u+027ee | (  | (  | ( | ( | ( | (  | \lgroup <sup>(p)</sup>     | mathematical left flattened parenthesis         |
| u+02983 | {  | {  |   |   |   |    | \lBrace                    | left white curly bracket                        |
| u+02985 | (  | (  |   |   |   |    | \lParen                    | left white parenthesis                          |
| u+02987 | ⟨  | ⟨  |   |   |   |    | \lParenthesis              | z notation left image bracket                   |
| u+02989 | ⟪  | ⟪  |   |   |   |    | \lLangle                   | z notation left binding bracket                 |

| USV     | L | X | S | P | D | F | Macro         | Description                                    |
|---------|---|---|---|---|---|---|---------------|--|
| U+0298B | 𦵠 | 𦵡 |   |   |   |   | \lbrackubar   | left square bracket with underbar              |
| U+0298D | 𦵢 | 𦵣 |   |   |   |   | \lbrackultick | left square bracket with tick in top corner    |
| U+0298F | 𦵤 | 𦵥 |   |   |   |   | \lbracklltick | left square bracket with tick in bottom corner |
| U+02991 | 𦵦 | 𦵧 |   |   |   |   | \angledot     | left angle bracket with dot                    |
| U+02993 | 𦵨 | 𦵩 |   |   |   |   | \lparenless   | left arc less-than bracket                     |
| U+02995 | 𦵪 | 𦵫 |   |   |   |   | \Lparengtr    | double left arc greater-than bracket           |
| U+02997 | 𦵭 | 𦵮 |   |   |   |   | \blkbrbrak    | left black tortoise shell bracket              |
| U+029D8 | 𦵯 | 𦵯 |   |   |   |   | \lvzigzag     | left wiggly fence                              |
| U+029DA | 𦵯 | 𦵯 |   |   |   |   | \Lvzigzag     | left double wiggly fence                       |
| U+029FC | 𦵰 | 𦵱 |   |   |   |   | \lcurvyangle  | left pointing curved angle bracket             |

## 2 Closing symbols, \mathclose

| USV     | L  | X  | S  | P  | D  | F  | Macro                      | Description                                     |
|---------|----|----|----|----|----|----|----------------------------|---|
| U+00021 | !  | !  | !  | !  | !  | !  | \mathexclam                | exclamation mark                                |
| U+00029 | )  | )  | )  | )  | )  | )  | \rparen                    | right parenthesis                               |
| U+0005D | ]  | ]  | ]  | ]  | ]  | ]  | \rbrack                    | right square bracket                            |
| U+0007D | }  | }  | }  | }  | }  | }  | \rbrace <sup>(p)</sup>     | right curly bracket                             |
| U+02309 | ]  | ]  | ]  | ]  | ]  | ]  | \rceil <sup>(p)</sup>      | right ceiling                                   |
| U+0230B | ]  | ]  | ]  | ]  | ]  | ]  | \rfloor <sup>(p)</sup>     | right floor                                     |
| U+0231D | ⊸  | ⊸  | ⊸  | ⊸  | ⊸  | ⊸  | \urcorner                  | upper right corner                              |
| U+0231F | ⊸  | ⊸  | ⊸  | ⊸  | ⊸  | ⊸  | \lrcorner                  | lower right corner                              |
| U+023B1 | ⌇  | ⌇  |    |    |    |    | \rmoustache <sup>(p)</sup> | upper right or lower left curly bracket section |
| U+02773 | )  | )  |    |    |    |    | \rbrrbrak                  | light right tortoise shell bracket ornament     |
| U+027C6 | ⌁  | ⌁  |    |    |    |    | \rbag                      | right s-shaped bag delimiter                    |
| U+027E7 | ]] | ]] | ]] | ]] | ]] | ]] | \rBrack                    | mathematical right white square bracket         |
| U+027E9 | >  | >  | >  | >  | >  | >  | \rangle <sup>(p)</sup>     | mathematical right angle bracket                |
| U+027EB | »  | »  | »  | »  | »  | »  | \rAngle                    | mathematical right double angle bracket         |
| U+027ED | »  | »  |    |    |    |    | \Rbrbrak                   | mathematical right white tortoise shell bracket |
| U+027EF | )  | )  | )  | )  | )  | )  | \rgroup <sup>(p)</sup>     | mathematical right flattened parenthesis        |
| U+02984 | ⦵  | ⦵  |    |    |    |    | \rBrace                    | right white curly bracket                       |
| U+02986 | )  | )  |    |    |    |    | \rParen                    | right white parenthesis                         |
| U+02988 | ⦶  | ⦶  |    |    |    |    | \rrparenthesis             | z notation right image bracket                  |
| U+0298A | ⦷  | ⦷  |    |    |    |    | \rrangle                   | z notation right binding bracket                |
| U+0298C | ⦸  | ⦸  |    |    |    |    | \rbrackubar                | right square bracket with underbar              |
| U+0298E | ⦹  | ⦹  |    |    |    |    | \rbracklrtick              | right square bracket with tick in bottom corner |
| U+02990 | ⦺  | ⦺  |    |    |    |    | \rbrackurtick              | right square bracket with tick in top corner    |

| USV     | L | X | S | P | D | F | Macro           | Description                         |
|---------|---|---|---|---|---|---|-----------------|-------------------------------------|
| u+02992 | ⟩ | ⟩ |   |   |   |   | \rangleangledot | right angle bracket with dot        |
| u+02994 | ⟩ | ⟩ |   |   |   |   | \rparengtr      | right arc greater-than bracket      |
| u+02996 | ﴿ | ﴿ |   |   |   |   | \Rparenless     | double right arc less-than bracket  |
| u+02998 | ﴾ | ﴾ |   |   |   |   | \rbblkbrbrak    | right black tortoise shell bracket  |
| u+029D9 | ︴ | ︴ |   |   |   |   | \rvzigzag       | right wiggly fence                  |
| u+029DB | ︴ | ︴ |   |   |   |   | \Rvzigzag       | right double wiggly fence           |
| u+029FD | ⟩ | ⟩ |   |   |   |   | \rcurvyangle    | right pointing curved angle bracket |

### 3 Fence symbols, \mathfence

| USV     | L | X | S | P | D | F | Macro                | Description                   |
|---------|---|---|---|---|---|---|----------------------|-------------------------------|
| U+0007C |   |   |   |   |   |   | \vert <sup>(p)</sup> | vertical bar                  |
| U+02016 |   |   |   |   |   |   | \Vert <sup>(p)</sup> | double vertical bar           |
| U+02980 |   |   |   |   |   |   | \Vvert               | triple vertical bar delimiter |

### 4 Punctuation symbols, \mathpunct

| USV     | L | X | S | P | D | F | Macro          | Description  |
|---------|---|---|---|---|---|---|----------------|--------------|
| U+0002C | , | , | , | , | , | , | \mathcomma     | comma        |
| U+0003A | : | : | : | : | : | : | \mathcolon     | colon        |
| U+0003B | ; | ; | ; | ; | ; | ; | \mathsemicolon | semicolon p: |

### 5 ‘Over’ symbols, \mathover

| USV     | L                 | X                             | S   | P   | D   | F  | Macro                     | Description                          |
|---------|-------------------|-------------------------------|---|---|---|--|---------------------------|--------------------------------------|
| U+023B4 | $\overline{x+y}$  | $\overline{\overline{x+y}}$   | $\overline{\overline{\overline{x+y}}}$    | $\overline{\overline{\overline{\overline{x+y}}}}$     | $\overline{\overline{\overline{\overline{\overline{x+y}}}}}$      | $\overline{\overline{\overline{\overline{\overline{\overline{x+y}}}}}}$      | \overbracket              | top square bracket                   |
| U+023DC | $\widehat{x+y}$   | $\widehat{\widehat{x+y}}$     | $\widehat{\widehat{\widehat{x+y}}}$       | $\widehat{\widehat{\widehat{\widehat{x+y}}}}$         | $\widehat{\widehat{\widehat{\widehat{\widehat{x+y}}}}}$           | $\widehat{\widehat{\widehat{\widehat{\widehat{\widehat{x+y}}}}}}$            | \overparen                | top parenthesis (mathematical use)   |
| U+023DE | $\overbrace{x+y}$ | $\overbrace{\overbrace{x+y}}$ | $\overbrace{\overbrace{\overbrace{x+y}}}$ | $\overbrace{\overbrace{\overbrace{\overbrace{x+y}}}}$ | $\overbrace{\overbrace{\overbrace{\overbrace{\overbrace{x+y}}}}}$ | $\overbrace{\overbrace{\overbrace{\overbrace{\overbrace{\overbrace{x+y}}}}}$ | \overbrace <sup>(p)</sup> | top curly bracket (mathematical use) |

### 6 ‘Under’ symbols, \mathunder

| USV     | L                 | X                             | S   | P   | D   | F   | Macro         | Description                           |
|---------|-------------------|-------------------------------|---|---|---|---|---------------|---------------------------------------|
| U+023B5 | $\underline{x+y}$ | $\underline{\underline{x+y}}$ | $\underline{\underline{\underline{x+y}}}$ | $\underline{\underline{\underline{\underline{x+y}}}}$ | $\underline{\underline{\underline{\underline{\underline{x+y}}}}}$ | $\underline{\underline{\underline{\underline{\underline{\underline{x+y}}}}}}$ | \underbracket | bottom square bracket                 |
| U+023DD | $\underline{x+y}$ | $\underline{\underline{x+y}}$ | $\underline{\underline{\underline{x+y}}}$ | $\underline{\underline{\underline{\underline{x+y}}}}$ | $\underline{\underline{\underline{\underline{\underline{x+y}}}}}$ | $\underline{\underline{\underline{\underline{\underline{\underline{x+y}}}}}}$ | \underparen   | bottom parenthesis (mathematical use) |

| usv     | L                  | X                  | S                  | P                  | D                  | F                  | Macro                          | Description                             |
|---------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------------------|---|
| U+023DF | $\underbrace{x+y}$ | $\underbrace{x+y}$ | $\underbrace{x+y}$ | $\underbrace{x+y}$ | $\underbrace{x+y}$ | $\underbrace{x+y}$ | <code>\underbrace^{(p)}</code> | bottom curly bracket (mathematical use) |

## 7 Accents, \mathaccent

Note that accents will only be properly placed if used with an OpenType font with the necessary information.

| usv     | L | X | S | P | D | F | Macro               | Description                          |
|---------|---|---|---|---|---|---|---------------------|--------------------------------------|
| u+00300 | ᬁ | ᜀ | ᜁ | ᜂ | ᜃ | ᜄ | \grave{p}           | grave accent                         |
| u+00301 | ᬁ | ᜀ | ᜁ | ᜂ | ᜃ | ᜄ | \acute{p}           | acute accent                         |
| u+00302 | ᜇ | ᜈ | ᜉ | ᜊ | ᜋ | ᜌ | \hat{p}             | circumflex accent                    |
| u+00303 | ᜅ | ᜆ | ᜁ | ᜂ | ᜃ | ᜄ | \tilde{p}           | tilde                                |
| u+00304 | ᜇ | ᜈ | ᜉ | ᜊ | ᜃ | ᜄ | \bar{p}             | macron                               |
| u+00305 | ᜇ | ᜈ | ᜉ | ᜊ | ᜃ | ᜄ | \overbar            | overbar embellishment                |
| u+00306 | ᜅ | ᜆ | ᜁ | ᜂ | ᜃ | ᜄ | \breve{p}           | breve                                |
| u+00307 | ᜇ | ᜈ | ᜉ | ᜊ | ᜇ | ᜄ | \dot{p}             | dot above                            |
| u+00308 | ᜅ | ᜆ | ᜁ | ᜂ | ᜃ | ᜄ | \ddot{p}            | dieresis                             |
| u+00309 | ᜇ | ᜈ | ᜉ | ᜊ | ᜇ | ᜄ | \ovhook             | combining hook above                 |
| u+0030A | ᜇ | ᜈ | ᜉ | ᜊ | ᜇ | ᜄ | \ocirc              | ring                                 |
| u+0030C | ᜅ | ᜆ | ᜁ | ᜂ | ᜃ | ᜄ | \check{p}           | caron                                |
| u+00310 | ᜇ | ᜉ |   |   |   |   | \candrabindu        | (non-spacing)                        |
| u+00312 | ᜈ | ᜉ |   |   | ᜄ |   | \oturnedcomma       | combining turned comma above         |
| u+00315 | ᜇ | ᜉ |   |   |   |   | \ocommatopright     | combining comma above right          |
| u+0031A | ᜇ | ᜉ |   |   | ᜄ |   | \droang             | left angle above (non-spacing)       |
| u+020D0 | ᜇ | ᜈ | ᜉ | ᜊ | ᜃ | ᜄ | \leftharpoonaccent  | combining left harpoon above         |
| u+020D1 | ᜇ | ᜈ | ᜉ | ᜊ | ᜃ | ᜄ | \rightharpoonaccent | combining right harpoon above        |
| u+020D2 | ᜇ | ᜈ | ᜉ | ᜊ | ᜃ | ᜄ | \vertoverlay        | combining long vertical line overlay |
| u+020D7 | ᜇ | ᜈ | ᜉ | ᜊ | ᜃ | ᜄ | \vec{p}             | combining right arrow above          |
| u+020DB | ᜅ | ᜆ | ᜁ | ᜂ | ᜃ | ᜄ | \dddot{p}           | combining three dots above           |
| u+020DC | ᜅ | ᜆ | ᜁ | ᜂ | ᜃ | ᜄ | \ddddot{p}          | combining four dots above            |

| USV     | L | X | S | P | D | F | Macro            | Description                 |
|---------|---|---|---|---|---|---|------------------|-----------------------------|
| U+020E7 |   |   |   |   |   |   | \annuity         | combining annuity symbol    |
| U+020E9 |   |   |   |   |   |   | \widebridgeabove | combining wide bridge above |
| U+020F0 |   |   |   |   |   |   | \asteraccent     | combining asterisk above    |

## 8 Bottom accents, \mathbotaccent

| USV     | L | X | S | P | D | F | Macro          | Description               |
|---------|---|---|---|---|---|---|----------------|---------------------------|
| U+020E8 |   |   |   |   |   |   | \threeunderdot | combining triple underdot |

## 9 Big operators, \mathop

Of the operators shown below, a subset need to be flagged by `unicode-math` for `\nolimits` adjustments. The limits behaviour as specified by `unicode-math` are shown with grey subscripts and superscripts.

| usv     | L                      | X                      | S                      | P                      | D                      | F                      | Macro                          | Description                      |
|---------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|--------------------------------|----------------------------------|
| u+02140 | $\sum\limits_0^1$      | $\sum\limits_0^1$      | $\sum\limits_0^1$      | $\sum\limits_0^1$      | $\sum\limits_0^1$      | $\sum\limits_0^1$      | <code>\Bbbsum</code>           | double-struck n-ary summation    |
| u+0220F | $\prod\limits_0^1$     | $\prod\limits_0^1$     | $\prod\limits_0^1$     | $\prod\limits_0^1$     | $\prod\limits_0^1$     | $\prod\limits_0^1$     | <code>\prod^{(p)}</code>       | product operator                 |
| u+02210 | $\coprod\limits_0^1$   | $\coprod\limits_0^1$   | $\coprod\limits_0^1$   | $\coprod\limits_0^1$   | $\coprod\limits_0^1$   | $\coprod\limits_0^1$   | <code>\coprod^{(p)}</code>     | coproduct operator               |
| u+02211 | $\sum\limits_0^1$      | $\sum\limits_0^1$      | $\sum\limits_0^1$      | $\sum\limits_0^1$      | $\sum\limits_0^1$      | $\sum\limits_0^1$      | <code>\sum^{(p)}</code>        | summation operator               |
| u+0222B | $\int\limits_0^1$      | $\int\limits_0^1$      | $\int\limits_0^1$      | $\int\limits_0^1$      | $\int\limits_0^1$      | $\int\limits_0^1$      | <code>\int^{(p)}</code>        | integral operator                |
| u+0222C | $\iint\limits_0^1$     | $\iint\limits_0^1$     | $\iint\limits_0^1$     | $\iint\limits_0^1$     | $\iint\limits_0^1$     | $\iint\limits_0^1$     | <code>\iint</code>             | double integral operator         |
| u+0222D | $\iiint\limits_0^1$    | $\iiint\limits_0^1$    | $\iiint\limits_0^1$    | $\iiint\limits_0^1$    | $\iiint\limits_0^1$    | $\iiint\limits_0^1$    | <code>\iiint</code>            | triple integral operator         |
| u+0222E | $\oint\limits_0^1$     | $\oint\limits_0^1$     | $\oint\limits_0^1$     | $\oint\limits_0^1$     | $\oint\limits_0^1$     | $\oint\limits_0^1$     | <code>\oint^{(p)}</code>       | contour integral operator        |
| u+0222F | $\oint\limits_0^1$     | $\oint\limits_0^1$     | $\oint\limits_0^1$     | $\oint\limits_0^1$     | $\oint\limits_0^1$     | $\oint\limits_0^1$     | <code>\oint</code>             | double contour integral operator |
| u+02230 | $\oint\limits_0^1$     | $\oint\limits_0^1$     | $\oint\limits_0^1$     | $\oint\limits_0^1$     | $\oint\limits_0^1$     | $\oint\limits_0^1$     | <code>\oint\oint</code>        | triple contour integral operator |
| u+02231 | $\oint\limits_0^1$     | $\oint\limits_0^1$     | $\oint\limits_0^1$     | $\oint\limits_0^1$     | $\oint\limits_0^1$     | $\oint\limits_0^1$     | <code>\intclockwise</code>     | clockwise integral               |
| u+02232 | $\oint\limits_0^1$     | $\oint\limits_0^1$     | $\oint\limits_0^1$     | $\oint\limits_0^1$     | $\oint\limits_0^1$     | $\oint\limits_0^1$     | <code>\varointclockwise</code> | contour integral, clockwise      |
| u+02233 | $\oint\limits_0^1$     | $\oint\limits_0^1$     | $\oint\limits_0^1$     | $\oint\limits_0^1$     | $\oint\limits_0^1$     | $\oint\limits_0^1$     | <code>\ointctrclockwise</code> | contour integral, anticlockwise  |
| u+022C0 | $\bigwedge\limits_0^1$ | $\bigwedge\limits_0^1$ | $\bigwedge\limits_0^1$ | $\bigwedge\limits_0^1$ | $\bigwedge\limits_0^1$ | $\bigwedge\limits_0^1$ | <code>\bigwedge^{(p)}</code>   | logical and operator             |
| u+022C1 | $\bigvee\limits_0^1$   | $\bigvee\limits_0^1$   | $\bigvee\limits_0^1$   | $\bigvee\limits_0^1$   | $\bigvee\limits_0^1$   | $\bigvee\limits_0^1$   | <code>\bigvee^{(p)}</code>     | logical or operator              |

| USV     | L | X | S | P | D | F | Macro            | Description                        |
|---------|---|---|---|---|---|---|------------------|------------------------------------|
| U+022C2 |   |   |   |   |   |   | \bigcap^{(p)}    | intersection operator              |
| U+022C3 |   |   |   |   |   |   | \bigcup^{(p)}    | union operator                     |
| U+027D5 |   |   |   |   |   |   | \leftouterjoin   | left outer join                    |
| U+027D6 |   |   |   |   |   |   | \rightouterjoin  | right outer join                   |
| U+027D7 |   |   |   |   |   |   | \fullouterjoin   | full outer join                    |
| U+027D8 |   |   |   |   |   |   | \bigbot          | large up tack                      |
| U+027D9 |   |   |   |   |   |   | \bigtop          | large down tack                    |
| U+029F8 |   |   |   |   |   |   | \xsol            | big solidus                        |
| U+029F9 |   |   |   |   |   |   | \xbsol           | big reverse solidus                |
| U+02A00 |   |   |   |   |   |   | \bigodot^{(p)}   | n-ary circled dot operator         |
| U+02A01 |   |   |   |   |   |   | \bigoplus^{(p)}  | n-ary circled plus operator        |
| U+02A02 |   |   |   |   |   |   | \bigotimes^{(p)} | n-ary circled times operator       |
| U+02A03 |   |   |   |   |   |   | \bigcupdot       | n-ary union operator with dot      |
| U+02A04 |   |   |   |   |   |   | \biguplus^{(p)}  | n-ary union operator with plus     |
| U+02A05 |   |   |   |   |   |   | \bigsqcap        | n-ary square intersection operator |
| U+02A06 |   |   |   |   |   |   | \bigsqcup^{(p)}  | n-ary square union operator        |

| USV     | L | X | S | P | D | F | Macro      | Description  |
|---------|---|---|---|---|---|---|------------|--|
| U+02A07 |   |   |   |   |   |   | \conjquant | two logical and operator                             |
| U+02A08 |   |   |   |   |   |   | \disjquant | two logical or operator                              |
| U+02A09 |   |   |   |   |   |   | \bigtimes  | n-ary times operator                                 |
| U+02A0A |   |   |   |   |   |   | \modtwosum | modulo two sum                                       |
| U+02A0B |   |   |   |   |   |   | \sumint    | summation with integral                              |
| U+02A0C |   |   |   |   |   |   | \iiint     | quadruple integral operator                          |
| U+02A0D |   |   |   |   |   |   | \intbar    | finite part integral                                 |
| U+02A0E |   |   |   |   |   |   | \intBar    | integral with double stroke                          |
| U+02A0F |   |   |   |   |   |   | \fint      | integral average with slash                          |
| U+02A10 |   |   |   |   |   |   | \cirfnint  | circulation function                                 |
| U+02A11 |   |   |   |   |   |   | \awint     | anticlockwise integration                            |
| U+02A12 |   |   |   |   |   |   | \rppoint   | line integration with rectangular path around pole   |
| U+02A13 |   |   |   |   |   |   | \scpoint   | line integration with semi-circular path around pole |
| U+02A14 |   |   |   |   |   |   | \npoint    | line integration not including the pole              |
| U+02A15 |   |   |   |   |   |   | \pointint  | integral around a point operator                     |
| U+02A16 |   |   |   |   |   |   | \sqint     | quaternion integral operator                         |

| USV     | L | X | S | P | D | F | Macro            | Description   |
|---------|---|---|---|---|---|---|------------------|---|
| U+02A17 |   |   |   |   |   |   | \intlarhk        | integral with leftwards arrow with hook                 |
| U+02A18 |   |   |   |   |   |   | \intx            | integral with times sign                                |
| U+02A19 |   |   |   |   |   |   | \intcap          | integral with intersection                              |
| U+02A1A |   |   |   |   |   |   | \intcup          | integral with union                                     |
| U+02A1B |   |   |   |   |   |   | \upint           | integral with overbar                                   |
| U+02A1C |   |   |   |   |   |   | \lowint          | integral with underbar                                  |
| U+02A1D |   |   |   |   |   |   | \Join            | join  |
| U+02A1E |   |   |   |   |   |   | \bigtriangleleft | large left triangle operator                            |
| U+02A1F |   |   |   |   |   |   | \zcmp            | z notation schema composition                           |
| U+02A20 |   |   |   |   |   |   | \zpipe           | z notation schema piping                                |
| U+02A21 |   |   |   |   |   |   | \zproject        | z notation schema projection                            |
| U+02AFC |   |   |   |   |   |   | \biginterleave   | large triple vertical bar operator                      |
| U+02AFF |   |   |   |   |   |   | \bigtalloblong   | n-ary white vertical bar                                |
| U+1EEFO |   |   |   |   |   |   | \arabicmaj       | arabic mathematical operator meem with hah with tatweel |
| U+1EEF1 |   |   |   |   |   |   | \arabichad       | arabic mathematical operator hah with dal               |

## 10 Binary relations, \mathbin

| USV      | L | X | S | P | D | F | Macro                          | Description                                      |
|----------|---|---|---|---|---|---|--------------------------------|--|
| U+00002B | + | + | + | + | + | + | \mathplus                      | plus sign b:                                     |
| U+0000B1 | ± | ± | ± | ± | ± | ± | \pm^{(p)}                      | plus-or-minus sign                               |
| U+0000B7 | · | · | · | · | · | · | \cdot_{\text{centerdot}}^{(p)} | /centerdot b: middle dot                         |
| U+0000D7 | × | × | × | × | × | × | \times^{(p)}                   | multiply sign                                    |
| U+0000F7 | ÷ | ÷ | ÷ | ÷ | ÷ | ÷ | \div^{(p)}                     | divide sign                                      |
| U+02020  | † | † | † | † | † | † | \dagger^{(p)}                  | dagger relation                                  |
| U+02021  | ‡ | ‡ | ‡ | ‡ | ‡ | ‡ | \ddagger^{(p)}                 | double dagger relation                           |
| U+02022  | • | • | • | • | • | • | \smblkcircle                   | /bullet b: round bullet, filled                  |
| U+02040  | ⌒ | ⌒ |   |   |   |   | \tieconcat                     | character tie, z notation sequence concatenation |
| U+02044  | / | / | / | / | / | / | \fracslash                     | fraction slash                                   |
| U+0214B  | ؑ | ؑ |   |   |   |   | \upand                         | turned ampersand                                 |
| U+02212  | — | — | — | — | — | — | \minus                         | minus sign                                       |
| U+02213  | ⊟ | ⊟ | ⊟ | ⊟ | ⊟ | ⊟ | \mp^{(p)}                      | minus-or-plus sign                               |
| U+02214  | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | \dotplus^{(a)}                 | plus sign, dot above                             |
| U+02215  | / | / | / | / | / | / | \divslash                      | division slash                                   |
| U+02216  | ＼ | ＼ | ＼ | ＼ | ＼ | ＼ | \smallsetminus^{(a)}           | small set minus (cf. reverse solidus)            |
| U+02217  | * | * | * | * | * | * | \ast^{(p)}                     | centered asterisk                                |
| U+02218  | ◦ | ◦ | ◦ | ◦ | ◦ | ◦ | \vysmwhtcircle                 | composite function (small circle)                |
| U+02219  | • | • | • | • | • | • | \vysmblkcircle                 | bullet operator                                  |
| U+02227  | ∧ | ∧ | ∧ | ∧ | ∧ | ∧ | \wedge^{(p)}                   | /wedge /land b: logical and                      |
| U+02228  | ∨ | ∨ | ∨ | ∨ | ∨ | ∨ | \vee^{(p)}                     | /vee /lor b: logical or                          |
| U+02229  | ∩ | ∩ | ∩ | ∩ | ∩ | ∩ | \cap^{(p)}                     | intersection                                     |
| U+0222A  | ∪ | ∪ | ∪ | ∪ | ∪ | ∪ | \cup^{(p)}                     | union or logical sum                             |

| USV     | L | X | S | P | D | F | Macro              | Description  |
|---------|---|---|---|---|---|---|--------------------|--|
| U+02238 | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | \dotminus          | minus sign, dot above                                    |
| U+0223E | ♾ | ♾ | ♾ | ♾ | ♾ | ♾ | \invlazys          | most positive [inverted lazy s]                          |
| U+02240 | ♾ | ♾ | ♾ | ♾ | ♾ | ♾ | \wr^{(p)}          | wreath product   |
| U+0228C | ♾ | ♾ | ♾ | ♾ | ♾ | ♾ | \cupleftarrow      | multiset   |
| U+0228D | ♾ | ♾ | ♾ | ♾ | ♾ | ♾ | \cupdot            | union, with dot  |
| U+0228E | ♾ | ♾ | ♾ | ♾ | ♾ | ♾ | \uplus^{(p)}       | plus sign in union                                       |
| U+02293 | □ | □ | □ | □ | □ | □ | \sqcap^{(p)}       | square intersection                                      |
| U+02294 | □ | □ | □ | □ | □ | □ | \sqcup^{(p)}       | square union   |
| U+02295 | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | \oplus^{(p)}       | plus sign in circle                                      |
| U+02296 | ⊖ | ⊖ | ⊖ | ⊖ | ⊖ | ⊖ | \ominus^{(p)}      | minus sign in circle                                     |
| U+02297 | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | \otimes^{(p)}      | multiply sign in circle                                  |
| U+02298 | ⊘ | ⊘ | ⊘ | ⊘ | ⊘ | ⊘ | \oslash^{(p)}      | solidus in circle  |
| U+02299 | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | \odot^{(p)}        | middle dot in circle                                     |
| U+0229A | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | \circledcirc^{(a)} | small circle in circle                                   |
| U+0229B | * | * | * | * | * | * | \circledast^{(a)}  | asterisk in circle                                       |
| U+0229C | ≡ | ≡ | ≡ | ≡ | ≡ | ≡ | \circledeq         | equal in circle  |
| U+0229D | ⊖ | ⊖ | ⊖ | ⊖ | ⊖ | ⊖ | \circleddash^{(a)} | hyphen in circle   |
| U+0229E | 田 | 田 | 田 | 田 | 田 | 田 | \boxplus^{(a)}     | plus sign in box   |
| U+0229F | 田 | 田 | 田 | 田 | 田 | 田 | \boxminus^{(a)}    | minus sign in box  |
| U+022A0 | ☒ | ☒ | ☒ | ☒ | ☒ | ☒ | \boxtimes^{(a)}    | multiply sign in box                                     |
| U+022A1 | ▣ | ▣ | ▣ | ▣ | ▣ | ▣ | \boxdot^{(a)}      | /dotsquare /boxdot b: small dot in box                   |
| U+022BA | ⊤ | ⊤ | ⊤ | ⊤ | ⊤ | ⊤ | \intercal^{(a)}    | intercal   |
| U+022BB | ∨ | ∨ | ∨ | ∨ | ∨ | ∨ | \veebar^{(a)}      | logical or, bar below (large vee); exclusive disjunction |
| U+022BC | ⊸ | ⊸ | ⊸ | ⊸ | ⊸ | ⊸ | \barwedge^{(a)}    | bar, wedge (large wedge)                                 |

| USV     | L | X | S | P | D | F | Macro                  | Description  |
|---------|---|---|---|---|---|---|------------------------|--|
| U+022BD | ▀ | ▽ | ▽ | ▽ | ▽ |   | \barvee                | bar, vee (large vee)   |
| U+022C4 | ◊ | ◊ | ◊ | ◊ | ◊ |   | \smwhtdiamond          | white diamond  |
| U+022C5 | • | • | • | • | • | • | \cdot^{(p)}            | small middle dot   |
| U+022C6 | ★ | ★ | ★ | ★ | ★ |   | \star^{(p)}            | small star, filled, low  |
| U+022C7 | ※ | ※ | ※ | ※ | ※ |   | \divideontimes^{(a)}   | division on times  |
| U+022C9 | ☒ | ☒ | ☒ | ☒ | ☒ |   | \ltimes^{(a)}          | times sign, left closed  |
| U+022CA | ☒ | ☒ | ☒ | ☒ | ☒ |   | \rtimes^{(a)}          | times sign, right closed   |
| U+022CB | ☒ | ☒ | ☒ | ☒ | ☒ |   | \leftthreetimes^{(a)}  | left semidirect product  |
| U+022CC | ☒ | ☒ | ☒ | ☒ | ☒ |   | \rightthreetimes^{(a)} | right semidirect product   |
| U+022CE | ∨ | ∨ | ∨ | ∨ | ∨ | ∨ | \curlyvee^{(a)}        | curly logical or   |
| U+022CF | ∧ | ∧ | ∧ | ∧ | ∧ | ∧ | \curlywedge^{(a)}      | curly logical and  |
| U+022D2 | ∩ | ∩ | ∩ | ∩ | ∩ |   | \Cap^{(a)}             | /cap /doublecap b: double intersection   |
| U+022D3 | ∪ | ∪ | ∪ | ∪ | ∪ |   | \Cup^{(a)}             | /cup /doublecup b: double union  |
| U+02305 | ⊓ | ⊓ | ⊓ | ⊓ | ⊓ |   | \varbarwedge           | /barwedge b: logical and, bar above [projective<br>(bar over small wedge)]                         |
| U+02306 | ⊔ | ⊔ | ⊔ | ⊔ | ⊔ |   | \vardoublebarwedge     | /doublebarwedge b: logical and, double bar<br>above [perspective (double bar over small<br>wedge)] |
| U+0233D | ∅ | ∅ |   |   |   |   | \obar                  | circle with vertical bar   |
| U+025B3 | △ | △ | △ | △ | △ |   | \bigtriangleup^{(p)}   | big up triangle, open  |
| U+025B7 | ▷ | ▷ | ▷ | ▷ | ▷ |   | \triangleright^{(p)}   | (large) right triangle, open; z notation range<br>restriction                                      |
| U+025C1 | ◁ | ◁ | ◁ | ◁ | ◁ |   | \triangleleft^{(p)}    | (large) left triangle, open; z notation domain<br>restriction                                      |
| U+025CB | ○ | ○ | ○ | ○ | ● | ○ | \mdlgwhtcircle         | medium large circle  |
| U+025EB | □ | □ |   |   |   | □ | \boxbar                | vertical bar in box  |
| U+027C7 | ∨ | ∨ |   |   |   |   | \veedot                | or with dot inside   |
| U+027D1 | ∧ | ∧ |   |   |   |   | \wedgedot              | and with dot   |

| USV     | L | X | S | P | D | F | Macro                    | Description                                      |
|---------|---|---|---|---|---|---|--------------------------|--|
| U+027E0 | ❖ | ❖ | ❖ | ❖ | ❖ |   | \lozengeminus            | lozenge divided by horizontal rule               |
| U+027E1 | ❖ | ❖ | ❖ | ❖ | ❖ |   | \concavediamond          | white concave-sided diamond                      |
| U+027E2 | ❖ | ❖ | ❖ | ❖ | ❖ |   | \concavediamondtickleft  | white concave-sided diamond with leftwards tick  |
| U+027E3 | ❖ | ❖ | ❖ | ❖ | ❖ |   | \concavediamondtickright | white concave-sided diamond with rightwards tick |
| U+027E4 | □ | □ |   |   |   |   | \whitesquaretickleft     | white square with leftwards tick                 |
| U+027E5 | □ | □ |   |   |   |   | \whitesquaretickright    | white square with rightwards tick                |
| U+029B5 | ○ | ○ |   |   |   |   | \circlehbar              | circle with horizontal bar                       |
| U+029B6 | ○ | ○ |   |   |   |   | \circledvert             | circled vertical bar                             |
| U+029B7 | ○ | ○ |   |   |   |   | \circledparallel         | circled parallel                                 |
| U+029B8 | ○ | ○ |   |   |   |   | \obslash                 | circled reverse solidus                          |
| U+029B9 | ○ | ○ |   |   |   |   | \operp                   | circled perpendicular                            |
| U+029C0 | ○ | ○ |   |   |   |   | \olessthan               | circled less-than                                |
| U+029C1 | ○ | ○ |   |   |   |   | \ogreaterthan            | circled greater-than                             |
| U+029C4 | □ | □ |   |   |   |   | \boxdiag                 | squared rising diagonal slash                    |
| U+029C5 | □ | □ |   |   |   |   | \boxbslash               | squared falling diagonal slash                   |
| U+029C6 | ✳ | ✳ |   |   |   |   | \boxast                  | squared asterisk                                 |
| U+029C7 | ○ | ○ |   |   |   |   | \boxcircle               | squared small circle                             |
| U+029C8 | □ | □ |   |   |   |   | \boxbox                  | squared square                                   |
| U+029CD | △ | △ |   |   |   |   | \triangleserifs          | triangle with serifs at bottom                   |
| U+029D6 | ☒ | ☒ |   |   |   |   | \hourglass               | white hourglass                                  |
| U+029D7 | ☒ | ☒ |   |   |   |   | \blackhourglass          | black hourglass                                  |
| U+029E2 | ☶ | ☶ |   |   |   |   | \shuffle                 | shuffle product                                  |
| U+029EB | ❖ | ❖ |   |   |   |   | \mdlgbblklozenge         | black lozenge                                    |
| U+029F5 | ＼ | ＼ |   |   |   |   | \setminus^{(p)}          | reverse solidus operator                         |



| USV     | L | X | S | P | D | F | Macro                 | Description  |
|---------|---|---|---|---|---|---|-----------------------|--|
| U+02A34 | ⊗ | ⊗ |   |   |   |   | \otimeslhrim          | multiplication sign in left half circle            |
| U+02A35 | ⊗ | ⊗ |   |   |   |   | \otimesrhrim          | multiplication sign in right half circle           |
| U+02A36 | ⊛ | ⊛ |   |   |   |   | \otimeshat            | circled multiplication sign with circumflex accent |
| U+02A37 | ⊗ | ⊗ |   |   |   |   | \otimes               | multiplication sign in double circle               |
| U+02A38 | ÷ | ÷ |   |   |   |   | \odiv                 | circled division sign                              |
| U+02A39 | △ | △ |   |   |   |   | \triangleplus         | plus sign in triangle                              |
| U+02A3A | △ | △ |   |   |   |   | \triangleminus        | minus sign in triangle                             |
| U+02A3B | △ | △ |   |   |   |   | \triangletimes        | multiplication sign in triangle                    |
| U+02A3C | ⊓ | ⊓ |   |   |   |   | \intprod              | interior product                                   |
| U+02A3D | ⊓ | ⊓ |   |   |   |   | \intprodr             | righthand interior product                         |
| U+02A3E | ⋮ | ⋮ |   |   |   |   | \fcmp                 | z notation relational composition                  |
| U+02A3F | □ | □ | □ | □ | □ |   | \amalg <sup>(p)</sup> | amalgamation or coproduct                          |
| U+02A40 | ⊓ | ⊓ |   |   |   |   | \capdot               | intersection with dot                              |
| U+02A41 | ⊕ | ⊕ |   |   |   |   | \uminus               | union with minus sign                              |
| U+02A42 | ⊔ | ⊔ |   |   |   |   | \barcup               | union with overbar                                 |
| U+02A43 | ⊒ | ⊒ |   |   |   |   | \barcap               | intersection with overbar                          |
| U+02A44 | ⊓ | ⊓ |   |   |   |   | \capwedge             | intersection with logical and                      |
| U+02A45 | ⊔ | ⊔ |   |   |   |   | \cupvee               | union with logical or                              |
| U+02A46 | ⊑ | ⊑ |   |   |   |   | \cupovercap           | union above intersection                           |
| U+02A47 | ⊒ | ⊒ |   |   |   |   | \capovercup           | intersection above union                           |
| U+02A48 | ⊑ | ⊑ |   |   |   |   | \cupbarcap            | union above bar above intersection                 |
| U+02A49 | ⊒ | ⊒ |   |   |   |   | \capbarcup            | intersection above bar above union                 |
| U+02A4A | ⊔ | ⊔ |   |   |   |   | \twocups              | union beside and joined with union                 |
| U+02A4B | ⊓ | ⊓ |   |   |   |   | \twocaps              | intersection beside and joined with intersection   |

| USV     | L | X | S | P | D | F | Macro                          | Description                                |
|---------|---|---|---|---|---|---|--------------------------------|--|
| U+02A4C | □ | □ |   |   |   |   | \closedvarcup                  | closed union with serifs                   |
| U+02A4D | □ | □ |   |   |   |   | \closedvarcap                  | closed intersection with serifs            |
| U+02A4E | ■ | ■ |   |   |   |   | \Sqcap                         | double square intersection                 |
| U+02A4F | ■ | ■ |   |   |   |   | \Sqcup                         | double square union                        |
| U+02A50 | ☒ | ☒ |   |   |   |   | \closedvarcupsmashprod         | closed union with serifs and smash product |
| U+02A51 | ∧ | ∧ |   |   |   |   | \wedgeodot                     | logical and with dot above                 |
| U+02A52 | ∨ | ∨ |   |   |   |   | \veeodot                       | logical or with dot above                  |
| U+02A53 | ▲ | ▲ |   |   |   |   | \Wedge                         | double logical and                         |
| U+02A54 | ▼ | ▼ |   |   |   |   | \Vee                           | double logical or                          |
| U+02A55 | ▲ | ▲ |   |   |   |   | \wedgeonwedge                  | two intersecting logical and               |
| U+02A56 | ▼ | ▼ |   |   |   |   | \veeonvee                      | two intersecting logical or                |
| U+02A57 | ↙ | ↙ |   |   |   |   | \bigslopedvee                  | sloping large or                           |
| U+02A58 | ↗ | ↗ |   |   |   |   | \bigslopedwedge                | sloping large and                          |
| U+02A5A | ▲ | ▲ |   |   |   |   | \wedgemidvert                  | logical and with middle stem               |
| U+02A5B | ▼ | ▼ |   |   |   |   | \veemidvert                    | logical or with middle stem                |
| U+02A5C | ▲ | ▲ |   |   |   |   | \midbarwedge                   | logical and with horizontal dash           |
| U+02A5D | ∨ | ∨ |   |   |   |   | \midbarvee                     | logical or with horizontal dash            |
| U+02A5E | ⤒ | ⤒ |   |   |   |   | \doublebarwedge <sup>(a)</sup> | logical and with double overbar            |
| U+02A5F | △ | △ |   |   |   |   | \wedgebar                      | logical and with underbar                  |
| U+02A60 | △ | △ |   |   |   |   | \wedgegedoublebar              | logical and with double underbar           |
| U+02A61 | ⤓ | ⤓ |   |   |   |   | \varveebar                     | small vee with underbar                    |
| U+02A62 | ⤔ | ⤔ |   |   |   |   | \doublebarvee                  | logical or with double overbar             |
| U+02A63 | ⤕ | ⤕ |   |   |   |   | \veedoublebar                  | logical or with double underbar            |
| U+02A64 | ⤖ | ⤖ |   |   |   |   | \dsub                          | z notation domain antirestriction          |

| USV     | L   | X   | S | P | D | F | Macro          | Description                                |
|---------|-----|-----|---|---|---|---|----------------|--|
| U+02A65 | ▷   | ▷   |   |   |   |   | \rsub          | z notation range antirestriction           |
| U+02A71 | ⊤   | ⊤   |   |   |   |   | \eqqplus       | equals sign above plus sign                |
| U+02A72 | ±   | ±   |   |   |   |   | \pluseqq       | plus sign above equals sign                |
| U+02AF4 |     |     |   |   |   |   | \interleave    | triple vertical bar binary relation        |
| U+02AF5 | ☰   | ☰   |   |   |   |   | \nhVvert       | triple vertical bar with horizontal stroke |
| U+02AF6 | :   | :   |   |   |   |   | \threedotcolon | triple colon operator                      |
| U+02AFB | /// | /// |   |   |   |   | \trslash       | triple solidus binary relation             |
| U+02AFD | //  | //  |   |   |   |   | \sslash        | double solidus operator                    |
| U+02AFE | □   | □   |   |   |   |   | \talloblong    | white vertical bar                         |

## 11 Ordinary symbols, \mathord

| USV     | L   | X   | S   | P   | D   | F   | Macro            | Description                                    |
|---------|-----|-----|-----|-----|-----|-----|------------------|--|
| u+00023 | #   | #   | #   | #   | #   | #   | \mathoctothorpe  | number sign                                    |
| u+00024 | \$  | \$  | \$  | \$  | \$  | \$  | \mathdollar      | dollar sign                                    |
| u+00025 | %   | %   | %   | %   | %   | %   | \mathpercent     | percent sign                                   |
| u+00026 | &   | &   | &   | &   | &   | &   | \mathampersand   | ampersand                                      |
| u+0002e | .   | .   | .   | .   | .   | .   | \mathperiod      | full stop, period                              |
| u+0002f | /   | /   | /   | /   | /   | /   | \mathslash       | solidus  |
| u+0003f | ?   | ?   | ?   | ?   | ?   | ?   | \mathquestion    | question mark                                  |
| u+00040 | @   | @   | @   | @   | @   | @   | \mathatsign      | commercial at                                  |
| u+0005c | \   | \   | \   | \   | \   | \   | \backslash       | reverse solidus                                |
| u+000a3 | £   | £   | £   | £   | £   | £   | \mathsterling    | pound sign                                     |
| u+000a5 | ¥   | ¥   | ¥   | ¥   | ¥   | ¥   | \mathyen         | yen sign                                       |
| u+000a7 | §   | §   | §   | §   | §   | §   | \mathsection     | section symbol                                 |
| u+000ac | ¬   | ¬   | ¬   | ¬   | ¬   | ¬   | \neg^{(p)}       | /neg /lnot not sign                            |
| u+000b6 | ¶   | ¶   | ¶   | ¶   | ¶   | ¶   | \mathparagraph   | paragraph symbol                               |
| u+001b5 | Ζ   | Ζ   |     |     |     |     | \Zbar            | impedance (latin capital letter z with stroke) |
| u+003f6 | ϶   | ϶   |     |     | ϶   |     | \upbackepsilon   | greek reversed lunate epsilon symbol           |
| u+02015 | —   | —   | —   | —   | —   | —   | \horizbar        | horizontal bar                                 |
| u+02017 | =   | =   | =   | =   | =   | =   | \twolowline      | double low line (spacing)                      |
| u+02025 | ..  | ..  |     |     |     |     | \enleadertwodots | double baseline dot (en leader)                |
| u+02026 | ... | ... | ... | ... | ... | ... | \unicodeellipsis | ellipsis (horizontal)                          |
| u+02032 | '   | '   | '   | '   | '   | '   | \prime^{(p)}     | prime or minute, not superscripted             |
| u+02033 | ''  | ''  | ''  | ''  | ''  | ''  | \dprime          | double prime or second, not superscripted      |

| USV     | L     | X     | S    | P    | D    | F    | Macro                     | Description                                  |
|---------|-------|-------|------|------|------|------|---------------------------|--|
| U+02034 | ☰     | ☰     | ☰    | ☰    | ☰    | ☰    | \trprime                  | triple prime (not superscripted)             |
| U+02035 | ⤵     | ⤵     | ⤵    | ⤵    | ⤵    | ⤵    | \backprime <sup>(a)</sup> | reverse prime, not superscripted             |
| U+02036 | ⤷     | ⤷     | ⤷    | ⤷    | ⤷    | ⤷    | \backdprime               | double reverse prime, not superscripted      |
| U+02037 | ⤸     | ⤸     | ⤸    | ⤸    | ⤸    | ⤸    | \backtrprime              | triple reverse prime, not superscripted      |
| U+02038 | ‸     | ‸     |      |      |      |      | \caretinsert              | caret (insertion mark)                       |
| U+0203C | (!! ) | (!! ) |      |      |      |      | \Exclam                   | double exclamation mark                      |
| U+02043 | ▬     | ▬     |      |      |      |      | \hyphenbullet             | rectangle, filled (hyphen bullet)            |
| U+02047 | ⁇     | ⁇     |      |      |      |      | \Question                 | double question mark                         |
| U+02057 | ☰☰☰☰  | ☰☰☰☰  | ☰☰☰☰ | ☰☰☰☰ | ☰☰☰☰ | ☰☰☰☰ | \qprime                   | quadruple prime, not superscripted           |
| U+020AC | €     | €     | €    | €    | €    | €    | \euro                     | euro sign                                    |
| U+020DD | ○     | ○     | ○    | ○    | ○    |      | \enclosecircle            | combining enclosing circle                   |
| U+020DE | □     | □     | □    | □    | □    |      | \enclosesquare            | combining enclosing square                   |
| U+020DF | ◇     | ◇     | ◇    | ◇    | ◇    |      | \enclosediamond           | combining enclosing diamond                  |
| U+020E4 | △     | △     | △    | △    | △    |      | \enclosetriangle          | combining enclosing upward pointing triangle |
| U+02107 | ℇ     | ℇ     | ℇ    | ℇ    | ℇ    |      | \Eulerconst               | euler constant                               |
| U+0210E | ℎ     | ℎ     | ℎ    | ℎ    | ℎ    | ℎ    | \Planckconst              | planck constant                              |
| U+02127 | ⓘ     | ⓘ     | ⓘ    | ⓘ    | ⓘ    | ⓘ    | \mho                      | conductance                                  |
| U+02132 | ࠢ     | ࠢ     |      |      |      |      | \Finv <sup>(a)</sup>      | turned capital f                             |
| U+0213C | ࠣ     | ࠣ     | ࠣ    | ࠣ    | ࠣ    |      | \Bbbpi                    | double-struck small pi                       |
| U+02141 | ࠥ     | ࠥ     |      |      |      |      | \Game <sup>(a)</sup>      | turned sans-serif capital g                  |
| U+02142 | ࠦ     | ࠦ     |      |      |      |      | \sansLturned              | turned sans-serif capital l                  |
| U+02143 | ࠧ     | ࠧ     |      |      |      |      | \sansLmirrored            | reversed sans-serif capital l                |
| U+02144 | ࠨ     | ࠨ     |      |      |      |      | \Yup                      | turned sans-serif capital y                  |

| USV     | L    | X    | S | P | D    | F | Macro                      | Description  |
|---------|------|------|---|---|------|---|----------------------------|--|
| U+02145 | ⓘ    | ⓘ    | ⓘ | ⓘ | ⓘ    |   | \mitBbbD                   | double-struck italic capital d                         |
| U+02146 | ⓘ    | ⓘ    | ⓘ | ⓘ | ⓘ    |   | \mitBbbd                   | double-struck italic small d                           |
| U+02147 | ⓘ    | ⓘ    | ⓘ | ⓘ | ⓘ    |   | \mitBbbe                   | double-struck italic small e                           |
| U+02148 | ⓘ    | ⓘ    | ⓘ | ⓘ | ⓘ    |   | \mitBbbi                   | double-struck italic small i                           |
| U+02149 | ⓘ    | ⓘ    | ⓘ | ⓘ | ⓘ    |   | \mitBbbj                   | double-struck italic small j                           |
| U+0214A | Ⓜ    | Ⓜ    |   |   |      |   | \PropertyLine              | property line  |
| U+021A8 | ⇤    | ⇤    |   |   | ⇤    |   | \updownarrowbar            | up down arrow with base (perpendicular)                |
| U+021B4 | ↴    | ↴    | ↴ | ↴ | ↴    | ↴ | \linefeed                  | rightwards arrow with corner downwards                 |
| U+021B5 | ↪    | ↪    | ↪ | ↪ | ↪    | ↪ | \carriagereturn            | downwards arrow with corner leftward = carriage return |
| U+021B8 | ↙    | ↙    |   |   | ↙    |   | \barovernorthwestarrow     | north west arrow to long bar                           |
| U+021B9 | ↙    | ↙    |   |   | ↙    |   | \barleftarrowrightarrowbar | leftwards arrow to bar over rightwards arrow to bar    |
| U+021BA | ⌈    | ⌈    | ⌈ | ⌈ | ⌈    | ⌈ | \acwopencirclearrow        | anticlockwise open circle arrow                        |
| U+021BB | ⌈    | ⌈    | ⌈ | ⌈ | ⌈    | ⌈ | \cwopencirclearrow         | clockwise open circle arrow                            |
| U+021DE | ⇩    | ⇩    |   |   | ⇩    |   | \nHuparrow                 | upwards arrow with double stroke                       |
| U+021DF | ⇩    | ⇩    |   |   | ⇩    |   | \nHdownarrow               | downwards arrow with double stroke                     |
| U+021E0 | ←... | ←... |   |   | ←... |   | \leftdasharrow             | leftwards dashed arrow                                 |
| U+021E1 | ↑... | ↑... |   |   | ↑... |   | \updasharrow               | upwards dashed arrow                                   |
| U+021E2 | →... | →... |   |   | →... |   | \rightdasharrow            | rightwards dashed arrow                                |
| U+021E3 | ↓... | ↓... |   |   | ↓... |   | \downdasharrow             | downwards dashed arrow                                 |
| U+021E6 | ←    | ←    | ← | ← | ←    | ← | \leftwhitearrow            | leftwards white arrow                                  |
| U+021E7 | ↑    | ↑    | ↑ | ↑ | ↑    | ↑ | \upwhitearrow              | upwards white arrow                                    |
| U+021E8 | →    | →    | → | → | →    | → | \rightwhitearrow           | rightwards white arrow                                 |
| U+021E9 | ↓    | ↓    | ↓ | ↓ | ↓    | ↓ | \downwhitearrow            | downwards white arrow                                  |

| USV     | L   | X   | S   | P   | D   | F   | Macro                 | Description                     |
|---------|-----|-----|-----|-----|-----|-----|-----------------------|---------------------------------|
| U+021EA |     | ↑   | ↑   |     |     | ↑   | \whitearrowupfrombar  | upwards white arrow from bar    |
| U+02200 | ∀   | ∀   | ∀   | ∀   | ∀   | ∀   | \forall^{(p)}         | for all                         |
| U+02201 | ∁   | ∁   | ∁   | ∁   | ∁   | ∁   | \complement^{(a)}     | complement sign                 |
| U+02203 | Ǝ   | Ǝ   | Ǝ   | Ǝ   | Ǝ   | Ǝ   | \exists^{(p)}         | at least one exists             |
| U+02204 | ∅   | ∅   | ∅   | ∅   | ∅   | ∅   | \nexists^{(a)}        | negated exists                  |
| U+02205 | ∅   | ∅   | ∅   | ∅   | ∅   | ∅   | \varnothing^{(a)}     | circle, slash                   |
| U+02206 | △   | △   | △   | △   | △   | △   | \increment            | laplacian (delta; nabla^2)      |
| U+0220E | ■   | ■   | ■   | ■   | ■   | ■   | \QED                  | end of proof                    |
| U+0221A | ✓   | ✓   | ✓   | ✓   | ✓   | ✓   | \surd^{(p)}           | radical                         |
| U+0221E | ∞   | ∞   | ∞   | ∞   | ∞   | ∞   | \infty^{(p)}          | infinity                        |
| U+0221F | ∟   | ∟   | ∟   | ∟   | ∟   | ∟   | \rightangle           | right (90 degree) angle         |
| U+02220 | ∠   | ∠   | ∠   | ∠   | ∠   | ∠   | \angle^{(p)}          | angle                           |
| U+02221 | ⦶   | ⦶   | ⦶   | ⦶   | ⦶   | ⦶   | \measuredangle^{(a)}  | angle-measured                  |
| U+02222 | ⦷   | ⦷   | ⦷   | ⦷   | ⦷   | ⦷   | \sphericalangle^{(a)} | angle-spherical                 |
| U+02234 | ∴   | ∴   | ∴   | ∴   | ∴   | ∴   | \therefore^{(a)}      | therefore                       |
| U+02235 | ⋮   | ⋮   | ⋮   | ⋮   | ⋮   | ⋮   | \because^{(a)}        | because                         |
| U+0223F | ~   | ~   | ~   | ~   | ~   | ~   | \sinewave             | sine wave                       |
| U+022A4 | ⊤   | ⊤   | ⊤   | ⊤   | ⊤   | ⊤   | \top^{(p)}            | top                             |
| U+022A5 | ⊥   | ⊥   | ⊥   | ⊥   | ⊥   | ⊥   | \bot^{(p)}            | bottom                          |
| U+022B9 | +   | +   | +   | +   | +   | +   | \hermitmatrix         | hermitian conjugate matrix      |
| U+022BE | ⦵   | ⦵   | ⦵   | ⦵   | ⦵   | ⦵   | \measuredrightangle   | right angle-measured [with arc] |
| U+022BF | ⦾   | ⦾   | ⦾   | ⦾   | ⦾   | ⦾   | \varlrltriangle       | right triangle                  |
| U+022EF | ⋮⋮⋮ | ⋮⋮⋮ | ⋮⋮⋮ | ⋮⋮⋮ | ⋮⋮⋮ | ⋮⋮⋮ | \unicodeddots         | three dots, centered            |
| U+02300 | ∅   | ∅   | ∅   | ∅   | ∅   | ∅   | \diameter             | diameter sign                   |

| USV     | L | X | S | P | D | F | Macro                  | Description  |
|---------|---|---|---|---|---|---|------------------------|--|
| u+02302 |   | ⌂ | ⌂ |   |   | ⌂ | \house                 | house  |
| u+02310 | ¬ | ¬ | ¬ | ¬ | ¬ | ¬ | \invnot                | reverse not  |
| u+02311 | □ | □ |   |   |   |   | \sqlozenge             | square lozenge   |
| u+02312 | ⏜ | ⏜ |   |   |   |   | \proflne               | profile of a line  |
| u+02313 | ⏜ | ⏜ |   |   |   |   | \profsurf              | profile of a surface                                       |
| u+02317 | # | # |   |   |   |   | \viewdata              | viewdata square  |
| u+02319 | ¬ | ¬ | ¬ | ¬ | ¬ | ¬ | \turnednot             | turned not sign  |
| u+02320 | ∫ | ∫ | ∫ | ∫ | ∫ | ∫ | \inttop                | top half integral  |
| u+02321 | ∫ | ∫ | ∫ | ∫ | ∫ | ∫ | \intbottom             | bottom half integral                                       |
| u+0232c | ⬡ | ⬡ |   |   |   |   | \varhexagonlrbonds     | six carbon ring, corner down, double bonds lower right etc |
| u+02332 | ▷ | ▷ |   |   |   |   | \conictaper            | conical taper  |
| u+02336 | ⊓ | ⊓ |   |   |   |   | \topbot                | top and bottom   |
| u+02340 | ⌗ | ⌗ |   |   |   |   | \APLnotbackslash       | apl functional symbol backslash bar                        |
| u+02353 | ☒ | ☒ |   |   |   |   | \APLboxupcaret         | boxed up caret   |
| u+02370 | ☒ | ☒ |   |   |   |   | \APLboxquestion        | boxed question mark  |
| u+0237c | ⤷ | ⤷ |   |   |   |   | \rangledownzigzagarrow | right angle with downwards zigzag arrow                    |
| u+02394 | ⬡ | ⬡ |   |   |   |   | \hexagon               | horizontal benzene ring [hexagon flat open]                |
| u+0239b | ( | ( | ( | ( | ( | ) | \lparenuend            | left parenthesis upper hook                                |
| u+0239c |   |   |   |   |   |   | \lparenextender        | left parenthesis extension                                 |
| u+0239d | ( | ( | ( | ( | ( | ) | \lparenlend            | left parenthesis lower hook                                |

| USV     | L | X | S | P | D | F | Macro           | Description                       |
|---------|---|---|---|---|---|---|-----------------|-----------------------------------|
| U+0239E | ﴿ | ﴾ | ﴿ | ﴾ | ﴾ | ﴾ | \rparenend      | right parenthesis upper hook      |
| U+0239F | ﴾ | ﴾ | ﴾ | ﴾ | ﴾ | ﴾ | \rparenextender | right parenthesis extension       |
| U+023A0 | ﴿ | ﴾ | ﴾ | ﴾ | ﴾ | ﴾ | \rparenlend     | right parenthesis lower hook      |
| U+023A1 | 〔 | 〕 | 〔 | 〕 | 〕 | 〕 | \lbrackuend     | left square bracket upper corner  |
| U+023A2 | 〔 | 〕 | 〔 | 〕 | 〕 | 〕 | \lbrackextender | left square bracket extension     |
| U+023A3 | 〔 | 〕 | 〔 | 〕 | 〕 | 〕 | \lbracklend     | left square bracket lower corner  |
| U+023A4 | 〕 | 〕 | 〕 | 〕 | 〕 | 〕 | \rbrackuend     | right square bracket upper corner |
| U+023A5 | 〕 | 〕 | 〕 | 〕 | 〕 | 〕 | \rbrackextender | right square bracket extension    |
| U+023A6 | 〕 | 〕 | 〕 | 〕 | 〕 | 〕 | \rbracklend     | right square bracket lower corner |
| U+023A7 | ﴿ | ﴾ | ﴿ | ﴾ | ﴾ | ﴾ | \lbraceuend     | left curly bracket upper hook     |
| U+023A8 | ﴿ | ﴾ | ﴿ | ﴾ | ﴾ | ﴾ | \lbracetmid     | left curly bracket middle piece   |
| U+023A9 | ﴿ | ﴾ | ﴾ | ﴾ | ﴾ | ﴾ | \lbraceelend    | left curly bracket lower hook     |
| U+023AA | ﴾ | ﴾ | ﴾ | ﴾ | ﴾ | ﴾ | \vbraceextender | curly bracket extension           |
| U+023AB | ﴾ | ﴾ | ﴾ | ﴾ | ﴾ | ﴾ | \rbraceuend     | right curly bracket upper hook    |
| U+023AC | ﴾ | ﴾ | ﴾ | ﴾ | ﴾ | ﴾ | \rbracetmid     | right curly bracket middle piece  |
| U+023AD | ﴾ | ﴾ | ﴾ | ﴾ | ﴾ | ﴾ | \rbraceelend    | right curly bracket lower hook    |
| U+023AE | ﴾ | ﴾ | ﴾ | ﴾ | ﴾ | ﴾ | \intextender    | integral extension                |

| USV     | L  | X  | S | P | D | F | Macro                 | Description                                       |
|---------|----|----|---|---|---|---|-----------------------|---|
| U+023AF | -  | -  | - | - | - | - | \harpoonrightextender | horizontal line extension (used to extend arrows) |
| U+023B2 | ↖  | ↖  | ↖ | ↖ | ↖ | ↖ | \sumtop               | summation top                                     |
| U+023B3 | ↙  | ↙  | ↙ | ↙ | ↙ | ↙ | \sumbottom            | summation bottom                                  |
| U+023B6 | ⊜  | ⊜  | ⊜ | ⊜ | ⊜ | ⊜ | \bbbrktbrk            | bottom square bracket over top square bracket     |
| U+023B7 | ⃢  | ⃢  | ⃢ | ⃢ | ⃢ | ⃢ | \sqrtbottom           | radical symbol bottom                             |
| U+023B8 |    |    | - | - | - | - | \lvboxline            | left vertical box line                            |
| U+023B9 |    |    | - | - | - | - | \rvboxline            | right vertical box line                           |
| U+023CE | ⤠  | ⤠  | - | - | - | - | \varcarriagereturn    | return symbol                                     |
| U+023E0 | ⏜  | ⏜  | ⏜ | ⏜ | ⏜ | ⏜ | \obrbrak              | top tortoise shell bracket (mathematical use)     |
| U+023E1 | ⏝  | ⏝  | ⏝ | ⏝ | ⏝ | ⏝ | \ubrbrak              | bottom tortoise shell bracket (mathematical use)  |
| U+023E2 | ⏑  | ⏑  | - | - | - | - | \trapezium            | white trapezium                                   |
| U+023E3 | ⬡  | ⬡  | - | - | - | - | \benzenr              | benzene ring with circle                          |
| U+023E4 | -  | -  | - | - | - | - | \strns                | straightness                                      |
| U+023E5 | ⏑  | ⏑  | - | - | - | - | \fltns                | flatness  |
| U+023E6 | ϶  | ϶  | - | - | - | - | \accurrent            | ac current  |
| U+023E7 | ✖  | ✖  | - | - | - | - | \elinters             | electrical intersection                           |
| U+02422 | ⠄  | ⠄  | ⠄ | ⠄ | ⠄ | ⠄ | \blanksymbol          | blank symbol                                      |
| U+02423 | ◻  | ◻  | ◻ | ◻ | ◻ | ◻ | \mathvisiblespace     | open box  |
| U+02506 |    |    | - | - | - | - | \bdtriplevdash        | doubly broken vert                                |
| U+02580 | ⠄⠄ | ⠄⠄ | - | - | - | - | \blockuphalf          | upper half block                                  |
| U+02584 | ⠄⠄ | ⠄⠄ | - | - | - | - | \blocklowhalf         | lower half block                                  |

| USV     | L   | X   | S   | P   | D   | F   | Macro                | Description                                |
|---------|-----|-----|-----|-----|-----|-----|----------------------|--|
| u+02588 | ■   | ■   | ■   | ■   | ■   | ■   | \blockfull           | full block                                 |
| u+0258c |     | ■   |     |     |     | ■   | \blocklefthalf       | left half block                            |
| u+02590 |     | ■   | ■   |     |     | ■   | \blockrighthalf      | right half block                           |
| u+02591 | ■■■ | ■■■ | ■■■ | ■■■ | ■■■ |     | \blockqtrshaded      | 25% shaded block                           |
| u+02592 | ■■■ | ■■■ | ■■■ | ■■■ | ■■■ |     | \blockhalfshaded     | 50% shaded block                           |
| u+02593 | ■■■ | ■■■ | ■■■ | ■■■ | ■■■ |     | \blockthreeqtrshaded | 75% shaded block                           |
| u+025a0 | ■■■ | ■■■ | ■■■ | ■■■ | ■■■ | ■■■ | \mdlgblkssquare      | square, filled                             |
| u+025a1 | □□□ | □□□ | □□□ | □□□ | □□□ | □□□ | \mdlgwhtsquare       | square, open                               |
| u+025a2 | □□□ | □□□ |     | □□□ |     | □□□ | \squoval             | white square with rounded corners          |
| u+025a3 | □□□ | □□□ |     | □□□ |     | □□□ | \blackinwhitesquare  | white square containing black small square |
| u+025a4 | ■■■ | ■■■ |     |     |     |     | \squarehfill         | square, horizontal rule filled             |
| u+025a5 | ■■■ | ■■■ |     |     |     |     | \squarevfill         | square, vertical rule filled               |
| u+025a6 | ■■■ | ■■■ |     |     |     |     | \squarehvfill        | square with orthogonal crosshatch fill     |
| u+025a7 | ■■■ | ■■■ |     |     |     |     | \squarenwsefill      | square, nw-to-se rule filled               |
| u+025a8 | ■■■ | ■■■ |     |     |     |     | \squareneswfill      | square, ne-to-sw rule filled               |
| u+025a9 | ■■■ | ■■■ |     |     |     |     | \squarecrossfill     | square with diagonal crosshatch fill       |
| u+025aa | ▪▪▪ | ▪▪▪ | ▪▪▪ | ▪▪▪ | ▪▪▪ | ▪▪▪ | \smbblkssquare       | /blacksquare - sq bullet, filled           |
| u+025ab | ▫▫▫ | ▫▫▫ | ▫▫▫ | ▫▫▫ | ▫▫▫ | ▫▫▫ | \smwhtsquare         | white small square                         |
| u+025ac | ■■■ | ■■■ | ■■■ | ■■■ | ■■■ | ■■■ | \hrectangleblack     | black rectangle                            |
| u+025ad | □□□ | □□□ | □□□ | □□□ | □□□ | □□□ | \hrectangle          | horizontal rectangle, open                 |
| u+025ae | ■■■ | ■■■ |     | ■■■ |     | ■■■ | \vrectangleblack     | black vertical rectangle                   |
| u+025af | □□□ | □□□ |     | □□□ |     | □□□ | \vrectangle          | rectangle, white (vertical)                |
| u+025b0 | ■■■ | ■■■ |     |     |     |     | \parallelogramblack  | black parallelogram                        |
| u+025b1 | □□□ | □□□ |     |     |     |     | \parallelogram       | parallelogram, open                        |

| USV     | L | X | S | P | D | F | Macro                              | Description                                  |
|---------|---|---|---|---|---|---|------------------------------------|--|
| U+025B2 | ▲ | ▲ | ▲ | ▲ | ▲ | ▲ | \bigblacktriangleup                | black up-pointing triangle                   |
| U+025B4 |   | ▲ | ▲ |   |   |   | \blacktriangle <sup>(a)</sup>      | up triangle, filled                          |
| U+025B6 | ▶ | ▶ | ▶ | ▶ | ▶ | ▶ | \blacktriangleright <sup>(a)</sup> | (large) right triangle, filled               |
| U+025B8 |   | ▶ | ▶ |   |   |   | \smallblacktriangleright           | right triangle, filled                       |
| U+025B9 |   | ▶ | ▶ |   |   |   | \smalltriangleright                | right triangle, open                         |
| U+025BA |   | ▶ | ▶ |   | ▶ | ▶ | \blackpointerright                 | black right-pointing pointer                 |
| U+025BB |   | ▶ | ▶ |   |   |   | \whitepointerright                 | white right-pointing pointer                 |
| U+025BC | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | \bigblacktriangledown              | big down triangle, filled                    |
| U+025BD | ▽ | ▽ | ▽ | ▽ | ▽ | ▽ | \bigtriangledown <sup>(p)</sup>    | big down triangle, open                      |
| U+025BE | ▼ | ▼ |   |   |   |   | \blacktriangledown <sup>(a)</sup>  | down triangle, filled                        |
| U+025BF | ▼ | ▼ |   |   |   |   | \triangledown <sup>(a)</sup>       | down triangle, open                          |
| U+025C0 | ◀ | ◀ | ◀ | ◀ | ◀ | ◀ | \blacktriangleleft <sup>(a)</sup>  | (large) left triangle, filled                |
| U+025C2 | ◀ | ◀ |   |   |   |   | \smallblacktriangleleft            | left triangle, filled                        |
| U+025C3 | ◀ | ◀ |   |   |   |   | \smalltriangleleft                 | left triangle, open                          |
| U+025C4 | ◀ | ◀ |   | ◀ | ◀ | ◀ | \blackpointerleft                  | black left-pointing pointer                  |
| U+025C5 | ◀ | ◀ |   |   |   |   | \whitepointerleft                  | white left-pointing pointer                  |
| U+025C6 | ◆ | ◆ |   |   | ◆ | ◆ | \mdlgblkdiamond                    | black diamond                                |
| U+025C7 | ◇ | ◇ |   |   | ◇ | ◇ | \mdlgwhtdiamond                    | white diamond; diamond, open                 |
| U+025C8 | ◆ | ◆ |   |   |   |   | \blackinwhitediamond               | white diamond containing black small diamond |
| U+025C9 | ◎ | ◎ |   |   | ◎ | ◎ | \fisheye                           | fisheye                                      |
| U+025CA | ◊ | ◊ | ◊ | ◊ | ◊ | ◊ | \mdlgwhtlozenge                    | lozenge or total mark                        |
| U+025CC | ○ | ○ |   |   |   |   | \dottedcircle                      | dotted circle                                |
| U+025CD | ◐ | ◐ |   |   |   |   | \circlevertfill                    | circle with vertical fill                    |
| U+025CE | ◎ | ◎ |   |   | ◎ | ◎ | \bullseye                          | bullseye                                     |

| USV     | L | X | S | P | D | F | Macro                    | Description                                   |
|---------|---|---|---|---|---|---|--------------------------|---|
| U+025CF | ● | ● | ● | ● | ● | ● | \mdlgblkcircle           | circle, filled                                |
| U+025D0 | ○ | ○ |   |   |   | ● | \circlelefthalfblack     | circle, filled left half [harvey ball]        |
| U+025D1 | ○ | ○ |   |   |   | ● | \circlerighthalfblack    | circle, filled right half                     |
| U+025D2 | ○ | ○ |   |   |   | ● | \circlebottomhalfblack   | circle, filled bottom half                    |
| U+025D3 | ○ | ○ |   |   |   | ● | \circletophalfblack      | circle, filled top half                       |
| U+025D4 | ○ | ○ |   |   |   |   | \circleurquadblack       | circle with upper right quadrant black        |
| U+025D5 | ○ | ○ |   |   |   | ● | \blackcircleulquadwhite  | circle with all but upper left quadrant black |
| U+025D6 | ◐ | ◐ |   |   |   | ● | \blacklefthalfcircle     | left half black circle                        |
| U+025D7 | ◑ | ◑ |   |   |   | ● | \blackrighthalfcircle    | right half black circle                       |
| U+025D8 | ▣ | ▣ |   |   |   |   | \inversebullet           | inverse bullet                                |
| U+025D9 | ▢ | ▢ |   |   |   | ▢ | \inversewhitecircle      | inverse white circle                          |
| U+025DA | ◤ | ◤ |   |   |   | ◤ | \invwhiteupperhalfcircle | upper half inverse white circle               |
| U+025DB | ◥ | ◥ |   |   |   | ◥ | \invwhitelowerhalfcircle | lower half inverse white circle               |
| U+025DC | ⌇ | ⌇ |   |   |   | ⌇ | \ularc                   | upper left quadrant circular arc              |
| U+025DD | ⌈ | ⌈ |   |   |   | ⌈ | \urarc                   | upper right quadrant circular arc             |
| U+025DE | ⌉ | ⌉ |   |   |   | ⌉ | \lrarc                   | lower right quadrant circular arc             |
| U+025DF | ⌊ | ⌊ |   |   |   | ⌊ | \llarc                   | lower left quadrant circular arc              |
| U+025E0 | ⌋ | ⌋ |   |   |   | ⌋ | \topsemicircle           | upper half circle                             |
| U+025E1 | ⌌ | ⌌ |   |   |   | ⌌ | \botsemicircle           | lower half circle                             |
| U+025E2 | ▲ | ▲ |   |   |   | ▲ | \lrblacktriangle         | lower right triangle, filled                  |
| U+025E3 | ▼ | ▼ |   |   |   | ▼ | \llblacktriangle         | lower left triangle, filled                   |
| U+025E4 | ◤ | ◤ |   |   |   | ◤ | \ulblacktriangle         | upper left triangle, filled                   |
| U+025E5 | ◥ | ◥ |   |   |   | ◥ | \urblacktriangle         | upper right triangle, filled                  |
| U+025E6 | ○ | ○ | ○ | ○ | ○ | ○ | \smwhtcircle             | white bullet                                  |

| USV     | L | X | S | P | D | F | Macro               | Description                                |
|---------|---|---|---|---|---|---|---------------------|--|
| U+025E7 |   | █ | ▀ |   |   | █ | \squareleftblack    | square, filled left half                   |
| U+025E8 |   | █ | ▀ |   |   | █ | \squarerightblack   | square, filled right half                  |
| U+025E9 |   | █ | ▀ |   |   | █ | \squareulblack      | square, filled top left corner             |
| U+025EA |   | █ | ▀ |   |   | █ | \squarerlblack      | square, filled bottom right corner         |
| U+025EC |   | ▲ | ▲ |   |   |   | \trianglecdot       | triangle with centered dot                 |
| U+025ED |   | ▲ | ▲ |   |   |   | \triangleleftblack  | up-pointing triangle with left half black  |
| U+025EE |   | ▲ | ▲ |   |   |   | \trianglerightblack | up-pointing triangle with right half black |
| U+025EF | ○ | ○ | ○ | ○ | ● | ○ | \lgwhtcircle        | large circle                               |
| U+025F0 |   | █ | ▀ |   |   | █ | \squareulquad       | white square with upper left quadrant      |
| U+025F1 |   | █ | ▀ |   |   | █ | \squarellquad       | white square with lower left quadrant      |
| U+025F2 |   | █ | ▀ |   |   | █ | \squarerlquad       | white square with lower right quadrant     |
| U+025F3 |   | █ | ▀ |   |   | █ | \squareurquad       | white square with upper right quadrant     |
| U+025F4 | ⊕ | ⊕ |   |   |   | ⊕ | \circleulquad       | white circle with upper left quadrant      |
| U+025F5 | ⊕ | ⊕ |   |   |   | ⊕ | \circlellquad       | white circle with lower left quadrant      |
| U+025F6 | ⊕ | ⊕ |   |   |   | ⊕ | \circlelrquad       | white circle with lower right quadrant     |
| U+025F7 | ⊕ | ⊕ |   |   |   | ⊕ | \circleurquad       | white circle with upper right quadrant     |
| U+025F8 | ◤ | ◤ |   |   |   |   | \ultriangle         | upper left triangle                        |
| U+025F9 | ◥ | ◥ |   |   |   |   | \urtriangle         | upper right triangle                       |
| U+025FA | ◣ | ◣ |   |   |   |   | \lltriangle         | lower left triangle                        |
| U+025FB |   | □ | □ |   |   |   | \mdwhtsquare        | white medium square                        |
| U+025FC | █ | █ |   |   |   |   | \mdblkssquare       | black medium square                        |

| USV     | L | X | S | P | D | F | Macro                       | Description                   |
|---------|---|---|---|---|---|---|-----------------------------|-------------------------------|
| U+025FD |   | □ | □ |   |   |   | \mdsmwhtsquare              | white medium small square     |
| U+025FE |   | ■ | ■ |   |   |   | \mdsmbblksquare             | black medium small square     |
| U+025FF |   | △ | △ |   |   |   | \lrltriangle                | lower right triangle          |
| U+02605 |   | ★ | ★ |   |   |   | \bigstar <sup>(a)</sup>     | star, filled                  |
| U+02606 |   | ☆ | ☆ |   |   |   | \bigwhitestar               | star, open                    |
| U+02609 |   | ○ | ○ |   |   |   | \astrosun                   | sun                           |
| U+02621 |   | ⌢ | ⌢ |   |   |   | \danger                     | dangerous bend (caution sign) |
| U+0263B |   | ☺ | ☺ |   |   | ☺ | \blacksmiley                | black smiling face            |
| U+0263C |   | ☼ | ☼ |   |   | ☼ | \sun                        | white sun with rays           |
| U+0263D |   | ☽ | ☽ |   |   |   | \rightmoon                  | first quarter moon            |
| U+0263E |   | ☾ | ☾ |   |   |   | \leftmoon                   | last quarter moon             |
| U+02640 |   | ♀ | ♀ |   |   | ♀ | \female                     | venus, female                 |
| U+02642 |   | ♂ | ♂ |   |   | ♂ | \male                       | mars, male                    |
| U+02660 | ♠ | ♠ | ♠ | ♠ | ♠ | ♠ | \spadesuit <sup>(p)</sup>   | spades suit symbol            |
| U+02661 | ♥ | ♥ | ♥ | ♥ | ♥ |   | \heartsuit <sup>(p)</sup>   | heart suit symbol             |
| U+02662 | ♦ | ♦ | ♦ | ♦ | ♦ |   | \diamondsuit <sup>(p)</sup> | diamond suit symbol           |
| U+02663 | ♣ | ♣ | ♣ | ♣ | ♣ | ♣ | \clubsuit <sup>(p)</sup>    | club suit symbol              |
| U+02664 | ♠ | ♠ | ♠ | ♠ | ♠ |   | \varspadesuit               | spade, white (card suit)      |
| U+02665 | ♥ | ♥ | ♥ | ♥ | ♥ | ♥ | \varheartsuit               | filled heart (card suit)      |
| U+02666 | ♦ | ♦ | ♦ | ♦ | ♦ | ♦ | \vardiamondsuit             | filled diamond (card suit)    |
| U+02667 | ♣ | ♣ | ♣ | ♣ | ♣ |   | \varclubsuit                | club, white (card suit)       |
| U+02669 | ♪ | ♪ |   |   |   |   | \quarternote                | music note (sung text sign)   |
| U+0266A | ♪ | ♪ | ♪ | ♪ | ♪ | ♪ | \eighthnote                 | eighth note                   |
| U+0266B | ♪ | ♪ |   |   |   |   | \twonotes                   | beamed eighth notes           |

| USV     | L | X | S | P | D | F | Macro                   | Description                       |
|---------|---|---|---|---|---|---|-------------------------|-----------------------------------|
| U+0266D | ♭ | ♭ | ♭ | ♭ | ♭ |   | \flat <sup>(p)</sup>    | musical flat                      |
| U+0266E | ♮ | ♮ | ♮ | ♮ | ♮ |   | \natural <sup>(p)</sup> | music natural                     |
| U+0266F | # | # | # | # | # |   | \sharp <sup>(p)</sup>   | musical sharp                     |
| U+0267E | ♾ | ♾ |   |   |   |   | \acidfree               | permanent paper sign              |
| U+02680 | ⚊ | ⚊ |   |   |   |   | \dicei                  | die face-1                        |
| U+02681 | ⚋ | ⚋ |   |   |   |   | \diceii                 | die face-2                        |
| U+02682 | ⚌ | ⚌ |   |   |   |   | \diceiii                | die face-3                        |
| U+02683 | ⚍ | ⚍ |   |   |   |   | \diceiv                 | die face-4                        |
| U+02684 | ⚎ | ⚎ |   |   |   |   | \dicev                  | die face-5                        |
| U+02685 | ⚏ | ⚏ |   |   |   |   | \dicevi                 | die face-6                        |
| U+02686 | ଓ | ଓ |   |   |   |   | \circledrightdot        | white circle with dot right       |
| U+02687 | ଓ | ଓ |   |   |   |   | \circledtwodots         | white circle with two dots        |
| U+02688 | ଓ | ଓ |   |   |   |   | \blackcircledrightdot   | black circle with white dot right |
| U+02689 | ଓ | ଓ |   |   |   |   | \blackcircledtwodots    | black circle with two white dots  |
| U+026A5 | ⚥ | ⚥ |   |   |   |   | \Hermaphrodite          | male and female sign              |
| U+026AA | ଓ | ଓ | ଓ |   |   |   | \mdwhtcircle            | medium white circle               |
| U+026AB | ଓ | ଓ | ଓ |   |   |   | \mdblkcircle            | medium black circle               |
| U+026AC | ଓ | ଓ | ଓ |   |   |   | \mdsmwhtcircle          | medium small white circle         |
| U+026B2 | ⚲ | ⚲ |   |   |   |   | \neuter                 | neuter                            |
| U+02713 | ✓ | ✓ | ✓ | ✓ | ✓ |   | \checkmark              | tick, check mark                  |
| U+02720 | ✠ | ✠ | ✠ | ✠ | ✠ |   | \maltese                | maltese cross                     |
| U+0272A | ⊛ | ⊛ |   |   |   |   | \circledstar            | circled white star                |
| U+02736 | * | * |   |   |   |   | \varstar                | six pointed black star            |
| U+0273D | * | * |   |   |   |   | \dingasterisk           | heavy teardrop-spoked asterisk    |

| USV     | L | X | S | P | D | F | Macro                 | Description                                      |
|---------|---|---|---|---|---|---|-----------------------|--|
| U+0279B |   | ↗ | → |   |   |   | \draftingarrow        | right arrow with bold head (drafting)            |
| U+027C0 |   | ↙ | ↘ |   |   |   | \threedangle          | three dimensional angle                          |
| U+027C1 |   | ▴ | ▴ |   |   |   | \whiteinwhitetriangle | white triangle containing small white triangle   |
| U+027C3 |   | ◎ | ◎ |   |   |   | \subsetcirc           | open subset                                      |
| U+027C4 |   | ◎ | ◎ |   |   |   | \supsetcirc           | open superset                                    |
| U+027D0 |   | ◊ | ◊ |   |   |   | \diamondcdot          | white diamond with centred dot                   |
| U+0292B |   | ✗ | ✗ |   |   |   | \rdiagovfdiag         | rising diagonal crossing falling diagonal        |
| U+0292C |   | ✗ | ✗ |   |   |   | \fdiagovrdiag         | falling diagonal crossing rising diagonal        |
| U+0292D |   | ✗ | ✗ |   |   |   | \seovnearrow          | south east arrow crossing north east arrow       |
| U+0292E |   | ✗ | ✗ |   |   |   | \neovnearrow          | north east arrow crossing south east arrow       |
| U+0292F |   | ✗ | ✗ |   |   |   | \fdiagovnearrow       | falling diagonal crossing north east arrow       |
| U+02930 |   | ✗ | ✗ |   |   |   | \rdiagovsearrow       | rising diagonal crossing south east arrow        |
| U+02931 |   | ✗ | ✗ |   |   |   | \neovnwarrow          | north east arrow crossing north west arrow       |
| U+02932 |   | ✗ | ✗ |   |   |   | \nwovnarrow           | north west arrow crossing north east arrow       |
| U+02934 |   | ↗ | ↑ |   |   |   | \uprightcurvearrow    | arrow pointing rightwards then curving upwards   |
| U+02935 |   | ↘ | ↓ |   |   |   | \downrightcurvedarrow | arrow pointing rightwards then curving downwards |
| U+02981 |   | ● | ● |   | ● |   | \mdsmbblkcircle       | z notation spot                                  |
| U+02999 |   | ⋮ | ⋮ |   |   |   | \fourvdots            | dotted fence                                     |
| U+0299A |   | ⋮ | ⋮ |   |   |   | \vzigzag              | vertical zigzag line                             |
| U+0299B |   | ⦿ | ⦿ |   |   |   | \measuredangleleft    | measured angle opening left                      |
| U+0299C |   | ⦿ | ⦿ |   |   |   | \rightanglesqr        | right angle variant with square                  |

| USV     | L | X | S | P | D | F | Macro             | Description  |
|---------|---|---|---|---|---|---|-------------------|--|
| U+0299D |   | ↳ | ↳ |   |   |   | \rightanglemdot   | measured right angle with dot  |
| U+0299E |   | ↗ | ↗ |   |   |   | \angles           | angle with s inside  |
| U+0299F |   | ↙ | ↙ |   | ↙ |   | \angdnr           | acute angle  |
| U+029A0 |   | ▷ | ▷ |   | ▷ |   | \gtlpar           | spherical angle opening left   |
| U+029A1 |   | ▽ | ▽ |   | ▽ |   | \sphericalangleup | spherical angle opening up   |
| U+029A2 |   | ↗ | ↗ |   | ↗ |   | \turnangle        | turned angle   |
| U+029A3 |   | ↘ | ↘ |   | ↘ |   | \revangle         | reversed angle   |
| U+029A4 |   | ≤ | ≤ |   |   |   | \angleubar        | angle with underbar  |
| U+029A5 |   | ≥ | ≥ |   |   |   | \revangleubar     | reversed angle with underbar   |
| U+029A6 |   | ↖ | ↖ |   | ↖ |   | \wideangledown    | oblique angle opening up   |
| U+029A7 |   | ↖ | ↖ |   | ↖ |   | \wideangleup      | oblique angle opening down   |
| U+029A8 |   | ↗ | ↗ |   |   |   | \measanglerutone  | measured angle with open arm ending in arrow pointing up and right   |
| U+029A9 |   | ↗ | ↗ |   |   |   | \measanglelutonw  | measured angle with open arm ending in arrow pointing up and left    |
| U+029AA |   | ↘ | ↘ |   |   |   | \measanglerdtose  | measured angle with open arm ending in arrow pointing down and right |
| U+029AB |   | ↘ | ↘ |   |   |   | \measangleldtosw  | measured angle with open arm ending in arrow pointing down and left  |
| U+029AC |   | ↗ | ↗ |   |   |   | \measanglerurtone | measured angle with open arm ending in arrow pointing right and up   |
| U+029AD |   | ↖ | ↖ |   |   |   | \measanglelutonw  | measured angle with open arm ending in arrow pointing left and up    |
| U+029AE |   | ↗ | ↗ |   |   |   | \measangledrtose  | measured angle with open arm ending in arrow pointing right and down |
| U+029AF |   | ↗ | ↗ |   |   |   | \measangleldtosw  | measured angle with open arm ending in arrow pointing left and down  |

| USV     | L | X | S | P | D | F | Macro                  | Description   |
|---------|---|---|---|---|---|---|------------------------|---|
| U+029B0 |   | ∅ | ∅ |   |   | ∅ | \revemptyset           | reversed empty set  |
| U+029B1 |   | ∅ | ∅ |   |   |   | \emptysetoverbar       | empty set with overbar  |
| U+029B2 |   | ∅ | ∅ |   |   |   | \emptysettocirc        | empty set with small circle above                                     |
| U+029B3 |   | ∅ | ∅ |   |   |   | \emptysettoarr         | empty set with right arrow above                                      |
| U+029B4 |   | ∅ | ∅ |   |   |   | \emptysettoarrl        | empty set with left arrow above                                       |
| U+029BA |   | ⊕ | ⊕ |   |   |   | \obot                  | circle divided by horizontal bar and top half divided by vertical bar |
| U+029BB |   | ⊗ | ⊗ |   |   |   | \olcross               | circle with superimposed x  |
| U+029BC |   | ⊗ | ⊗ |   |   |   | \odotslashdot          | circled anticlockwise-rotated division sign                           |
| U+029BD |   | ◊ | ◊ |   |   |   | \uparrowarrowoncircle  | up arrow through circle   |
| U+029BE |   | ◎ | ◎ |   |   |   | \circledwhitebullet    | circled white bullet  |
| U+029BF |   | ◎ | ◎ |   |   |   | \circledbullet         | circled bullet  |
| U+029C2 |   | ○ | ○ |   |   |   | \cirscir               | circle with small circle to the right                                 |
| U+029C3 |   | ○ | ○ |   |   |   | \cirE                  | circle with two horizontal strokes to the right                       |
| U+029C9 |   | ■ | ■ |   |   |   | \boxonbox              | two joined squares  |
| U+029CA |   | △ | △ |   |   |   | \triangleodot          | triangle with dot above   |
| U+029CB |   | △ | △ |   |   |   | \triangleubar          | triangle with underbar  |
| U+029CC |   | △ | △ |   |   |   | \triangles             | s in triangle   |
| U+029DC |   | ∞ | ∞ |   |   |   | \iinfin                | incomplete infinity   |
| U+029DD |   | ∞ | ∞ |   |   |   | \tieinfty              | tie over infinity   |
| U+029DE |   | ∞ | ∞ |   |   |   | \nvinfty               | infinity negated with vertical bar                                    |
| U+029EO |   | □ | □ |   |   |   | \laplac                | square with contoured outline   |
| U+029E7 |   | ‡ | ‡ |   |   |   | \thermod               | thermodynamic   |
| U+029E8 |   | ▽ | ▽ |   |   |   | \downtriangleleftblack | down-pointing triangle with left half black                           |

| USV     | L | X | S | P | D | F | Macro                   | Description                                  |
|---------|---|---|---|---|---|---|-------------------------|--|
| U+029E9 |   | ▼ | ▼ |   |   |   | \downtrianglerightblack | down-pointing triangle with right half black |
| U+029EA |   | ◆ | ◆ |   |   |   | \blackdiamonddownarrow  | black diamond with down arrow                |
| U+029EC |   | ♀ | ♀ |   |   |   | \circledownarrow        | white circle with down arrow                 |
| U+029ED |   | ● | ● |   |   |   | \blackcircledownarrow   | black circle with down arrow                 |
| U+029EE |   | □ | □ |   |   |   | \errbarsquare           | error-barred white square                    |
| U+029EF |   | ■ | ■ |   |   |   | \errbarblacksquare      | error-barred black square                    |
| U+029F0 |   | ◊ | ◊ |   |   |   | \errbardiamond          | error-barred white diamond                   |
| U+029F1 |   | ◆ | ◆ |   |   |   | \errbarblackdiamond     | error-barred black diamond                   |
| U+029F2 |   | ○ | ○ |   |   |   | \errbarcircle           | error-barred white circle                    |
| U+029F3 |   | ● | ● |   |   |   | \errbarblackcircle      | error-barred black circle                    |
| U+02AE1 |   | ⊥ | ⊥ |   |   |   | \perps                  | perpendicular with s                         |
| U+02AF1 |   | ⊤ | ⊤ |   |   |   | \topcir                 | down tack with circle below                  |
| U+02B12 |   | ■ | ■ |   |   |   | \squaretopblack         | square with top half black                   |
| U+02B13 |   | ■ | ■ |   |   |   | \squarebotblack         | square with bottom half black                |
| U+02B14 |   | ■ | ■ |   |   |   | \squareurblack          | square with upper right diagonal half black  |
| U+02B15 |   | ■ | ■ |   |   |   | \squarellblack          | square with lower left diagonal half black   |
| U+02B16 |   | ◇ | ◇ |   |   |   | \diamondleftblack       | diamond with left half black                 |
| U+02B17 |   | ◇ | ◇ |   |   |   | \diamondrightblack      | diamond with right half black                |
| U+02B18 |   | ◇ | ◇ |   |   |   | \diamondtopblack        | diamond with top half black                  |
| U+02B19 |   | ◇ | ◇ |   |   |   | \diamondbotblack        | diamond with bottom half black               |
| U+02B1A | □ | □ | □ | □ | □ |   | \dottedsquare           | dotted square                                |
| U+02B1B |   | ■ | ■ |   |   |   | \lgblksquare            | black large square                           |
| U+02B1C |   | □ | □ |   |   |   | \lgwhtsquare            | white large square                           |

| USV     | L | X | S | P | D | F | Macro               | Description                   |
|---------|---|---|---|---|---|---|---------------------|-------------------------------|
| U+02B1D |   | • | ▪ |   |   |   | \vysmblksquare      | black very small square       |
| U+02B1E |   | ▫ | ▫ |   |   |   | \vysmwhtsquare      | white very small square       |
| U+02B1F |   | ⬟ | ⬢ |   |   |   | \pentagonblack      | black pentagon                |
| U+02B20 |   | ⬟ | ⬢ |   |   |   | \pentagon           | white pentagon                |
| U+02B21 |   | ⬡ | ⬢ |   |   |   | \varhexagon         | white hexagon                 |
| U+02B22 |   | ⬢ | ⬢ |   |   |   | \varhexagonblack    | black hexagon                 |
| U+02B23 |   | ⬢ | ⬢ |   |   |   | \hexagonblack       | horizontal black hexagon      |
| U+02B24 |   | ⬤ | ⬤ |   |   | ⬤ | \lgblkcircle        | black large circle            |
| U+02B25 |   | ◆ | ◆ |   |   |   | \mdblkdiamond       | black medium diamond          |
| U+02B26 |   | ◇ | ◇ |   |   |   | \mdwhtdiamond       | white medium diamond          |
| U+02B27 |   | ◆ | ◆ |   |   |   | \mdblklozenge       | black medium lozenge          |
| U+02B28 |   | ◇ | ◇ |   |   |   | \mdwhtlozenge       | white medium lozenge          |
| U+02B29 |   | ◆ | ◆ |   |   |   | \smbblkdiamond      | black small diamond           |
| U+02B2A |   | ◆ | ◆ |   |   |   | \smbblklozenge      | black small lozenge           |
| U+02B2B |   | ◇ | ◇ |   |   |   | \smwhtlozenge       | white small lozenge           |
| U+02B2C |   | ⬤ | ⬤ |   |   |   | \blkhorzoval        | black horizontal ellipse      |
| U+02B2D |   | ○ | ○ |   |   |   | \whthorzoval        | white horizontal ellipse      |
| U+02B2E |   | ● | ● |   |   |   | \blkvertoval        | black vertical ellipse        |
| U+02B2F |   | ○ | ○ |   |   |   | \whtvertoval        | white vertical ellipse        |
| U+02B50 |   | ☆ | ☆ |   |   |   | \medwhitestar       | white medium star             |
| U+02B51 |   | ★ | ★ |   |   |   | \medblackstar       | black medium star             |
| U+02B52 |   | ☆ | ☆ |   |   |   | \smwhitestar        | white small star              |
| U+02B53 |   | ⬢ | ⬢ |   |   |   | \rightpentagonblack | black right-pointing pentagon |
| U+02B54 |   | ⬡ | ⬢ |   |   |   | \rightpentagon      | white right-pointing pentagon |

| USV     | L | X | S | P | D | F | Macro       | Description                        |
|---------|---|---|---|---|---|---|-------------|------------------------------------|
| U+03012 |   | 〒 | 〒 |   |   |   | \postalmark | postal mark                        |
| U+03030 |   | 〰 | 〰 |   |   |   | \hzigzag    | zigzag                             |
| U+1D7CE | 0 | 0 | 0 | 0 | 0 | 0 | \mbfzero    | mathematical bold digit 0          |
| U+1D7CF | 1 | 1 | 1 | 1 | 1 | 1 | \mbfone     | mathematical bold digit 1          |
| U+1D7D0 | 2 | 2 | 2 | 2 | 2 | 2 | \mbftwo     | mathematical bold digit 2          |
| U+1D7D1 | 3 | 3 | 3 | 3 | 3 | 3 | \mbfthree   | mathematical bold digit 3          |
| U+1D7D2 | 4 | 4 | 4 | 4 | 4 | 4 | \mbffour    | mathematical bold digit 4          |
| U+1D7D3 | 5 | 5 | 5 | 5 | 5 | 5 | \mbffive    | mathematical bold digit 5          |
| U+1D7D4 | 6 | 6 | 6 | 6 | 6 | 6 | \mbfsix     | mathematical bold digit 6          |
| U+1D7D5 | 7 | 7 | 7 | 7 | 7 | 7 | \mbfseven   | mathematical bold digit 7          |
| U+1D7D6 | 8 | 8 | 8 | 8 | 8 | 8 | \mbfeight   | mathematical bold digit 8          |
| U+1D7D7 | 9 | 9 | 9 | 9 | 9 | 9 | \mbfnine    | mathematical bold digit 9          |
| U+1D7D8 | 0 | 0 | 0 | 0 | 0 | 0 | \Bbbzero    | mathematical double-struck digit 0 |
| U+1D7D9 | 1 | 1 | 1 | 1 | 1 | 1 | \Bbbone     | mathematical double-struck digit 1 |
| U+1D7DA | 2 | 2 | 2 | 2 | 2 | 2 | \Bbbtwo     | mathematical double-struck digit 2 |
| U+1D7DB | 3 | 3 | 3 | 3 | 3 | 3 | \Bbbthree   | mathematical double-struck digit 3 |
| U+1D7DC | 4 | 4 | 4 | 4 | 4 | 4 | \Bbbfour    | mathematical double-struck digit 4 |
| U+1D7DD | 5 | 5 | 5 | 5 | 5 | 5 | \Bbbfive    | mathematical double-struck digit 5 |
| U+1D7DE | 6 | 6 | 6 | 6 | 6 | 6 | \Bbbsix     | mathematical double-struck digit 6 |
| U+1D7DF | 7 | 7 | 7 | 7 | 7 | 7 | \Bbbseven   | mathematical double-struck digit 7 |
| U+1D7E0 | 8 | 8 | 8 | 8 | 8 | 8 | \Bbbeight   | mathematical double-struck digit 8 |
| U+1D7E1 | 9 | 9 | 9 | 9 | 9 | 9 | \Bbbnine    | mathematical double-struck digit 9 |
| U+1D7E2 | 0 | 0 | 0 | 0 | 0 | 0 | \msanszero  | mathematical sans-serif digit 0    |
| U+1D7E3 | 1 | 1 | 1 | 1 | 1 | 1 | \msansone   | mathematical sans-serif digit 1    |

| USV     | L | X | S | P | D | F | Macro          | Description                          |
|---------|---|---|---|---|---|---|----------------|--------------------------------------|
| U+1D7E4 | 2 | 2 | 2 | 2 | 2 |   | \msanstwo      | mathematical sans-serif digit 2      |
| U+1D7E5 | 3 | 3 | 3 | 3 | 3 |   | \msanstthree   | mathematical sans-serif digit 3      |
| U+1D7E6 | 4 | 4 | 4 | 4 | 4 |   | \msansfour     | mathematical sans-serif digit 4      |
| U+1D7E7 | 5 | 5 | 5 | 5 | 5 |   | \msansfive     | mathematical sans-serif digit 5      |
| U+1D7E8 | 6 | 6 | 6 | 6 | 6 |   | \msanssix      | mathematical sans-serif digit 6      |
| U+1D7E9 | 7 | 7 | 7 | 7 | 7 |   | \msansseven    | mathematical sans-serif digit 7      |
| U+1D7EA | 8 | 8 | 8 | 8 | 8 |   | \msanseight    | mathematical sans-serif digit 8      |
| U+1D7EB | 9 | 9 | 9 | 9 | 9 |   | \msansnine     | mathematical sans-serif digit 9      |
| U+1D7EC | 0 | 0 | 0 | 0 | 0 |   | \mbfsanszero   | mathematical sans-serif bold digit 0 |
| U+1D7ED | 1 | 1 | 1 | 1 | 1 |   | \mbfsansone    | mathematical sans-serif bold digit 1 |
| U+1D7EE | 2 | 2 | 2 | 2 | 2 |   | \mbfsansttwo   | mathematical sans-serif bold digit 2 |
| U+1D7EF | 3 | 3 | 3 | 3 | 3 |   | \mbfsanstthree | mathematical sans-serif bold digit 3 |
| U+1D7F0 | 4 | 4 | 4 | 4 | 4 |   | \mbfsansfour   | mathematical sans-serif bold digit 4 |
| U+1D7F1 | 5 | 5 | 5 | 5 | 5 |   | \mbfsansfive   | mathematical sans-serif bold digit 5 |
| U+1D7F2 | 6 | 6 | 6 | 6 | 6 |   | \mbfsanssix    | mathematical sans-serif bold digit 6 |
| U+1D7F3 | 7 | 7 | 7 | 7 | 7 |   | \mbfsansseven  | mathematical sans-serif bold digit 7 |
| U+1D7F4 | 8 | 8 | 8 | 8 | 8 |   | \mbfsanseight  | mathematical sans-serif bold digit 8 |
| U+1D7F5 | 9 | 9 | 9 | 9 | 9 |   | \mbfsansnine   | mathematical sans-serif bold digit 9 |
| U+1D7F6 | 0 | 0 | 0 | 0 | 0 |   | \mttzero       | mathematical monospace digit 0       |
| U+1D7F7 | 1 | 1 | 1 | 1 | 1 |   | \mttone        | mathematical monospace digit 1       |
| U+1D7F8 | 2 | 2 | 2 | 2 | 2 |   | \mtttwo        | mathematical monospace digit 2       |
| U+1D7F9 | 3 | 3 | 3 | 3 | 3 |   | \mttthree      | mathematical monospace digit 3       |
| U+1D7FA | 4 | 4 | 4 | 4 | 4 |   | \mttfour       | mathematical monospace digit 4       |
| U+1D7FB | 5 | 5 | 5 | 5 | 5 |   | \mttfive       | mathematical monospace digit 5       |

| USV     | L | X | S | P | D | F | Macro     | Description                    |
|---------|---|---|---|---|---|---|-----------|--------------------------------|
| U+1D7FC | 6 | 6 | 6 | 6 | 6 |   | \mttsix   | mathematical monospace digit 6 |
| U+1D7FD | 7 | 7 | 7 | 7 | 7 |   | \mttseven | mathematical monospace digit 7 |
| U+1D7FE | 8 | 8 | 8 | 8 | 8 |   | \mtteight | mathematical monospace digit 8 |
| U+1D7FF | 9 | 9 | 9 | 9 | 9 |   | \mttnine  | mathematical monospace digit 9 |

## 12 Relation symbols, \mathrel

| USV     | L | X | S | P | D | F | Macro                 | Description                        |
|---------|---|---|---|---|---|---|-----------------------|------------------------------------|
| u+0003c | < | < | < | < | < | < | \less                 | less-than sign r:                  |
| u+0003d | = | = | = | = | = | = | \equal                | equals sign r:                     |
| u+0003e | > | > | > | > | > | > | \greater              | greater-than sign r:               |
| u+02050 | ○ | ○ |   |   |   |   | \closure              | close up                           |
| u+02190 | ← | ← | ← | ← | ← | ← | \leftarrow(p)         | /leftarrow /gets a: leftward arrow |
| u+02191 | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ | \uparrow(p)           | upward arrow                       |
| u+02192 | → | → | → | → | → | → | \rightarrow(p)        | /rightarrow /to a: rightward arrow |
| u+02193 | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | \downarrow(p)         | downward arrow                     |
| u+02194 | ↔ | ↔ | ↔ | ↔ | ↔ | ↔ | \leftrightarrow(p)    | left and right arrow               |
| u+02195 | ↕ | ↕ | ↕ | ↕ | ↕ | ↕ | \updownarrow(p)       | up and down arrow                  |
| u+02196 | ↖ | ↖ | ↖ | ↖ | ↖ | ↖ | \nwarrow(p)           | nw pointing arrow                  |
| u+02197 | ↗ | ↗ | ↗ | ↗ | ↗ | ↗ | \nearrow(p)           | ne pointing arrow                  |
| u+02198 | ↘ | ↘ | ↘ | ↘ | ↘ | ↘ | \searrow(p)           | se pointing arrow                  |
| u+02199 | ↙ | ↙ | ↙ | ↙ | ↙ | ↙ | \swarrow(p)           | sw pointing arrow                  |
| u+0219a | ↚ | ↚ | ↚ | ↚ | ↚ | ↚ | \nleftarrow(a)        | not left arrow                     |
| u+0219b | ↛ | ↛ | ↛ | ↛ | ↛ | ↛ | \nrightarrow(a)       | not right arrow                    |
| u+0219c | ↜ | ↜ |   |   |   | ↜ | \leftarrowwavearrow   | left arrow-wavy                    |
| u+0219d | ↝ | ↝ |   |   |   | ↝ | \rightarrowwavearrow  | right arrow-wavy                   |
| u+0219e | ↞ | ↞ | ↞ | ↞ | ↞ | ↞ | \twoheadleftarrow(a)  | left two-headed arrow              |
| u+0219f | ↟ | ↟ | ↟ | ↟ | ↟ | ↟ | \twoheaduparrow       | up two-headed arrow                |
| u+021a0 | ↠ | ↠ | ↠ | ↠ | ↠ | ↠ | \twoheadrightarrow(a) | right two-headed arrow             |
| u+021a1 | ↡ | ↡ | ↡ | ↡ | ↡ | ↡ | \twoheaddownarrow     | down two-headed arrow              |
| u+021a2 | ↢ | ↢ | ↢ | ↢ | ↢ | ↢ | \leftarrowtail(a)     | left arrow-tailed                  |

| USV     | L | X | S | P | D | F | Macro                               | Description   |
|---------|---|---|---|---|---|---|-------------------------------------|---|
| U+021A3 | ⤠ | ⤡ | ⤢ | ⤣ | ⤤ | ⤥ | \rightarrowtail <sup>(a)</sup>      | right arrow-tailed                                  |
| U+021A4 | ⤦ | ⤨ | ⤩ | ⤪ | ⤪ | ⤩ | \mapsfrom                           | maps to, leftward                                   |
| U+021A5 | ⤪ | ⤪ | ⤪ | ⤪ | ⤪ | ⤪ | \mapsup                             | maps to, upward                                     |
| U+021A6 | ⤫ | ⤬ | ⤬ | ⤫ | ⤬ | ⤬ | \mapsto <sup>(p)</sup>              | maps to, rightward                                  |
| U+021A7 | ⤭ | ⤮ | ⤮ | ⤮ | ⤮ | ⤮ | \mapsdown                           | maps to, downward                                   |
| U+021A9 | ⤰ | ⤱ | ⤲ | ⤰ | ⤲ | ⤱ | \hookleftarrow <sup>(p)</sup>       | left arrow-hooked                                   |
| U+021AA | ⤳ | ⤴ | ⤵ | ⤴ | ⤵ | ⤴ | \hookrightarrow <sup>(p)</sup>      | right arrow-hooked                                  |
| U+021AB | ⤶ | ⤷ | ⤸ | ⤶ | ⤸ | ⤷ | \looparrowleft <sup>(a)</sup>       | left arrow-looped                                   |
| U+021AC | ⤹ | ⤺ | ⤻ | ⤹ | ⤻ | ⤺ | \looparrowright <sup>(a)</sup>      | right arrow-looped                                  |
| U+021AD | ⤻ | ⤼ | ⤽ | ⤻ | ⤽ | ⤼ | \leftrightsquigarrow <sup>(a)</sup> | left and right arr-wavy                             |
| U+021AE | ⤾ | ⤿ | ⤿ | ⤾ | ⤿ | ⤿ | \nleftrightarrow <sup>(a)</sup>     | not left and right arrow                            |
| U+021AF | ⤿ | ⤿ |   |   |   | ⤿ | \downzigzagarrow                    | downwards zigzag arrow                              |
| U+021B0 | ⤊ | ⤋ | ⤋ | ⤊ | ⤋ | ⤊ | \Lsh <sup>(a)</sup>                 | /lsh a:   |
| U+021B1 | ⤌ | ⤍ | ⤍ | ⤌ | ⤍ | ⤍ | \Rsh <sup>(a)</sup>                 | /rsh a:   |
| U+021B2 | ⤎ | ⤏ | ⤏ | ⤎ | ⤏ | ⤏ | \Ldsh                               | left down angled arrow                              |
| U+021B3 | ⤐ | ⤑ | ⤑ | ⤐ | ⤑ | ⤐ | \Rdsh                               | right down angled arrow                             |
| U+021B6 | ⤒ | ⤓ | ⤓ | ⤒ | ⤓ | ⤓ | \curvearrowleft <sup>(a)</sup>      | left curved arrow                                   |
| U+021B7 | ⤔ | ⤕ | ⤕ | ⤔ | ⤕ | ⤕ | \curvearrowright <sup>(a)</sup>     | right curved arrow                                  |
| U+021BC | ⤖ | ⤗ | ⤗ | ⤖ | ⤗ | ⤖ | \leftharpoonup <sup>(p)</sup>       | left harpoon-up                                     |
| U+021BD | ⤘ | ⤙ | ⤙ | ⤘ | ⤙ | ⤘ | \leftharpoondown <sup>(p)</sup>     | left harpoon-down                                   |
| U+021BE | ⤚ | ⤛ | ⤛ | ⤚ | ⤛ | ⤛ | \upharpoonright <sup>(a)</sup>      | /upharpoonright /restriction a: up<br>harpoon-right |
| U+021BF | ⤜ | ⤜ | ⤜ | ⤜ | ⤜ | ⤜ | \upharpoonleft <sup>(a)</sup>       | up harpoon-left                                     |
| U+021CO | ⤝ | ⤞ | ⤞ | ⤝ | ⤞ | ⤞ | \rightharpoonup <sup>(p)</sup>      | right harpoon-up                                    |
| U+021C1 | ⤟ | ⤟ | ⤟ | ⤟ | ⤟ | ⤟ | \rightharpoondown <sup>(p)</sup>    | right harpoon-down                                  |

| USV     | L | X | S | P | D | F | Macro                             | Description                      |
|---------|---|---|---|---|---|---|-----------------------------------|----------------------------------|
| U+021C2 | ↳ | ↳ | ↳ | ↳ | ↳ | ↳ | \downharpoonright <sup>(a)</sup>  | down harpoon-right               |
| U+021C3 | ↲ | ↲ | ↲ | ↲ | ↲ | ↲ | \downharpoonleft <sup>(a)</sup>   | down harpoon-left                |
| U+021C4 | ⤳ | ⤳ | ⤳ | ⤳ | ⤳ | ⤳ | \rightleftarrows <sup>(a)</sup>   | right arrow over left arrow      |
| U+021C5 | ⤻ | ⤻ | ⤻ | ⤻ | ⤻ | ⤻ | \updownarrows                     | up arrow, down arrow             |
| U+021C6 | ⤵ | ⤵ | ⤵ | ⤵ | ⤵ | ⤵ | \leftrightarrows <sup>(a)</sup>   | left arrow over right arrow      |
| U+021C7 | ⤲ | ⤲ | ⤲ | ⤲ | ⤲ | ⤲ | \leftleftarrows <sup>(a)</sup>    | two left arrows                  |
| U+021C8 | ⤻ | ⤻ | ⤻ | ⤻ | ⤻ | ⤻ | \upuparrows <sup>(a)</sup>        | two up arrows                    |
| U+021C9 | ⤳ | ⤳ | ⤳ | ⤳ | ⤳ | ⤳ | \rightrightarrows <sup>(a)</sup>  | two right arrows                 |
| U+021CA | ⤻ | ⤻ | ⤻ | ⤻ | ⤻ | ⤻ | \downdownarrows <sup>(a)</sup>    | two down arrows                  |
| U+021CB | ⤵ | ⤵ | ⤵ | ⤵ | ⤵ | ⤵ | \leftrightharpoons <sup>(a)</sup> | left harpoon over right          |
| U+021CC | ⤵ | ⤵ | ⤵ | ⤵ | ⤵ | ⤵ | \rightleftharpoons <sup>(l)</sup> | right harpoon over left          |
| U+021CD | ⤷ | ⤷ | ⤷ | ⤷ | ⤷ | ⤷ | \nLeftarrow <sup>(a)</sup>        | not implied by                   |
| U+021CE | ⤷ | ⤷ | ⤷ | ⤷ | ⤷ | ⤷ | \nLeftrightarrow <sup>(a)</sup>   | not left and right double arrows |
| U+021CF | ⤷ | ⤷ | ⤷ | ⤷ | ⤷ | ⤷ | \nRrightarrow <sup>(a)</sup>      | not implies                      |
| U+021D0 | ⤲ | ⤲ | ⤲ | ⤲ | ⤲ | ⤲ | \Leftarrow <sup>(p)</sup>         | is implied by                    |
| U+021D1 | ⤻ | ⤻ | ⤻ | ⤻ | ⤻ | ⤻ | \Uparrow <sup>(p)</sup>           | up double arrow                  |
| U+021D2 | ⤳ | ⤳ | ⤳ | ⤳ | ⤳ | ⤳ | \Rrightarrow <sup>(p)</sup>       | implies                          |
| U+021D3 | ⤻ | ⤻ | ⤻ | ⤻ | ⤻ | ⤻ | \Downarrow <sup>(p)</sup>         | down double arrow                |
| U+021D4 | ⤷ | ⤷ | ⤷ | ⤷ | ⤷ | ⤷ | \Leftrightarrow <sup>(p)</sup>    | left and right double arrow      |
| U+021D5 | ⤻ | ⤻ | ⤻ | ⤻ | ⤻ | ⤻ | \Updownarrow <sup>(p)</sup>       | up and down double arrow         |
| U+021D6 | ⤷ | ⤷ | ⤷ | ⤷ | ⤷ | ⤷ | \Narrow                           | nw pointing double arrow         |
| U+021D7 | ⤷ | ⤷ | ⤷ | ⤷ | ⤷ | ⤷ | \Nearrow                          | ne pointing double arrow         |
| U+021D8 | ⤷ | ⤷ | ⤷ | ⤷ | ⤷ | ⤷ | \Searrow                          | se pointing double arrow         |
| U+021D9 | ⤷ | ⤷ | ⤷ | ⤷ | ⤷ | ⤷ | \Swarrow                          | sw pointing double arrow         |

| USV     | L | X | S | P | D | F | Macro                           | Description                                  |
|---------|---|---|---|---|---|---|---------------------------------|--|
| U+021DA | ⤻ | ⤻ | ⤻ | ⤻ | ⤻ | ⤻ | \Lleftarrow <sup>(a)</sup>      | left triple arrow                            |
| U+021DB | ⤼ | ⤼ | ⤼ | ⤼ | ⤼ | ⤼ | \Rrightarrow <sup>(a)</sup>     | right triple arrow                           |
| U+021DC | ⤽ | ⤽ | ⤽ | ⤽ | ⤽ | ⤽ | \leftsquigarrow                 | leftwards squiggle arrow                     |
| U+021DD | ⤾ | ⤾ | ⤾ | ⤾ | ⤾ | ⤾ | \rightsquigarrow <sup>(a)</sup> | rightwards squiggle arrow                    |
| U+021E4 | ⤴ | ⤴ |   |   |   | ⤴ | \barleftarrow                   | leftwards arrow to bar                       |
| U+021E5 | ⤵ | ⤵ |   |   |   | ⤵ | \rightarrowbar                  | rightwards arrow to bar                      |
| U+021F4 | ⤶ | ⤶ |   |   |   | ⤶ | \circleonrightarrow             | right arrow with small circle                |
| U+021F5 | ⤷ | ⤷ | ⤷ | ⤷ | ⤷ | ⤷ | \downuparrows                   | downwards arrow leftwards of upwards arrow   |
| U+021F6 | ⤸ | ⤸ | ⤸ | ⤸ | ⤸ | ⤸ | \rightthreearrows               | three rightwards arrows                      |
| U+021F7 | ⤹ | ⤹ |   |   |   | ⤹ | \nvleftarrow                    | leftwards arrow with vertical stroke         |
| U+021F8 | ⤺ | ⤺ |   |   |   | ⤺ | \nvrightarrow                   | rightwards arrow with vertical stroke        |
| U+021F9 | ⤻ | ⤻ |   |   |   | ⤻ | \nvleftrightarrow               | left right arrow with vertical stroke        |
| U+021FA | ⤼ | ⤼ |   |   |   | ⤼ | \nVleftarrow                    | leftwards arrow with double vertical stroke  |
| U+021FB | ⤽ | ⤽ |   |   |   | ⤽ | \nVrightarrow                   | rightwards arrow with double vertical stroke |
| U+021FC | ⤾ | ⤾ |   |   |   | ⤾ | \nVleftrightarrow               | left right arrow with double vertical stroke |
| U+021FD | ⤿ | ⤿ |   |   |   | ⤿ | \leftarrowtriangle              | leftwards open-headed arrow                  |
| U+021FE | ⤩ | ⤩ |   |   |   | ⤩ | \rightarrowtriangle             | rightwards open-headed arrow                 |
| U+021FF | ⤪ | ⤪ |   |   |   | ⤪ | \leftrightarrowtriangle         | left right open-headed arrow                 |
| U+02208 | ⤱ | ⤱ | ⤱ | ⤱ | ⤱ | ⤱ | \in <sup>(p)</sup>              | set membership, variant                      |
| U+02209 | ⤲ | ⤲ | ⤲ | ⤲ | ⤲ | ⤲ | \notin <sup>(l)</sup>           | negated set membership                       |
| U+0220A | ⤳ | ⤳ | ⤳ | ⤳ | ⤳ | ⤳ | \smallin                        | set membership (small set membership)        |
| U+0220B | ⤴ | ⤴ | ⤴ | ⤴ | ⤴ | ⤴ | \ni <sup>(p)</sup>              | contains, variant                            |
| U+0220C | ⤵ | ⤵ | ⤵ | ⤵ | ⤵ | ⤵ | \nni                            | negated contains, variant                    |

| USV     | L   | X   | S   | P   | D   | F   | Macro              | Description                                      |
|---------|-----|-----|-----|-----|-----|-----|--------------------|--|
| U+0220D | ϶   | ϶   | ϶   | ϶   | ϶   | ϶   | \smallni           | /ni /owns r: contains (small contains as member) |
| U+0221D | ϶   | ϶   | ϶   | ϶   | ϶   | ϶   | \propto^{(p)}      | is proportional to                               |
| U+02223 |     |     |     |     |     |     | \mid^{(p)}         | /mid r:  |
| U+02224 | †   | †   | †   | †   | †   | †   | \nmid^{(a)}        | negated mid                                      |
| U+02225 |     |     |     |     |     |     | \parallel^{(p)}    | parallel   |
| U+02226 | ‡   | ‡   | ‡   | ‡   | ‡   | ‡   | \nparallel^{(a)}   | not parallel                                     |
| U+02236 | :   | :   | :   | :   | :   | :   | \mathratio         | ratio  |
| U+02237 | ::  | ::  | ::  | ::  | ::  | ::  | \Colon             | two colons                                       |
| U+02239 | -:  | -:  | -:  | -:  | -:  | -:  | \dashcolon         | excess (-:)                                      |
| U+0223A | ::: | ::: | ::: | ::: | ::: | ::: | \dotsminusdots     | minus with four dots, geometric properties       |
| U+0223B | ≿   | ≿   | ≿   | ≿   | ≿   | ≿   | \kernelcontraction | homothetic                                       |
| U+0223C | ~   | ~   | ~   | ~   | ~   | ~   | \sim^{(p)}         | similar  |
| U+0223D | ∽   | ∽   | ∽   | ∽   | ∽   | ∽   | \backsim^{(a)}     | reverse similar                                  |
| U+02241 | ≁   | ≁   | ≁   | ≁   | ≁   | ≁   | \nsim^{(a)}        | not similar                                      |
| U+02242 | ≂   | ≂   | ≂   | ≂   | ≂   | ≂   | \eqsim^{(a)}       | equals, similar                                  |
| U+02243 | ≂   | ≂   | ≂   | ≂   | ≂   | ≂   | \simeq^{(p)}       | similar, equals                                  |
| U+02244 | ≁   | ≁   | ≁   | ≁   | ≁   | ≁   | \nsimeq            | not similar, equals                              |
| U+02243 | ≂   | ≂   | ≂   | ≂   | ≂   | ≂   | \simeq             | similar, equals (alias)                          |
| U+02244 | ≁   | ≁   | ≁   | ≁   | ≁   | ≁   | \nsimeq            | not similar, equals (alias)                      |
| U+02245 | ≣   | ≣   | ≣   | ≣   | ≣   | ≣   | \cong^{(l)}        | congruent with                                   |
| U+02246 | ≣   | ≣   | ≣   | ≣   | ≣   | ≣   | \simneqq           | similar, not equals [vert only for 9573 entity]  |
| U+02247 | ≁   | ≁   | ≁   | ≁   | ≁   | ≁   | \ncong^{(a)}       | not congruent with                               |
| U+02248 | ≈   | ≈   | ≈   | ≈   | ≈   | ≈   | \approx^{(p)}      | approximate                                      |

| USV     | L   | X   | S   | P   | D   | F   | Macro                         | Description                           |
|---------|-----|-----|-----|-----|-----|-----|-------------------------------|---------------------------------------|
| U+02249 | ≈   | ≈   | ≈   | ≈   | ≠   | ≠   | \napprox                      | not approximate                       |
| U+0224A | ≈   | ≈   | ≈   | ≈   | ≈   | ≈   | \approxeq <sup>(a)</sup>      | approximate, equals                   |
| U+0224B | ≈   | ≈   | ≈   | ≈   | ≈   | ≈   | \approxident                  | approximately identical to            |
| U+0224C | ≣   | ≣   | ≣   | ≣   | ≣   | ≣   | \backcong                     | all equal to                          |
| U+0224D | ⟩(  | ⟩(  | ⟩(  | ⟩(  | ⟩(  | ⟩(  | \asymp <sup>(p)</sup>         | asymptotically equal to               |
| U+0224E | ϶   | ϶   | ϶   | ϶   | ϶   | ϶   | \Bumpeq <sup>(a)</sup>        | bumpy equals                          |
| U+0224F | ϶   | ϶   | ϶   | ϶   | ϶   | ϶   | \bumpeq <sup>(a)</sup>        | bumpy equals, equals                  |
| U+02250 | ·̄  | ·̄  | ·̄  | ·̄  | ·̄  | ·̄  | \doteq <sup>(l)</sup>         | equals, single dot above              |
| U+02251 | ·̄  | ·̄  | ·̄  | ·̄  | ·̄  | ·̄  | \Doteq <sup>(a)</sup>         | /doteqdot /doteq r: equals, even dots |
| U+02252 | ·̄̄ | ·̄̄ | ·̄̄ | ·̄̄ | ·̄̄ | ·̄̄ | \fallingdotseq <sup>(a)</sup> | equals, falling dots                  |
| U+02253 | ·̄̄ | ·̄̄ | ·̄̄ | ·̄̄ | ·̄̄ | ·̄̄ | \risingdotseq <sup>(a)</sup>  | equals, rising dots                   |
| U+02254 | :=  | :=  | :=  | :=  | :=  | :=  | \coloneq                      | colon, equals                         |
| U+02255 | =:  | =:  | =:  | =:  | =:  | =:  | \eqcolon                      | equals, colon                         |
| U+02256 | 澴   | 澴   | 澴   | 澴   | 澴   | 澴   | \eqcirc <sup>(a)</sup>        | circle on equals sign                 |
| U+02257 | ଓ   | ଓ   | ଓ   | ଓ   | ଓ   | ଓ   | \circeq <sup>(a)</sup>        | circle, equals                        |
| U+02258 | ⏜   | ⏜   | ⏜   | ⏜   | ⏜   | ⏜   | \arceq                        | arc, equals; corresponds to           |
| U+02259 | △   | △   | △   | △   | △   | △   | \wedgeeq                      | corresponds to (wedge, equals)        |
| U+0225A | ∨   | ∨   | ∨   | ∨   | ∨   | ∨   | \veeeq                        | logical or, equals                    |
| U+0225B | *   | *   | *   | *   | *   | *   | \stareq                       | star equals                           |
| U+0225C | ▲   | ▲   | ▲   | ▲   | ▲   | ▲   | \triangleq <sup>(a)</sup>     | triangle, equals                      |
| U+0225D | def | def | def | def | def | def | \eqdef                        | equals by definition                  |
| U+0225E | ≡   | ≡   | ≡   | ≡   | ≡   | ≡   | \measeq                       | measured by (m over equals)           |
| U+0225F | ?   | ?   | ?   | ?   | ?   | ?   | \questeq                      | equal with questionmark               |
| U+02260 | ≠   | ≠   | ≠   | ≠   | ≠   | ≠   | \neq <sup>(p)</sup>           | /ne /neq r: not equal                 |

| USV     | L       | X       | S       | P       | D       | F       | Macro          | Description                       |
|---------|---------|---------|---------|---------|---------|---------|----------------|-----------------------------------|
| U+02261 | ≡       | ≡       | ≡       | ≡       | ≡       | ≡       | \equiv^{(p)}   | identical with                    |
| U+02262 | ≠       | ≠       | ≠       | ≠       | ≠       | ≠       | \nequiv        | not identical with                |
| U+02263 | ≡≡≡≡    | ≡≡≡≡    | ≡≡≡≡    | ≡≡≡≡    | ≡≡≡≡    | ≡≡≡≡    | \Equiv         | strict equivalence (4 lines)      |
| U+02264 | ≤       | ≤       | ≤       | ≤       | ≤       | ≤       | \leq^{(p)}     | /leq /le r: less-than-or-equal    |
| U+02265 | ≥       | ≥       | ≥       | ≥       | ≥       | ≥       | \geq^{(p)}     | /geq /ge r: greater-than-or-equal |
| U+02266 | ≤≤≤≤    | ≤≤≤≤    | ≤≤≤≤    | ≤≤≤≤    | ≤≤≤≤    | ≤≤≤≤    | \leqq^{(a)}    | less, double equals               |
| U+02267 | ≥≥≥≥    | ≥≥≥≥    | ≥≥≥≥    | ≥≥≥≥    | ≥≥≥≥    | ≥≥≥≥    | \geqq^{(a)}    | greater, double equals            |
| U+02268 | ≤≤≤≤    | ≤≤≤≤    | ≤≤≤≤    | ≤≤≤≤    | ≤≤≤≤    | ≤≤≤≤    | \lneqq^{(a)}   | less, not double equals           |
| U+02269 | ≥≥≥≥    | ≥≥≥≥    | ≥≥≥≥    | ≥≥≥≥    | ≥≥≥≥    | ≥≥≥≥    | \gneqq^{(a)}   | greater, not double equals        |
| U+0226A | ⋘⋘⋘⋘    | ⋘⋙⋘⋙    | ⋘⋘⋘⋘    | ⋘⋘⋘⋘    | ⋘⋘⋘⋘    | ⋘⋘⋘⋘    | \ll^{(p)}      | much less than, type 2            |
| U+0226B | ⋙⋙⋙⋙    | ⋙⋙⋙⋙    | ⋙⋙⋙⋙    | ⋙⋙⋙⋙    | ⋙⋙⋙⋙    | ⋙⋙⋙⋙    | \gg^{(p)}      | much greater than, type 2         |
| U+0226C | ○○○○    | ○○○○    | ○○○○    | ○○○○    | ○○○○    | ○○○○    | \between^{(a)} | between                           |
| U+0226D | * * * * | * * * * | * * * * | * * * * | * * * * | * * * * | \nasympt       | not asymptotically equal to       |
| U+0226E | ✗✗✗✗    | ✗✗✗✗    | ✗✗✗✗    | ✗✗✗✗    | ✗✗✗✗    | ✗✗✗✗    | \nless^{(a)}   | not less-than                     |
| U+0226F | ✗✗✗✗    | ✗✗✗✗    | ✗✗✗✗    | ✗✗✗✗    | ✗✗✗✗    | ✗✗✗✗    | \ngtr^{(a)}    | not greater-than                  |
| U+02270 | ✗✗✗✗    | ✗✗✗✗    | ✗✗✗✗    | ✗✗✗✗    | ✗✗✗✗    | ✗✗✗✗    | \nleq^{(a)}    | not less-than-or-equal            |
| U+02271 | ✗✗✗✗    | ✗✗✗✗    | ✗✗✗✗    | ✗✗✗✗    | ✗✗✗✗    | ✗✗✗✗    | \ngeq^{(a)}    | not greater-than-or-equal         |
| U+02272 | ≾≾≾≾    | ≾≾≾≾    | ≾≾≾≾    | ≾≾≾≾    | ≾≾≾≾    | ≾≾≾≾    | \lesssim^{(a)} | less, similar                     |
| U+02273 | ≿≿≿≿    | ≿≿≿≿    | ≿≿≿≿    | ≿≿≿≿    | ≿≿≿≿    | ≿≿≿≿    | \gtrsim^{(a)}  | greater, similar                  |
| U+02274 | ✗✗✗✗    | ✗✗✗✗    | ✗✗✗✗    | ✗✗✗✗    | ✗✗✗✗    | ✗✗✗✗    | \nlessim       | not less, similar                 |
| U+02275 | ✗✗✗✗    | ✗✗✗✗    | ✗✗✗✗    | ✗✗✗✗    | ✗✗✗✗    | ✗✗✗✗    | \ngtrsim       | not greater, similar              |
| U+02276 | ❖❖❖❖    | ❖❖❖❖    | ❖❖❖❖    | ❖❖❖❖    | ❖❖❖❖    | ❖❖❖❖    | \lessgtr^{(a)} | less, greater                     |
| U+02277 | ❖❖❖❖    | ❖❖❖❖    | ❖❖❖❖    | ❖❖❖❖    | ❖❖❖❖    | ❖❖❖❖    | \gtrless^{(a)} | greater, less                     |
| U+02278 | ❖❖❖❖    | ❖❖❖❖    | ❖❖❖❖    | ❖❖❖❖    | ❖❖❖❖    | ❖❖❖❖    | \nlessgtr      | not less, greater                 |

| USV     | L | X | S | P | D | F | Macro                       | Description                            |
|---------|---|---|---|---|---|---|-----------------------------|--|
| U+02279 | ≶ | ≷ | ≸ | ≹ | ≺ | ≻ | \ngtrless                   | not greater, less                      |
| U+0227A | ≾ | ≿ | ≿ | ≾ | ≿ | ≾ | \prec <sup>(p)</sup>        | precedes                               |
| U+0227B | ≿ | ≿ | ≿ | ≿ | ≿ | ≿ | \succ <sup>(p)</sup>        | succeeds                               |
| U+0227C | ≾ | ≾ | ≾ | ≾ | ≾ | ≾ | \preccurlyeq <sup>(a)</sup> | precedes, curly equals                 |
| U+0227D | ≿ | ≿ | ≿ | ≿ | ≿ | ≿ | \succcurlyeq <sup>(a)</sup> | succeeds, curly equals                 |
| U+0227E | ≾ | ≾ | ≾ | ≾ | ≾ | ≾ | \precsim <sup>(a)</sup>     | precedes, similar                      |
| U+0227F | ≿ | ≿ | ≿ | ≿ | ≿ | ≿ | \succsim <sup>(a)</sup>     | succeeds, similar                      |
| U+02280 | ≵ | ≵ | ≵ | ≵ | ≵ | ≵ | \nprec <sup>(a)</sup>       | not precedes                           |
| U+02281 | ≵ | ≵ | ≵ | ≵ | ≵ | ≵ | \nsucc <sup>(a)</sup>       | not succeeds                           |
| U+02282 | ⊏ | ⊏ | ⊏ | ⊏ | ⊏ | ⊏ | \subset <sup>(p)</sup>      | subset or is implied by                |
| U+02283 | ⊐ | ⊐ | ⊐ | ⊐ | ⊐ | ⊐ | \supset <sup>(p)</sup>      | superset or implies                    |
| U+02284 | ⊑ | ⊑ | ⊑ | ⊑ | ⊑ | ⊑ | \nsubset                    | not subset, variant [slash negation]   |
| U+02285 | ⊒ | ⊒ | ⊒ | ⊒ | ⊒ | ⊒ | \nsupset                    | not superset, variant [slash negation] |
| U+02286 | ⊑ | ⊑ | ⊑ | ⊑ | ⊑ | ⊑ | \subsetreq <sup>(p)</sup>   | subset, equals                         |
| U+02287 | ⊒ | ⊒ | ⊒ | ⊒ | ⊒ | ⊒ | \supsetreq <sup>(p)</sup>   | superset, equals                       |
| U+02288 | ⊑ | ⊑ | ⊑ | ⊑ | ⊑ | ⊑ | \nsubsetreq <sup>(a)</sup>  | not subset, equals                     |
| U+02289 | ⊒ | ⊒ | ⊒ | ⊒ | ⊒ | ⊒ | \nsupsetreq <sup>(a)</sup>  | not superset, equals                   |
| U+0228A | ⊑ | ⊑ | ⊑ | ⊑ | ⊑ | ⊑ | \subsetneq <sup>(a)</sup>   | subset, not equals                     |
| U+0228B | ⊒ | ⊒ | ⊒ | ⊒ | ⊒ | ⊒ | \supsetneq <sup>(a)</sup>   | superset, not equals                   |
| U+0228F | ⊓ | ⊓ | ⊓ | ⊓ | ⊓ | ⊓ | \sqsubset                   | square subset                          |
| U+02290 | ⊔ | ⊔ | ⊔ | ⊔ | ⊔ | ⊔ | \sqsupset                   | square superset                        |
| U+02291 | ⊓ | ⊓ | ⊓ | ⊓ | ⊓ | ⊓ | \sqsubsetreq <sup>(p)</sup> | square subset, equals                  |
| U+02292 | ⊔ | ⊔ | ⊔ | ⊔ | ⊔ | ⊔ | \sqsupsetreq <sup>(p)</sup> | square superset, equals                |
| U+022A2 | ⊤ | ⊤ | ⊤ | ⊤ | ⊤ | ⊤ | \vdash <sup>(p)</sup>       | vertical, dash                         |

| USV     | L   | X   | S   | P   | D   | F | Macro                            | Description                          |
|---------|-----|-----|-----|-----|-----|---|----------------------------------|--------------------------------------|
| U+022A3 | --- | -+  | -+  | -   | -   |   | \dashv <sup>(p)</sup>            | dash, vertical                       |
| U+022A6 | -   | - - | - - | - - | - - |   | \assert                          | assertion (vertical, short dash)     |
| U+022A7 | -   | - - | - - | - - | - - |   | \models <sup>(p)</sup>           | models (vertical, short double dash) |
| U+022A8 | -   | - - | - - | - - | - - |   | \vDash <sup>(a)</sup>            | vertical, double dash                |
| U+022A9 | -   | -   | -   | -   | -   |   | \Vdash <sup>(a)</sup>            | double vertical, dash                |
| U+022AA | -   | -   | -   | -   | -   |   | \VvDash <sup>(a)</sup>           | triple vertical, dash                |
| U+022AB | -   | -   | -   | -   | -   |   | \VDash                           | double vert, double dash             |
| U+022AC | -   | -   | -   | -   | -   |   | \nvDash <sup>(a)</sup>           | not vertical, dash                   |
| U+022AD | -   | -   | -   | -   | -   |   | \nvDash <sup>(a)</sup>           | not vertical, double dash            |
| U+022AE | -   | -   | -   | -   | -   |   | \nVdash <sup>(a)</sup>           | not double vertical, dash            |
| U+022AF | -   | -   | -   | -   | -   |   | \nVDash <sup>(a)</sup>           | not double vert, double dash         |
| U+022B0 | ≈   | ≈   |     |     |     |   | \prurel                          | element precedes under relation      |
| U+022B1 | ≈   | ≈   |     |     |     |   | \scurel                          | succeeds under relation              |
| U+022B2 | △   | △   | △   | △   | △   |   | \vartriangleleft <sup>(a)</sup>  | left triangle, open, variant         |
| U+022B3 | ▷   | ▷   | ▷   | ▷   | ▷   |   | \vartriangleright <sup>(a)</sup> | right triangle, open, variant        |
| U+022B4 | △   | △   | △   | △   | △   |   | \trianglelefteq <sup>(a)</sup>   | left triangle, equals                |
| U+022B5 | ▷   | ▷   | ▷   | ▷   | ▷   |   | \trianglerighteq <sup>(a)</sup>  | right triangle, equals               |
| U+022B6 | ○●  | ○●  | ○●  | ○●  | ○●  |   | \origof                          | original of                          |
| U+022B7 | ●○  | ●○  | ●○  | ●○  | ●○  |   | \imageof                         | image of                             |
| U+022B8 | ○○  | ○○  | ○○  | ○○  | ○○  |   | \multimap <sup>(a)</sup>         | /multimap a:                         |
| U+022C8 | ☒   | ☒   | ☒   | ☒   | ☒   |   | \bowtie <sup>(p)</sup>           | bowtie                               |
| U+022CD | ⊲   | ⊲   | ⊲   | ⊲   | ⊲   | ⊲ | \backsimeq <sup>(a)</sup>        | reverse similar, equals              |
| U+022D0 | ⊏   | ⊏   | ⊏   | ⊏   | ⊏   |   | \Subset <sup>(a)</sup>           | double subset                        |
| U+022D1 | ⊐   | ⊐   | ⊐   | ⊐   | ⊐   |   | \Supset <sup>(a)</sup>           | double superset                      |

| USV     | L       | X       | S       | P       | D       | F       | Macro                       | Description                           |
|---------|---------|---------|---------|---------|---------|---------|-----------------------------|---------------------------------------|
| U+022D4 |         | ⤠       | ⤡       |         |         |         | \pitchfork <sup>(a)</sup>   | pitchfork                             |
| U+022D5 | #       | #       | #       | #       | #       |         | \equalparallel              | parallel, equal; equal or parallel    |
| U+022D6 | ⤢       | ⤣       | ⤤       | ⤢       | ⤤       | ⤤       | \lessdot <sup>(a)</sup>     | less than, with dot                   |
| U+022D7 | ⤦       | ⤧       | ⤨       | ⤦       | ⤨       | ⤨       | \gtrdot <sup>(a)</sup>      | greater than, with dot                |
| U+022D8 | ⤩       | ⤪       | ⤪       | ⤩       | ⤪       | ⤪       | \lll <sup>(a)</sup>         | /ll /lll /llless r: triple less-than  |
| U+022D9 | ⤫       | ⤬       | ⤬       | ⤫       | ⤬       | ⤬       | \ggg <sup>(a)</sup>         | /ggg /gg /gggr r: triple greater-than |
| U+022DA | ⤩\⤩     | ⤩\⤩     | ⤩\⤩     | ⤩\⤩     | ⤩\⤩     | ⤩\⤩     | \lesseqgtr <sup>(a)</sup>   | less, equals, greater                 |
| U+022DB | ⤩\⤩\⤩   | ⤩\⤩\⤩   | ⤩\⤩\⤩   | ⤩\⤩\⤩   | ⤩\⤩\⤩   | ⤩\⤩\⤩   | \gtreqless <sup>(a)</sup>   | greater, equals, less                 |
| U+022DC | ⤩\⤩     | ⤩\⤩     | ⤩\⤩     | ⤩\⤩     | ⤩\⤩     | ⤩\⤩     | \eqless                     | equal-or-less                         |
| U+022DD | ⤩\⤩     | ⤩\⤩     | ⤩\⤩     | ⤩\⤩     | ⤩\⤩     | ⤩\⤩     | \eqgtr                      | equal-or-greater                      |
| U+022DE | ⤩\⤩\⤩   | ⤩\⤩\⤩   | ⤩\⤩\⤩   | ⤩\⤩\⤩   | ⤩\⤩\⤩   | ⤩\⤩\⤩   | \curlyeqprec <sup>(a)</sup> | curly equals, precedes                |
| U+022DF | ⤩\⤩\⤩   | ⤩\⤩\⤩   | ⤩\⤩\⤩   | ⤩\⤩\⤩   | ⤩\⤩\⤩   | ⤩\⤩\⤩   | \curlyeqsucc <sup>(a)</sup> | curly equals, succeeds                |
| U+022EO | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | \npreccurlyeq               | not precedes, curly equals            |
| U+022E1 | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | \nsucccurlyeq               | not succeeds, curly equals            |
| U+022E2 | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | \nsqsubseteq                | not, square subset, equals            |
| U+022E3 | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | \nsqsupseteq                | not, square superset, equals          |
| U+022E4 | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | \sqsubsetneq                | square subset, not equals             |
| U+022E5 | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | \sqsupsetneq                | square superset, not equals           |
| U+022E6 | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | \lnsim <sup>(a)</sup>       | less, not similar                     |
| U+022E7 | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | \gnsim <sup>(a)</sup>       | greater, not similar                  |
| U+022E8 | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | \precnsim <sup>(a)</sup>    | precedes, not similar                 |
| U+022E9 | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | \succnsim <sup>(a)</sup>    | succeeds, not similar                 |
| U+022EA | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | \nvartriangleleft           | not left triangle                     |
| U+022EB | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | ⤩\⤩\⤩\⤩ | \nvartriangleright          | not right triangle                    |

| USV     | L | X | S | P | D | F | Macro                            | Description  |
|---------|---|---|---|---|---|---|----------------------------------|--|
| U+022EC | ≠ | ≡ | ≢ | ≣ | ≤ |   | \ntrianglelefteq <sup>(a)</sup>  | not left triangle, equals                                      |
| U+022ED | ≥ | ≦ | ≧ | ≨ | ≩ |   | \ntrianglerighteq <sup>(a)</sup> | not right triangle, equals                                     |
| U+022EE | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |   | \vdots <sup>(p)</sup>            | vertical ellipsis  |
| U+022F0 | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |   | \adots                           | three dots, ascending  |
| U+022F1 | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |   | \ddots <sup>(p)</sup>            | three dots, descending   |
| U+022F2 | ⋲ | ⋲ |   |   |   |   | \disin                           | element of with long horizontal stroke                         |
| U+022F3 | ⋲ | ⋲ |   |   |   |   | \varisins                        | element of with vertical bar at end of horizontal stroke       |
| U+022F4 | ⋲ | ⋲ |   |   |   |   | \isins                           | small element of with vertical bar at end of horizontal stroke |
| U+022F5 | ⋲ | ⋲ |   |   |   |   | \isindot                         | element of with dot above                                      |
| U+022F6 | ⋲ | ⋲ |   |   |   |   | \varisinobar                     | element of with overbar  |
| U+022F7 | ⋲ | ⋲ |   |   |   |   | \isinobar                        | small element of with overbar                                  |
| U+022F8 | ⋲ | ⋲ |   |   |   |   | \isinvb                          | element of with underbar                                       |
| U+022F9 | ⋲ | ⋲ |   |   |   |   | \isinE                           | element of with two horizontal strokes                         |
| U+022FA | ⋲ | ⋲ |   |   |   |   | \nisd                            | contains with long horizontal stroke                           |
| U+022FB | ⋲ | ⋲ |   |   |   |   | \varnis                          | contains with vertical bar at end of horizontal stroke         |
| U+022FC | ⋲ | ⋲ |   |   |   |   | \nis                             | small contains with vertical bar at end of horizontal stroke   |
| U+022FD | ⋲ | ⋲ |   |   |   |   | \varniobar                       | contains with overbar  |
| U+022FE | ⋲ | ⋲ |   |   |   |   | \niobar                          | small contains with overbar                                    |
| U+022FF | ⋲ | ⋲ |   |   |   |   | \bagmember                       | z notation bag membership                                      |
| U+02322 | ︵ | ︵ | ︵ | ︵ | ︵ |   | \frown <sup>(p)</sup>            | down curve   |
| U+02323 | ︵ | ︵ | ︵ | ︵ | ︵ |   | \smile <sup>(p)</sup>            | up curve   |
| U+0233F | ⌇ | ⌇ |   |   |   |   | \APLnotslash                     | solidus, bar through (apl functional symbol slash bar)         |
| U+025B5 | △ | △ |   |   |   |   | \vartriangle <sup>(a)</sup>      | /triangle - up triangle, open                                  |

| USV     | L   | X   | S   | P   | D   | F   | Macro                              | Description                       |
|---------|-----|-----|-----|-----|-----|-----|------------------------------------|-----------------------------------|
| U+027C2 | ⊥   | ⊥   | ⊥   | ⊥   | ⊥   | ⊥   | \perp <sup>(p)</sup>               | perpendicular                     |
| U+027C8 |     | ⊍   | ⊍   |     |     |     | \bsolhsub                          | reverse solidus preceding subset  |
| U+027C9 |     | ⊎/  | ⊎/  |     |     |     | \suphsol                           | superset preceding solidus        |
| U+027D2 |     | ⊈   | ⊈   |     |     |     | \upin                              | element of opening upwards        |
| U+027D3 |     | ⊠   | ⊠   |     |     |     | \pullback                          | lower right corner with dot       |
| U+027D4 |     | ⊤   | ⊤   |     |     |     | \pushout                           | upper left corner with dot        |
| U+027DA | #   | #   | #   | #   | #   |     | \DashVDash                         | left and right double turnstile   |
| U+027DB | #   | #   | #   | #   | #   |     | \dashVdash                         | left and right tack               |
| U+027DC | ○   | ○   | ○   | ○   | ○   |     | \multimapinv                       | left multimap                     |
| U+027DD |     |     |     |     |     |     | \vlongdash                         | long left tack                    |
| U+027DE |     |     |     |     |     |     | \longdashv                         | long right tack                   |
| U+027DF | ⋮   | ⋮   |     |     |     |     | \cirbot                            | up tack with circle above         |
| U+027E0 | ⤒   | ⤒   |     |     |     |     | \UUparrow                          | upwards quadruple arrow           |
| U+027F1 | ⤓   | ⤓   |     |     |     |     | \DDownarrow                        | downwards quadruple arrow         |
| U+027F2 | ⤔   | ⤔   |     |     |     |     | \acwgapcirclearrow                 | anticlockwise gapped circle arrow |
| U+027F3 | ⤕   | ⤕   |     |     |     |     | \cwgapcirclearrow                  | clockwise gapped circle arrow     |
| U+027F4 | ⊕   | ⊕   | ⊕   | ⊕   | ⊕   |     | \rightarrowarrowonoplus            | right arrow with circled plus     |
| U+027F5 | ⤐   | ⤐   | ⤐   | ⤐   | ⤐   | ⤐   | \longleftarrow <sup>(p)</sup>      | long leftwards arrow              |
| U+027F6 | ⤑   | ⤑   | ⤑   | ⤑   | ⤑   | ⤑   | \longrightarrow <sup>(p)</sup>     | long rightwards arrow             |
| U+027F7 | ⤒⤐  | ⤒⤐  | ⤒⤐  | ⤒⤐  | ⤒⤐  | ⤒⤐  | \longleftrightarrow <sup>(p)</sup> | long left right arrow             |
| U+027F8 | ⤒⤐  | ⤒⤐  | ⤒⤐  | ⤒⤐  | ⤒⤐  | ⤒⤐  | \Longleftarrow <sup>(p)</sup>      | long leftwards double arrow       |
| U+027F9 | ⤒⤐  | ⤒⤐  | ⤒⤐  | ⤒⤐  | ⤒⤐  | ⤒⤐  | \Longrightarrow <sup>(p)</sup>     | long rightwards double arrow      |
| U+027FA | ⤒⤐⤐ | ⤒⤐⤐ | ⤒⤐⤐ | ⤒⤐⤐ | ⤒⤐⤐ | ⤒⤐⤐ | \Longleftrightarrow <sup>(p)</sup> | long left right double arrow      |
| U+027FB | ⤐⤐  | ⤐⤐  | ⤐⤐  | ⤐⤐  | ⤐⤐  | ⤐⤐  | \longmapsfrom                      | long leftwards arrow from bar     |

| USV     | L    | X    | S    | P    | D    | F    | Macro                | Description   |
|---------|------|------|------|------|------|------|----------------------|---|
| U+027FC | →    | ⟵    | →    | →    | →    | →    | \longmapsto^{(p)}    | long rightwards arrow from bar                          |
| U+027FD | ↔    | ↔    | ↔    | ↔    | ↔    | ↔    | \Longmapsfrom        | long leftwards double arrow from bar                    |
| U+027FE | ⇒    | ⇒    | ⇒    | ⇒    | ⇒    | ⇒    | \Longmapsto          | long rightwards double arrow from bar                   |
| U+027FF | ~~~→ | ~~~→ | ~~~→ | ~~~→ | ~~~→ | ~~~→ | \longrightsquigarrow | long rightwards squiggle arrow                          |
| U+02900 | ⤠    | ⤠    |      |      |      | ⤠    | \nvtwoheadrightarrow | rightwards two-headed arrow with vertical stroke        |
| U+02901 | ⤠    | ⤠    |      |      |      | ⤠    | \nVtwoheadrightarrow | rightwards two-headed arrow with double vertical stroke |
| U+02902 | ⤠    | ⤠    |      |      |      | ⤠    | \nvLeftarrow         | leftwards double arrow with vertical stroke             |
| U+02903 | ⤠    | ⤠    |      |      |      | ⤠    | \nvRightarrow        | rightwards double arrow with vertical stroke            |
| U+02904 | ⤠    | ⤠    |      |      |      | ⤠    | \nvLeftrightarrow    | left right double arrow with vertical stroke            |
| U+02905 | ⤠    | ⤠    |      |      |      | ⤠    | \twoheadmapsto       | rightwards two-headed arrow from bar                    |
| U+02906 | ↔    | ↔    | ↔    | ↔    | ↔    | ↔    | \Mapsfrom            | leftwards double arrow from bar                         |
| U+02907 | ⇒    | ⇒    | ⇒    | ⇒    | ⇒    | ⇒    | \Mapsto              | rightwards double arrow from bar                        |
| U+02908 | ↓    | ↓    |      |      |      | ↓    | \downarrowbarred     | downwards arrow with horizontal stroke                  |
| U+02909 | ↑    | ↑    |      |      |      | ↑    | \uparrowbarred       | upwards arrow with horizontal stroke                    |
| U+0290A | ↑↑   | ↑↑   |      |      |      |      | \Uparrow             | upwards triple arrow                                    |
| U+0290B | ↓↓   | ↓↓   |      |      |      |      | \Downarrow           | downwards triple arrow                                  |
| U+0290C | ↔↔   | ↔↔   |      |      |      |      | \leftbkarow          | leftwards double dash arrow                             |
| U+0290D | →→   | →→   |      |      |      |      | \rightbkarow         | rightwards double dash arrow                            |
| U+0290E | ↔↔   | ↔↔   |      |      |      |      | \leftdbkarow         | leftwards triple dash arrow                             |
| U+0290F | →→   | →→   |      |      |      |      | \dbkarow             | rightwards triple dash arrow                            |
| U+02910 | ↔↔↔  | ↔↔↔  |      |      |      |      | \drbkarow            | rightwards two-headed triple dash arrow                 |

| USV     | L | X | S | P | D | F | Macro                    | Description   |
|---------|---|---|---|---|---|---|--------------------------|---|
| U+02911 |   | ➡ | ➡ |   |   |   | \rightdotarrow           | rightwards arrow with dotted stem                                 |
| U+02912 | ↑ | ↑ |   |   | ↑ |   | \baruparrow              | upwards arrow to bar  |
| U+02913 | ↓ | ↓ |   |   | ↓ |   | \downarrowbar            | downwards arrow to bar  |
| U+02914 | ⤔ | ⤔ |   |   | ⤔ |   | \nvrightarrowtail        | rightwards arrow with tail with vertical stroke                   |
| U+02915 | ⤔ | ⤔ |   |   | ⤔ |   | \nVrightarrowtail        | rightwards arrow with tail with double vertical stroke            |
| U+02916 | ⤔ | ⤔ |   |   | ⤔ |   | \twoheadrightarrowtail   | rightwards two-headed arrow with tail                             |
| U+02917 | ⤔ | ⤔ |   |   | ⤔ |   | \nvtwoheadrightarrowtail | rightwards two-headed arrow with tail with vertical stroke        |
| U+02918 | ⤔ | ⤔ |   |   | ⤔ |   | \nVtwoheadrightarrowtail | rightwards two-headed arrow with tail with double vertical stroke |
| U+02919 | ⬅ | ⬅ |   |   | ⬅ |   | \lefttail                | leftwards arrow-tail  |
| U+0291A | ➡ | ➡ |   |   | ➡ |   | \righttail               | rightwards arrow-tail   |
| U+0291B | ⬅ | ⬅ |   |   | ⬅ |   | \leftdbltail             | leftwards double arrow-tail                                       |
| U+0291C | ➡ | ➡ |   |   | ➡ |   | \rightdbltail            | rightwards double arrow-tail                                      |
| U+0291D | ⬇ | ⬇ |   |   |   |   | \diamondleftarrow        | leftwards arrow to black diamond                                  |
| U+0291E | ➡ | ➡ |   |   |   |   | \rightarrowdiamond       | rightwards arrow to black diamond                                 |
| U+0291F | ⬇ | ⬇ |   |   |   |   | \diamondleftarrowbar     | leftwards arrow from bar to black diamond                         |
| U+02920 | ➡ | ➡ |   |   |   |   | \barrightarrowdiamond    | rightwards arrow from bar to black diamond                        |
| U+02921 | ↖ | ↘ |   |   |   |   | \nwsearrow               | north west and south east arrow                                   |
| U+02922 | ↖ | ↙ |   |   |   |   | \nesarrow                | north east and south west arrow                                   |
| U+02923 | ↖ | ↗ |   |   |   |   | \hknarrow                | north west arrow with hook  |
| U+02924 | ↗ | ↗ |   |   |   |   | \hknearrow               | north east arrow with hook  |
| U+02925 | ↖ | ↘ |   |   |   |   | \hksearrow               | south east arrow with hook  |
| U+02926 | ↖ | ↙ |   |   |   |   | \hksarrow                | south west arrow with hook  |

| USV     | L | X | S | P | D | F | Macro                     | Description                                      |
|---------|---|---|---|---|---|---|---------------------------|--|
| u+02927 |   | ↗ | ↖ |   |   |   | \tona                     | north west arrow and north east arrow            |
| u+02928 |   | ↗ | ↘ |   |   |   | \toea                     | north east arrow and south east arrow            |
| u+02929 |   | ↗ | ↙ |   |   |   | \tosa                     | south east arrow and south west arrow            |
| u+0292A |   | ↗ | ↙ |   |   |   | \towa                     | south west arrow and north west arrow            |
| u+02933 |   | ↝ | ↝ |   |   |   | \rightcurvedarrow         | wave arrow pointing directly right               |
| u+02936 |   | ↙ | ↘ |   |   |   | \leftdowncurvedarrow      | arrow pointing downwards then curving leftwards  |
| u+02937 |   | ↘ | ↗ |   |   |   | \rightdowncurvedarrow     | arrow pointing downwards then curving rightwards |
| u+02938 |   | ↙ | ↙ |   |   |   | \cwrightarcarrow          | right-side arc clockwise arrow                   |
| u+02939 |   | ↙ | ↘ |   |   |   | \acwleftarcarrow          | left-side arc anticlockwise arrow                |
| u+0293A |   | ↙ | ↘ |   |   |   | \acwoverarcarrow          | top arc anticlockwise arrow                      |
| u+0293B |   | ↘ | ↙ |   |   |   | \acwunderarcarrow         | bottom arc anticlockwise arrow                   |
| u+0293C |   | ↙ | ↙ |   |   |   | \curvearrowrightminus     | top arc clockwise arrow with minus               |
| u+0293D |   | ↙ | ↘ |   |   |   | \curvearrowleftplus       | top arc anticlockwise arrow with plus            |
| u+0293E |   | ↙ | ↘ |   |   |   | \cwundercurvearrow        | lower right semicircular clockwise arrow         |
| u+0293F |   | ↙ | ↘ |   |   |   | \ccwundercurvearrow       | lower left semicircular anticlockwise arrow      |
| u+02940 |   | ○ | ○ |   |   |   | \acwcirclearrow           | anticlockwise closed circle arrow                |
| u+02941 |   | ○ | ○ |   |   |   | \cwcirclearrow            | clockwise closed circle arrow                    |
| u+02942 |   | ⤠ | ⤠ |   |   |   | \rightarrowshortleftarrow | rightwards arrow above short leftwards arrow     |
| u+02943 |   | ⤠ | ⤠ |   |   |   | \leftarrowshortrightarrow | leftwards arrow above short rightwards arrow     |
| u+02944 |   | ⤠ | ⤠ |   |   |   | \shortrightarrowleftarrow | short rightwards arrow above leftwards arrow     |
| u+02945 |   | ⤠ | ⤠ |   |   |   | \rightarrowplus           | rightwards arrow with plus below                 |

| USV     | L | X  | S  | P | D | F | Macro                      | Description                                |
|---------|---|----|----|---|---|---|----------------------------|--|
| u+02946 |   | ←+ | ←+ |   |   |   | \leftarrowarrowplus        | leftwards arrow with plus below            |
| u+02947 |   | ⤵  | ⤵  |   |   |   | \rightarrowarrowx          | rightwards arrow through x                 |
| u+02948 |   | ⤵  | ⤵  |   |   |   | \leftrightarrowarrowcircle | left right arrow through small circle      |
| u+02949 |   | ⤷  | ⤷  |   |   |   | \twoheaduparrowarrowcircle | upwards two-headed arrow from small circle |
| u+0294A |   | ⤸  | ⤸  |   |   | ⤸ | \leftrightharpoonupdown    | left barb up right barb down harpoon       |
| u+0294B |   | ⤸  | ⤸  |   |   | ⤸ | \leftrightharpoondownup    | left barb down right barb up harpoon       |
| u+0294C |   | ⤹  | ⤹  |   |   | ⤹ | \updownharpoonrightleft    | up barb right down barb left harpoon       |
| u+0294D |   | ⤻  | ⤻  |   |   | ⤻ | \updownharpoonleftright    | up barb left down barb right harpoon       |
| u+0294E |   | ⤸  | ⤸  |   |   | ⤸ | \leftrightharpoonupup      | left barb up right barb up harpoon         |
| u+0294F |   | ⤹  | ⤹  |   |   | ⤹ | \updownharpoonrightright   | up barb right down barb right harpoon      |
| u+02950 |   | ⤸  | ⤸  |   |   | ⤸ | \leftrightharpoondowndown  | left barb down right barb down harpoon     |
| u+02951 |   | ⤻  | ⤻  |   |   | ⤻ | \updownharpoonleftleft     | up barb left down barb left harpoon        |
| u+02952 |   | ⤸  | ⤸  |   |   |   | \barleftharpoonup          | leftwards harpoon with barb up to bar      |
| u+02953 |   | ⤸  | ⤸  |   |   |   | \rightharpoonupbar         | rightwards harpoon with barb up to bar     |
| u+02954 |   | ⤻  | ⤻  |   |   |   | \barupharpoonright         | upwards harpoon with barb right to bar     |
| u+02955 |   | ⤻  | ⤻  |   |   |   | \downharpoonrightbar       | downwards harpoon with barb right to bar   |
| u+02956 |   | ⤸  | ⤸  |   |   |   | \barleftharpoondown        | leftwards harpoon with barb down to bar    |
| u+02957 |   | ⤸  | ⤸  |   |   |   | \rightharpoondownbar       | rightwards harpoon with barb down to bar   |
| u+02958 |   | ⤻  | ⤻  |   |   |   | \barupharpoonleft          | upwards harpoon with barb left to bar      |
| u+02959 |   | ⤻  | ⤻  |   |   |   | \downharpoonleftbar        | downwards harpoon with barb left to bar    |

| USV     | L  | X  | S | P | D | F  | Macro                  | Description   |
|---------|----|----|---|---|---|----|------------------------|---|
| u+0295A |    | ↖  | ↖ |   |   | ↖  | \lefttharpoonupbar     | leftwards harpoon with barb up from bar                                   |
| u+0295B |    | ↗  | ↗ |   |   | ↗  | \barrightharpoonup     | rightwards harpoon with barb up from bar                                  |
| u+0295C |    | ↑  | ↓ |   |   | ↑  | \upharpoonrightbar     | upwards harpoon with barb right from bar                                  |
| u+0295D |    | ↓  | ↓ |   |   | ↓  | \bardownharpoonright   | downwards harpoon with barb right from bar                                |
| u+0295E |    | ↖  | ↖ |   |   | ↖  | \lefttharpoondownbar   | leftwards harpoon with barb down from bar                                 |
| u+0295F |    | ↗  | ↗ |   |   | ↗  | \barrightharpoondown   | rightwards harpoon with barb down from bar                                |
| u+02960 | 1  | 1  |   |   |   | 1  | \upharpoonleftbar      | upwards harpoon with barb left from bar                                   |
| u+02961 |    | ↓  | ↓ |   |   | ↓  | \bardownharpoonleft    | downwards harpoon with barb left from bar                                 |
| u+02962 | ⇐  | ⇐  |   |   |   | ⇐  | \leftthapoonsupdown    | leftwards harpoon with barb up above leftwards harpoon with barb down     |
| u+02963 | ↑↑ | ↑↑ |   |   |   | ↑↑ | \upharpoonsleftright   | upwards harpoon with barb left beside upwards harpoon with barb right     |
| u+02964 | ⇒⇒ | ⇒⇒ |   |   |   | ⇒⇒ | \rightharpoonsupdown   | rightwards harpoon with barb up above rightwards harpoon with barb down   |
| u+02965 | ⇓⇓ | ⇓⇓ |   |   |   | ⇓⇓ | \downharpoonsleftright | downwards harpoon with barb left beside downwards harpoon with barb right |
| u+02966 | ↖↖ | ↖↖ |   |   |   | ↖↖ | \leftrightharpoonsup   | leftwards harpoon with barb up above rightwards harpoon with barb up      |
| u+02967 | ⇒⇒ | ⇒⇒ |   |   |   | ⇒⇒ | \leftrightharpoonsdown | leftwards harpoon with barb down above rightwards harpoon with barb down  |
| u+02968 | ⇒⇒ | ⇒⇒ |   |   |   | ⇒⇒ | \rightleftharpoonsup   | rightwards harpoon with barb up above leftwards harpoon with barb up      |
| u+02969 | ↖↖ | ↖↖ |   |   |   | ↖↖ | \rightleftharpoonsdown | rightwards harpoon with barb down above leftwards harpoon with barb down  |

| USV     | L  | X  | S | P | D | F  | Macro                    | Description   |
|---------|----|----|---|---|---|----|--------------------------|---|
| u+0296a | ≡  | ≡  |   |   |   |    | \lefttharpoonupdash      | leftwards harpoon with barb up above long dash                          |
| u+0296b | ≡  | ≡  |   |   |   |    | \dashlefttharpoondown    | leftwards harpoon with barb down below long dash                        |
| u+0296c | ⇒  | ⇒  |   |   |   |    | \righttharpoonupdash     | rightwards harpoon with barb up above long dash                         |
| u+0296d | ⇒  | ⇒  |   |   |   |    | \dashrighttharpoondown   | rightwards harpoon with barb down below long dash                       |
| u+0296e | ↑↓ | ↓↑ |   |   |   | ↑↓ | \updownharpoonsleftright | upwards harpoon with barb left beside downwards harpoon with barb right |
| u+0296f | ↓↑ | ↑↓ |   |   |   | ↓↑ | \downupharpoonsleftright | downwards harpoon with barb left beside upwards harpoon with barb right |
| u+02970 | ⇒  | ⇒  |   |   |   |    | \rightimply              | right double arrow with rounded head                                    |
| u+02971 | ⇒  | ⇒  |   |   |   |    | \equalrightarrow         | equals sign above rightwards arrow                                      |
| u+02972 | ≈  | ≈  |   |   |   |    | \similarrightarrow       | tilde operator above rightwards arrow                                   |
| u+02973 | ↖  | ↖  |   |   |   |    | \leftarrowsimilar        | leftwards arrow above tilde operator                                    |
| u+02974 | ↗  | ↗  |   |   |   |    | \rightarrowsimilar       | rightwards arrow above tilde operator                                   |
| u+02975 | ↗  | ↗  |   |   |   |    | \rightarrowapprox        | rightwards arrow above almost equal to                                  |
| u+02976 | ≤  | ≤  |   |   |   |    | \ltlarr                  | less-than above leftwards arrow   |
| u+02977 | ↖  | ↖  |   |   |   |    | \leftarrowless           | leftwards arrow through less-than                                       |
| u+02978 | ↗  | ↗  |   |   |   |    | \gtrarr                  | greater-than above rightwards arrow                                     |
| u+02979 | ⊐  | ⊐  |   |   |   |    | \subrarr                 | subset above rightwards arrow   |
| u+0297a | ⊏  | ⊏  |   |   |   |    | \leftarrowsubset         | leftwards arrow through subset  |
| u+0297b | ⊐  | ⊐  |   |   |   |    | \suplarr                 | superset above leftwards arrow  |
| u+0297c | ↶  | ↶  |   |   |   |    | \leftfishtail            | left fish tail  |
| u+0297d | ↷  | ↷  |   |   |   |    | \rightfishtail           | right fish tail   |

| USV     | L | X  | S  | P | D | F | Macro         | Description                                       |
|---------|---|----|----|---|---|---|---------------|---|
| U+0297E |   | ↑  | ↑  |   |   |   | \upfishtail   | up fish tail                                      |
| U+0297F |   | ↓  | ↓  |   |   |   | \downfishtail | down fish tail                                    |
| U+02982 |   | ⋮  | ⋮  |   |   |   | \typecolon    | z notation type colon                             |
| U+029CE |   | ▷  | ▷  |   |   |   | \rtriltri     | right triangle above left triangle                |
| U+029CF |   | ◁  | ◁  |   |   |   | \ltrivb       | left triangle beside vertical bar                 |
| U+029D0 |   | ▷  | ▷  |   |   |   | \vbrtrii      | vertical bar beside right triangle                |
| U+029D1 |   | ▣  | ▣  |   |   |   | \lfbowtie     | left black bowtie                                 |
| U+029D2 |   | ▣  | ▣  |   |   |   | \rfbowtie     | right black bowtie                                |
| U+029D3 |   | ▣  | ▣  |   |   |   | \fbowtie      | black bowtie                                      |
| U+029D4 |   | ▣  | ▣  |   |   |   | \lftimes      | left black times                                  |
| U+029D5 |   | ▣  | ▣  |   |   |   | \rftimes      | right black times                                 |
| U+029DF |   | ○○ | ○○ |   |   |   | \dualmap      | double-ended multimap                             |
| U+029E1 |   | ⠇  | ⠇  |   |   |   | \ltriangleeq  | increases as                                      |
| U+029E3 |   | #  | #  |   |   |   | \eparsl       | equals sign and slanted parallel                  |
| U+029E4 |   | ˜# | ˜# |   |   |   | \smeparsl     | equals sign and slanted parallel with tilde above |
| U+029E5 |   | #  | #  |   |   |   | \eqvparsl     | identical to and slanted parallel                 |
| U+029E6 |   | Ⓜ  | Ⓜ  |   |   |   | \gleichstark  | gleich stark                                      |
| U+029F4 |   | ⇒  | ⇒  |   |   |   | \ruledelayed  | rule-delayed                                      |
| U+02A59 |   | ☒  | ☒  |   |   |   | \veeonwedge   | logical or overlapping logical and                |
| U+02A66 |   | ≡  | ≡  |   |   |   | \eqdot        | equals sign with dot below                        |
| U+02A67 |   | ≡  | ≡  |   |   |   | \dotequiv     | identical with dot above                          |
| U+02A68 |   | #  | #  |   |   |   | \equivVert    | triple horizontal bar with double vertical stroke |
| U+02A69 |   | #  | #  |   |   |   | \equivVvert   | triple horizontal bar with triple vertical stroke |



| USV     | L  | X  | S  | P  | D  | F | Macro                       | Description  |
|---------|----|----|----|----|----|---|-----------------------------|--|
| u+02A82 |    | ⩵  | ⩶  |    |    |   | \gesdoto                    | greater-than or slanted equal to with dot above                      |
| u+02A83 |    | ⩷  | ⩸  |    |    |   | \lesdotor                   | less-than or slanted equal to with dot above right                   |
| u+02A84 |    | ⩹  | ⩺  |    |    |   | \gesdotol                   | greater-than or slanted equal to with dot above left                 |
| u+02A85 | ⩻  | ⩼  | ⩽  | ⩾  | ⩻  |   | \lessapprox <sup>(a)</sup>  | less-than or approximate   |
| u+02A86 | ⩻  | ⩼  | ⩽  | ⩾  | ⩻  |   | \gtrapprox <sup>(a)</sup>   | greater-than or approximate  |
| u+02A87 | ⩻  | ⩼  | ⩽  | ⩾  | ⩻  |   | \lneq <sup>(a)</sup>        | less-than and single-line not equal to                               |
| u+02A88 | ⩻  | ⩼  | ⩽  | ⩾  | ⩻  |   | \gneq <sup>(a)</sup>        | greater-than and single-line not equal to                            |
| u+02A89 | ⩻  | ⩼  | ⩽  | ⩾  | ⩻  |   | \lnapprox <sup>(a)</sup>    | less-than and not approximate  |
| u+02A8A | ⩻  | ⩼  | ⩽  | ⩾  | ⩻  |   | \gnapprox <sup>(a)</sup>    | greater-than and not approximate                                     |
| u+02A8B | ⩻⩻ | ⩻⩻ | ⩻⩻ | ⩻⩻ | ⩻⩻ |   | \lesseqgtr <sup>(a)</sup>   | less-than above double-line equal above greater-than                 |
| u+02A8C | ⩻⩻ | ⩻⩻ | ⩻⩻ | ⩻⩻ | ⩻⩻ |   | \gtreqqless <sup>(a)</sup>  | greater-than above double-line equal above less-than                 |
| u+02A8D | ⩻⩻ | ⩻⩻ | ⩻⩻ |    |    |   | \lsime                      | less-than above similar or equal                                     |
| u+02A8E | ⩻⩻ | ⩻⩻ | ⩻⩻ |    |    |   | \gsime                      | greater-than above similar or equal                                  |
| u+02A8F | ⩻⩻ | ⩻⩻ | ⩻⩻ |    |    |   | \lsimg                      | less-than above similar above greater-than                           |
| u+02A90 | ⩻⩻ | ⩻⩻ | ⩻⩻ |    |    |   | \gsiml                      | greater-than above similar above less-than                           |
| u+02A91 | ⩻⩻ | ⩻⩻ | ⩻⩻ |    |    |   | \lgE                        | less-than above greater-than above double-line equal                 |
| u+02A92 | ⩻⩻ | ⩻⩻ | ⩻⩻ |    |    |   | \glE                        | greater-than above less-than above double-line equal                 |
| u+02A93 | ⩻⩻ | ⩻⩻ | ⩻⩻ |    |    |   | \lesges                     | less-than above slanted equal above greater-than above slanted equal |
| u+02A94 | ⩻⩻ | ⩻⩻ | ⩻⩻ |    |    |   | \gesles                     | greater-than above slanted equal above less-than above slanted equal |
| u+02A95 | ⩻  | ⩻  | ⩻  | ⩻  | ⩻  |   | \eqslantless <sup>(a)</sup> | slanted equal to or less-than  |

| USV     | L                   | X                   | S | P | D | F | Macro                     | Description                                      |
|---------|---------------------|---------------------|---|---|---|---|---------------------------|--|
| U+02A96 | ➢                   | ➢                   | ➢ | ➢ | ➢ |   | \eqslantgr <sup>(a)</sup> | slanted equal to or greater-than                 |
| U+02A97 |                     | ≣                   | ≣ |   |   |   | \elsdot                   | slanted equal to or less-than with dot inside    |
| U+02A98 |                     | ≣                   | ≣ |   |   |   | \egsdot                   | slanted equal to or greater-than with dot inside |
| U+02A99 | ≣\vphantom{=}       | \vphantom{=}        |   |   |   |   | \eqqless                  | double-line equal to or less-than                |
| U+02A9A | \vphantom{=}        | \vphantom{=}        |   |   |   |   | \eqqgtr                   | double-line equal to or greater-than             |
| U+02A9B | ≣\vphantom{=}       | \vphantom{=}        |   |   |   |   | \eqqlantless              | double-line slanted equal to or less-than        |
| U+02A9C | ≣                   | ≣                   |   |   |   |   | \eqqlantgr                | double-line slanted equal to or greater-than     |
| U+02A9D | \sim\lvert          | \sim\lvert          |   |   |   |   | \simless                  | similar or less-than                             |
| U+02A9E | \sim\lvert          | \sim\lvert          |   |   |   |   | \simgtr                   | similar or greater-than                          |
| U+02A9F | \sim\lvert\lvert    | \sim\lvert\lvert    |   |   |   |   | \simlE                    | similar above less-than above equals sign        |
| U+02AA0 | \sim\lvert\lvert    | \sim\lvert\lvert    |   |   |   |   | \simgE                    | similar above greater-than above equals sign     |
| U+02AA1 | \ll                 | \ll                 |   |   |   |   | \lt                       | double nested less-than                          |
| U+02AA2 | \gg                 | \gg                 |   |   |   |   | \gt                       | double nested greater-than                       |
| U+02AA3 | \ll\lvert           | \ll\lvert           |   |   |   |   | \partiallmeetc            | double less-than with underbar                   |
| U+02AA4 | \times\lvert        | \times\lvert        |   |   |   |   | \glj                      | greater-than overlapping less-than               |
| U+02AA5 | \times\lvert        | \times\lvert        |   |   |   |   | \gla                      | greater-than beside less-than                    |
| U+02AA6 | \ltriangleleft      | \ltriangleleft      |   |   |   |   | \ltcc                     | less-than closed by curve                        |
| U+02AA7 | \ltriangleright     | \ltriangleright     |   |   |   |   | \gtcc                     | greater-than closed by curve                     |
| U+02AA8 | \triangleleft\lvert | \triangleleft\lvert |   |   |   |   | \lescc                    | less-than closed by curve above slanted equal    |
| U+02AA9 | \triangleleft\lvert | \triangleleft\lvert |   |   |   |   | \gescc                    | greater-than closed by curve above slanted equal |
| U+02AAA | \ltriangleleft      | \ltriangleleft      |   |   |   |   | \smt                      | smaller than                                     |
| U+02AAB | \ltriangleright     | \ltriangleright     |   |   |   |   | \lat                      | larger than                                      |

| USV     | L | X | S | P | D | F | Macro                        | Description                             |
|---------|---|---|---|---|---|---|------------------------------|---|
| U+02AAC |   | ≤ | ≤ |   |   |   | \smte                        | smaller than or equal to                |
| U+02AAD |   | ≥ | ≥ |   |   |   | \late                        | larger than or equal to                 |
| U+02AAE |   | ≡ | ≡ |   |   |   | \bumpeqq                     | equals sign with bumpy above            |
| U+02AAF | ⤠ | ⤡ | ⤢ | ⤣ | ⤤ |   | \preceq <sup>(p)</sup>       | precedes above single-line equals sign  |
| U+02AB0 | ⤥ | ⤦ | ⤧ | ⤨ | ⤩ |   | \succeq <sup>(p)</sup>       | succeeds above single-line equals sign  |
| U+02AB1 | ⤪ | ⤫ |   |   |   |   | \precneq                     | precedes above single-line not equal to |
| U+02AB2 | ⤪ | ⤫ |   |   |   |   | \succcneq                    | succeeds above single-line not equal to |
| U+02AB3 | ⤪ | ⤫ |   |   |   |   | \preceqq                     | precedes above equals sign              |
| U+02AB4 | ⤪ | ⤫ |   |   |   |   | \succceqq                    | succeeds above equals sign              |
| U+02AB5 | ⤪ | ⤫ |   |   |   |   | \precneqq <sup>(a)</sup>     | precedes above not equal to             |
| U+02AB6 | ⤪ | ⤫ |   |   |   |   | \succcneqq <sup>(a)</sup>    | succeeds above not equal to             |
| U+02AB7 | ⤪ | ⤫ | ⤬ |   |   |   | \precapprox <sup>(a)</sup>   | precedes above almost equal to          |
| U+02AB8 | ⤪ | ⤫ | ⤬ |   |   |   | \succapprox <sup>(a)</sup>   | succeeds above almost equal to          |
| U+02AB9 | ⤪ | ⤫ | ⤬ |   |   |   | \precnapprox <sup>(a)</sup>  | precedes above not almost equal to      |
| U+02ABA | ⤪ | ⤫ | ⤬ |   |   |   | \succcnapprox <sup>(a)</sup> | succeeds above not almost equal to      |
| U+02ABB | ⤪ | ⤫ |   |   |   |   | \Prec                        | double precedes                         |
| U+02ABC | ⤪ | ⤫ |   |   |   |   | \Succ                        | double succeeds                         |
| U+02ABD | ⤮ | ⤯ |   |   |   |   | \subsetdot                   | subset with dot                         |
| U+02ABE | ⤮ | ⤯ |   |   |   |   | \supsetdot                   | superset with dot                       |
| U+02ABF | ⤮ | ⤯ |   |   |   |   | \subsetplus                  | subset with plus sign below             |
| U+02AC0 | ⤮ | ⤯ |   |   |   |   | \supsetplus                  | superset with plus sign below           |
| U+02AC1 | ⤮ | ⤯ |   |   |   |   | \submult                     | subset with multiplication sign below   |
| U+02AC2 | ⤮ | ⤯ |   |   |   |   | \supmult                     | superset with multiplication sign below |

| USV     | L  | X  | S | P | D | F | Macro                       | Description                                    |
|---------|----|----|---|---|---|---|-----------------------------|--|
| U+02AC3 | ⌚  | ⌚  |   |   |   |   | \subedot                    | subset of or equal to with dot above           |
| U+02AC4 | ⌚  | ⌚  |   |   |   |   | \supedot                    | superset of or equal to with dot above         |
| U+02AC5 | ⌚⌚ | ⌚⌚ |   |   |   |   | \subseteteqq <sup>(a)</sup> | subset of above equals sign                    |
| U+02AC6 | ⌚⌚ | ⌚⌚ |   |   |   |   | \supseteteqq <sup>(a)</sup> | superset of above equals sign                  |
| U+02AC7 | ⌚⌚ | ⌚⌚ |   |   |   |   | \subsim                     | subset of above tilde operator                 |
| U+02AC8 | ⌚⌚ | ⌚⌚ |   |   |   |   | \supsim                     | superset of above tilde operator               |
| U+02AC9 | ⌚⌚ | ⌚⌚ |   |   |   |   | \subsetapprox               | subset of above almost equal to                |
| U+02ACA | ⌚⌚ | ⌚⌚ |   |   |   |   | \supsetapprox               | superset of above almost equal to              |
| U+02ACB | ⌚⌚ | ⌚⌚ |   |   |   |   | \subsetneqq <sup>(a)</sup>  | subset of above not equal to                   |
| U+02ACC | ⌚⌚ | ⌚⌚ |   |   |   |   | \supsetneqq <sup>(a)</sup>  | superset of above not equal to                 |
| U+02ACD | □  | □  |   |   |   |   | \lsqhook                    | square left open box operator                  |
| U+02ACE | □  | □  |   |   |   |   | \rsqhook                    | square right open box operator                 |
| U+02ACF | □  | □  |   |   |   |   | \csub                       | closed subset                                  |
| U+02AD0 | □  | □  |   |   |   |   | \csup                       | closed superset                                |
| U+02AD1 | □  | □  |   |   |   |   | \csube                      | closed subset or equal to                      |
| U+02AD2 | □  | □  |   |   |   |   | \csupe                      | closed superset or equal to                    |
| U+02AD3 | ⌚  | ⌚  |   |   |   |   | \subsup                     | subset above superset                          |
| U+02AD4 | ⌚⌚ | ⌚⌚ |   |   |   |   | \supsub                     | superset above subset                          |
| U+02AD5 | ⌚⌚ | ⌚⌚ |   |   |   |   | \subsub                     | subset above subset                            |
| U+02AD6 | ⌚⌚ | ⌚⌚ |   |   |   |   | \supsup                     | superset above superset                        |
| U+02AD7 | ⌚⌚ | ⌚⌚ |   |   |   |   | \suphsub                    | superset beside subset                         |
| U+02AD8 | ⌚⌚ | ⌚⌚ |   |   |   |   | \supdsub                    | superset beside and joined by dash with subset |
| U+02AD9 | ⌚  | ⌚  |   |   |   |   | \forkv                      | element of opening downwards                   |
| U+02ADA | ⌚  | ⌚  |   |   |   |   | \topfork                    | pitchfork with tee top                         |



| USV     | L   | X   | S  | P  | D  | F | Macro                   | Description  |
|---------|-----|-----|----|----|----|---|-------------------------|--|
| U+02AF8 | ➤➤  | ➤➤  |    |    |    |   | \gggnest                | stacked very much greater-than                                   |
| U+02AF9 | ≤≤  | ≤≤  |    |    |    |   | \leqqslant              | double-line slanted less-than or equal to                        |
| U+02AFA | ≥≥  | ≥≥  |    |    |    |   | \geqqslant              | double-line slanted greater-than or equal to                     |
| U+02B30 | ↔   | ↔   |    |    |    |   | \circleonleftarrow      | left arrow with small circle                                     |
| U+02B31 | ⤻   | ⤻   | ⤻  | ⤻  | ⤻  | ⤻ | \leftthreearrows        | three leftwards arrows   |
| U+02B32 | ⊕   | ⊕   |    |    |    |   | \leftarrowonoplus       | left arrow with circled plus                                     |
| U+02B33 | ⤻⤻  | ⤻⤻  | ⤻⤻ | ⤻⤻ | ⤻⤻ |   | \longleftsquigarrow     | long leftwards squiggle arrow                                    |
| U+02B34 | ⤻⤻  | ⤻⤻  |    | ⤻⤻ |    |   | \nvtwoheadleftarrow     | leftwards two-headed arrow with vertical stroke                  |
| U+02B35 | ⤻⤻  | ⤻⤻  |    | ⤻⤻ |    |   | \nVtwoheadleftarrow     | leftwards two-headed arrow with double vertical stroke           |
| U+02B36 | ⤻⤻  | ⤻⤻  |    | ⤻⤻ |    |   | \twoheadmapsfrom        | leftwards two-headed arrow from bar                              |
| U+02B37 | ⤻⤻⤻ | ⤻⤻⤻ |    |    |    |   | \twoheadleftdbarrow     | leftwards two-headed triple-dash arrow                           |
| U+02B38 | ⤻⤻  | ⤻⤻  |    |    |    |   | \leftdotarrow           | leftwards arrow with dotted stem                                 |
| U+02B39 | ⤻⤻  | ⤻⤻  |    | ⤻⤻ |    |   | \nvleftarrowtail        | leftwards arrow with tail with vertical stroke                   |
| U+02B3A | ⤻⤻  | ⤻⤻  |    | ⤻⤻ |    |   | \nVleftarrowtail        | leftwards arrow with tail with double vertical stroke            |
| U+02B3B | ⤻⤻  | ⤻⤻  |    | ⤻⤻ |    |   | \twoheadleftarrowtail   | leftwards two-headed arrow with tail                             |
| U+02B3C | ⤻⤻  | ⤻⤻  |    | ⤻⤻ |    |   | \nvtwoheadleftarrowtail | leftwards two-headed arrow with tail with vertical stroke        |
| U+02B3D | ⤻⤻  | ⤻⤻  |    | ⤻⤻ |    |   | \nVtwoheadleftarrowtail | leftwards two-headed arrow with tail with double vertical stroke |
| U+02B3E | ⤻⤻  | ⤻⤻  |    |    |    |   | \leftarrowx             | leftwards arrow through x  |
| U+02B3F | ⤻   | ⤻   |    |    |    |   | \leftcurvedarrow        | wave arrow pointing directly left                                |
| U+02B40 | ⤻⤻  | ⤻⤻  |    |    |    |   | \equalleftarrow         | equals sign above leftwards arrow                                |
| U+02B41 | ⤻⤻  | ⤻⤻  |    |    |    |   | \bsimilarleftarrow      | reverse tilde operator above leftwards arrow                     |

| USV     | L | X | S | P | D | F | Macro                 | Description                                    |
|---------|---|---|---|---|---|---|-----------------------|--|
| U+02B42 |   | ↖ | ↖ |   |   |   | \leftarrowbackapprox  | leftwards arrow above reverse almost equal to  |
| U+02B43 |   | ↗ | ↗ |   |   |   | \rightarrowgtr        | rightwards arrow through greater-than          |
| U+02B44 |   | ⤠ | ⤠ |   |   |   | \rightarrowsupset     | rightwards arrow through subset                |
| U+02B45 |   | ⤡ | ⤡ |   |   |   | \LLeftarrow           | leftwards quadruple arrow                      |
| U+02B46 |   | ⤢ | ⤢ |   |   |   | \RRightarrow          | rightwards quadruple arrow                     |
| U+02B47 |   | ⤣ | ⤣ |   |   |   | \bsimilarrightarrow   | reverse tilde operator above rightwards arrow  |
| U+02B48 |   | ⤤ | ⤤ |   |   |   | \rightarrowbackapprox | rightwards arrow above reverse almost equal to |
| U+02B49 |   | ⤥ | ⤥ |   |   |   | \similarleftarrow     | tilde operator above leftwards arrow           |
| U+02B4A |   | ⤦ | ⤦ |   |   |   | \leftarrowapprox      | leftwards arrow above almost equal to          |
| U+02B4B |   | ⤧ | ⤧ |   |   |   | \leftarrowbsimilar    | leftwards arrow above reverse tilde operator   |
| U+02B4C |   | ⤩ | ⤩ |   |   |   | \rightarrowbsimilar   | rightwards arrow above reverse tilde operator  |

## 13 Alphabetical symbols, \mathalpha

### 13.1 Normal weight

#### 13.1.1 Upright Greek, uppercase

| USV     | L | X | S | P | D | F | Macro       | Description            |
|---------|---|---|---|---|---|---|-------------|------------------------|
| u+00391 | A | A | A | A | A | A | \mupAlpha   | capital alpha, greek   |
| u+00392 | B | B | B | B | B | B | \mupBeta    | capital beta, greek    |
| u+00393 | Γ | Γ | Γ | Γ | Γ | Γ | \mupGamma   | capital gamma, greek   |
| u+00394 | Δ | Δ | Δ | Δ | Δ | Δ | \mupDelta   | capital delta, greek   |
| u+00395 | E | E | E | E | E | E | \mupEpsilon | capital epsilon, greek |
| u+00396 | Z | Z | Z | Z | Z | Z | \mupZeta    | capital zeta, greek    |
| u+00397 | H | H | H | H | H | H | \mupEta     | capital eta, greek     |
| u+00398 | Θ | Θ | Θ | Θ | Θ | Θ | \mupTheta   | capital theta, greek   |
| u+00399 | I | I | I | I | I | I | \mupIota    | capital iota, greek    |
| u+0039A | K | K | K | K | K | K | \mupKappa   | capital kappa, greek   |
| u+0039B | Λ | Λ | Λ | Λ | Λ | Λ | \mupLambda  | capital lambda, greek  |
| u+0039C | M | M | M | M | M | M | \mupMu      | capital mu, greek      |
| u+0039D | N | N | N | N | N | N | \mupNu      | capital nu, greek      |
| u+0039E | Ξ | Ξ | Ξ | Ξ | Ξ | Ξ | \mupXi      | capital xi, greek      |
| u+0039F | Ο | Ο | Ο | Ο | Ο | Ο | \mupOmicron | capital omicron, greek |
| u+003A0 | Π | Π | Π | Π | Π | Π | \mupPi      | capital pi, greek      |
| u+003A1 | Ρ | Ρ | Ρ | Ρ | Ρ | Ρ | \mupRho     | capital rho, greek     |
| u+003A3 | Σ | Σ | Σ | Σ | Σ | Σ | \mupSigma   | capital sigma, greek   |
| u+003A4 | Τ | Τ | Τ | Τ | Τ | Τ | \mupTau     | capital tau, greek     |
| u+003A5 | Υ | Υ | Υ | Υ | Υ | Υ | \mupUpsilon | capital upsilon, greek |
| u+003A6 | Φ | Φ | Φ | Φ | Φ | Φ | \mupPhi     | capital phi, greek     |

| USV     | L | X | S | P | D | F | Macro     | Description          |
|---------|---|---|---|---|---|---|-----------|----------------------|
| u+003a7 | χ | Χ | χ | Χ | χ | χ | \mupChi   | capital chi, greek   |
| u+003a8 | Ψ | Ψ | ψ | Ψ | ψ | ψ | \mupPsi   | capital psi, greek   |
| u+003a9 | Ω | Ω | Ω | Ω | Ω | Ω | \mupOmega | capital omega, greek |

### 13.1.2 Upright Greek, lowercase

| USV     | L | X | S | P | D | F | Macro          | Description                        |
|---------|---|---|---|---|---|---|----------------|------------------------------------|
| u+003b1 | α | α | α | α | α | α | \mupalpha      | small alpha, greek                 |
| u+003b2 | β | β | β | β | β | β | \mupbeta       | small beta, greek                  |
| u+003b3 | γ | γ | γ | γ | γ | γ | \mupgamma      | small gamma, greek                 |
| u+003b4 | δ | δ | δ | δ | δ | δ | \mupdelta      | small delta, greek                 |
| u+003b5 | ε | ε | ε | ε | ε | ε | \mupvarepsilon | rounded small varepsilon, greek    |
| u+003b6 | ζ | ζ | ζ | ζ | ζ | ζ | \mupzeta       | small zeta, greek                  |
| u+003b7 | η | η | η | η | η | η | \mupeta        | small eta, greek                   |
| u+003b8 | θ | θ | θ | θ | θ | θ | \muptheta      | straight theta, small theta, greek |
| u+003b9 | ι | ι | ι | ι | ι | ι | \mupiota       | small iota, greek                  |
| u+003ba | κ | κ | κ | κ | κ | κ | \mupkappa      | small kappa, greek                 |
| u+003bb | λ | λ | λ | λ | λ | λ | \muplambda     | small lambda, greek                |
| u+003bc | μ | μ | μ | μ | μ | μ | \mupmu         | small mu, greek                    |
| u+003bd | ν | ν | ν | ν | ν | ν | \mupnu         | small nu, greek                    |
| u+003be | ξ | ξ | ξ | ξ | ξ | ξ | \mupxi         | small xi, greek                    |
| u+003bf | ο | ο | ο | ο | ο | ο | \mupomicron    | small omicron, greek               |
| u+003co | π | π | π | π | π | π | \muppi         | small pi, greek                    |
| u+003c1 | ρ | ρ | ρ | ρ | ρ | ρ | \muprho        | small rho, greek                   |
| u+003c2 | ς | ς | ς | ς | ς | ς | \mupvarsigma   | terminal sigma, greek              |

| USV     | L | X | S | P | D | F | Macro        | Description                      |
|---------|---|---|---|---|---|---|--------------|----------------------------------|
| U+003C3 | σ | σ | σ | σ | σ | σ | \mupsigma    | small sigma, greek               |
| U+003C4 | τ | τ | τ | τ | τ | τ | \muptau      | small tau, greek                 |
| U+003C5 | υ | υ | υ | υ | υ | υ | \mupupsilon  | small upsilon, greek             |
| U+003C6 | φ | φ | φ | φ | φ | φ | \mupvarphi   | curly or open small phi, greek   |
| U+003C7 | χ | χ | χ | χ | χ | χ | \mupchi      | small chi, greek                 |
| U+003C8 | ψ | ψ | ψ | ψ | ψ | ψ | \muppsi      | small psi, greek                 |
| U+003C9 | ω | ω | ω | ω | ω | ω | \mupomega    | small omega, greek               |
| U+003D1 | ϑ | ϑ | ϑ | ϑ | ϑ | ϑ | \mupvartheta | /vartheta - curly or open theta  |
| U+003D5 | ϕ | ϕ | ϕ | ϕ | ϕ | ϕ | \mupphi      | /straightphi - small phi, greek  |
| U+003D6 | ϖ | ϖ | ϖ | ϖ | ϖ | ϖ | \mupvarpi    | rounded small pi (pomega), greek |
| U+003DC | F | F |   |   |   |   | \upDigamma   | capital digamma                  |
| U+003DD | F | F |   |   |   |   | \updigamma   | old greek small letter digamma   |
| U+003F0 | ϰ | ϰ | ϰ | ϰ | ϰ | ϰ | \mupvarkappa | rounded small kappa, greek       |
| U+003F1 | ϱ | ϱ | ϱ | ϱ | ϱ | ϱ | \mupvarrho   | rounded small rho, greek         |
| U+003F4 | Θ | Θ | Θ | Θ | Θ | Θ | \mupvarTheta | greek capital theta symbol       |
| U+003F5 | ϶ | ϶ | ϶ | ϶ | ϶ | ϶ | \mupepsilon  | greek lunate varepsilon symbol   |

### 13.1.3 Italic, Latin, uppercase

| USV     | L | X | S | P | D | F | Macro | Description                   |
|---------|---|---|---|---|---|---|-------|-------------------------------|
| U+1D434 | A | A | A | A | A | A | \mitA | mathematical italic capital a |
| U+1D435 | B | B | B | B | B | B | \mitB | mathematical italic capital b |
| U+1D436 | C | C | C | C | C | C | \mitC | mathematical italic capital c |
| U+1D437 | D | D | D | D | D | D | \mitD | mathematical italic capital d |
| U+1D438 | E | E | E | E | E | E | \mitE | mathematical italic capital e |

| USV     | L        | X        | S        | P        | D        | F        | Macro | Description                   |
|---------|----------|----------|----------|----------|----------|----------|-------|-------------------------------|
| U+1D439 | <i>F</i> | <i>F</i> | <i>F</i> | <i>F</i> | <i>F</i> | <i>F</i> | \mitF | mathematical italic capital f |
| U+1D43A | <i>G</i> | <i>G</i> | <i>G</i> | <i>G</i> | <i>G</i> | <i>G</i> | \mitG | mathematical italic capital g |
| U+1D43B | <i>H</i> | <i>H</i> | <i>H</i> | <i>H</i> | <i>H</i> | <i>H</i> | \mitH | mathematical italic capital h |
| U+1D43C | <i>I</i> | <i>I</i> | <i>I</i> | <i>I</i> | <i>I</i> | <i>I</i> | \mitI | mathematical italic capital i |
| U+1D43D | <i>J</i> | <i>J</i> | <i>J</i> | <i>J</i> | <i>J</i> | <i>J</i> | \mitJ | mathematical italic capital j |
| U+1D43E | <i>K</i> | <i>K</i> | <i>K</i> | <i>K</i> | <i>K</i> | <i>K</i> | \mitK | mathematical italic capital k |
| U+1D43F | <i>L</i> | <i>L</i> | <i>L</i> | <i>L</i> | <i>L</i> | <i>L</i> | \mitL | mathematical italic capital l |
| U+1D440 | <i>M</i> | <i>M</i> | <i>M</i> | <i>M</i> | <i>M</i> | <i>M</i> | \mitM | mathematical italic capital m |
| U+1D441 | <i>N</i> | <i>N</i> | <i>N</i> | <i>N</i> | <i>N</i> | <i>N</i> | \mitN | mathematical italic capital n |
| U+1D442 | <i>O</i> | <i>O</i> | <i>O</i> | <i>O</i> | <i>O</i> | <i>O</i> | \mitO | mathematical italic capital o |
| U+1D443 | <i>P</i> | <i>P</i> | <i>P</i> | <i>P</i> | <i>P</i> | <i>P</i> | \mitP | mathematical italic capital p |
| U+1D444 | <i>Q</i> | <i>Q</i> | <i>Q</i> | <i>Q</i> | <i>Q</i> | <i>Q</i> | \mitQ | mathematical italic capital q |
| U+1D445 | <i>R</i> | <i>R</i> | <i>R</i> | <i>R</i> | <i>R</i> | <i>R</i> | \mitR | mathematical italic capital r |
| U+1D446 | <i>S</i> | <i>S</i> | <i>S</i> | <i>S</i> | <i>S</i> | <i>S</i> | \mitS | mathematical italic capital s |
| U+1D447 | <i>T</i> | <i>T</i> | <i>T</i> | <i>T</i> | <i>T</i> | <i>T</i> | \mitT | mathematical italic capital t |
| U+1D448 | <i>U</i> | <i>U</i> | <i>U</i> | <i>U</i> | <i>U</i> | <i>U</i> | \mitU | mathematical italic capital u |
| U+1D449 | <i>V</i> | <i>V</i> | <i>V</i> | <i>V</i> | <i>V</i> | <i>V</i> | \mitV | mathematical italic capital v |
| U+1D44A | <i>W</i> | <i>W</i> | <i>W</i> | <i>W</i> | <i>W</i> | <i>W</i> | \mitW | mathematical italic capital w |
| U+1D44B | <i>X</i> | <i>X</i> | <i>X</i> | <i>X</i> | <i>X</i> | <i>X</i> | \mitX | mathematical italic capital x |
| U+1D44C | <i>Y</i> | <i>Y</i> | <i>Y</i> | <i>Y</i> | <i>Y</i> | <i>Y</i> | \mitY | mathematical italic capital y |
| U+1D44D | <i>Z</i> | <i>Z</i> | <i>Z</i> | <i>Z</i> | <i>Z</i> | <i>Z</i> | \mitZ | mathematical italic capital z |

#### 13.1.4 Italic, Latin, lowercase

| USV     | L | X | S | P | D | F | Macro | Description                 |
|---------|---|---|---|---|---|---|-------|-----------------------------|
| U+1D44E | a | a | a | a | a | a | \mita | mathematical italic small a |
| U+1D44F | b | b | b | b | b | b | \mitb | mathematical italic small b |
| U+1D450 | c | c | c | c | c | c | \mitc | mathematical italic small c |
| U+1D451 | d | d | d | d | d | d | \mitd | mathematical italic small d |
| U+1D452 | e | e | e | e | e | e | \mite | mathematical italic small e |
| U+1D453 | f | f | f | f | f | f | \mitf | mathematical italic small f |
| U+1D454 | g | g | g | g | g | g | \mitg | mathematical italic small g |
| U+1D456 | i | i | i | i | i | i | \miti | mathematical italic small i |
| U+1D457 | j | j | j | j | j | j | \mitj | mathematical italic small j |
| U+1D458 | k | k | k | k | k | k | \mitk | mathematical italic small k |
| U+1D459 | l | l | l | l | l | l | \mitl | mathematical italic small l |
| U+1D45A | m | m | m | m | m | m | \mitm | mathematical italic small m |
| U+1D45B | n | n | n | n | n | n | \mitn | mathematical italic small n |
| U+1D45C | o | o | o | o | o | o | \mito | mathematical italic small o |
| U+1D45D | p | p | p | p | p | p | \mitp | mathematical italic small p |
| U+1D45E | q | q | q | q | q | q | \mitq | mathematical italic small q |
| U+1D45F | r | r | r | r | r | r | \mitr | mathematical italic small r |
| U+1D460 | s | s | s | s | s | s | \mits | mathematical italic small s |
| U+1D461 | t | t | t | t | t | t | \mitt | mathematical italic small t |
| U+1D462 | u | u | u | u | u | u | \mitu | mathematical italic small u |
| U+1D463 | v | v | v | v | v | v | \mitv | mathematical italic small v |
| U+1D464 | w | w | w | w | w | w | \mitw | mathematical italic small w |
| U+1D465 | x | x | x | x | x | x | \mitx | mathematical italic small x |
| U+1D466 | y | y | y | y | y | y | \mity | mathematical italic small y |

| USV     | L        | X        | S        | P        | D        | F        | Macro | Description                 |
|---------|----------|----------|----------|----------|----------|----------|-------|-----------------------------|
| U+1D467 | <i>z</i> | <i>z</i> | <i>z</i> | <i>z</i> | <i>z</i> | <i>z</i> | \mitz | mathematical italic small z |

### 13.1.5 Italic Greek, uppercase

| USV     | L        | X        | S        | P        | D        | F        | Macro        | Description                              |
|---------|----------|----------|----------|----------|----------|----------|--------------|--|
| U+1D6E2 | <i>A</i> | <i>A</i> | <i>A</i> | <i>A</i> | <i>A</i> | <i>A</i> | \mitAlpha    | mathematical italic capital alpha        |
| U+1D6E3 | <i>B</i> | <i>B</i> | <i>B</i> | <i>B</i> | <i>B</i> | <i>B</i> | \mitBeta     | mathematical italic capital beta         |
| U+1D6E4 | <i>Γ</i> | <i>Γ</i> | <i>Γ</i> | <i>Γ</i> | <i>Γ</i> | <i>Γ</i> | \mitGamma    | mathematical italic capital gamma        |
| U+1D6E5 | <i>Δ</i> | <i>Δ</i> | <i>Δ</i> | <i>Δ</i> | <i>Δ</i> | <i>Δ</i> | \mitDelta    | mathematical italic capital delta        |
| U+1D6E6 | <i>E</i> | <i>E</i> | <i>E</i> | <i>E</i> | <i>E</i> | <i>E</i> | \mitEpsilon  | mathematical italic capital epsilon      |
| U+1D6E7 | <i>Z</i> | <i>Z</i> | <i>Z</i> | <i>Z</i> | <i>Z</i> | <i>Z</i> | \mitZeta     | mathematical italic capital zeta         |
| U+1D6E8 | <i>H</i> | <i>H</i> | <i>H</i> | <i>H</i> | <i>H</i> | <i>H</i> | \mitEta      | mathematical italic capital eta          |
| U+1D6E9 | <i>Θ</i> | <i>Θ</i> | <i>Θ</i> | <i>Θ</i> | <i>Θ</i> | <i>Θ</i> | \mitTheta    | mathematical italic capital theta        |
| U+1D6EA | <i>I</i> | <i>I</i> | <i>I</i> | <i>I</i> | <i>I</i> | <i>I</i> | \mitIota     | mathematical italic capital iota         |
| U+1D6EB | <i>K</i> | <i>K</i> | <i>K</i> | <i>K</i> | <i>K</i> | <i>K</i> | \mitKappa    | mathematical italic capital kappa        |
| U+1D6EC | <i>Λ</i> | <i>Λ</i> | <i>Λ</i> | <i>Λ</i> | <i>Λ</i> | <i>Λ</i> | \mitLambda   | mathematical italic capital lambda       |
| U+1D6ED | <i>M</i> | <i>M</i> | <i>M</i> | <i>M</i> | <i>M</i> | <i>M</i> | \mitMu       | mathematical italic capital mu           |
| U+1D6EE | <i>N</i> | <i>N</i> | <i>N</i> | <i>N</i> | <i>N</i> | <i>N</i> | \mitNu       | mathematical italic capital nu           |
| U+1D6EF | <i>Ξ</i> | <i>Ξ</i> | <i>Ξ</i> | <i>Ξ</i> | <i>Ξ</i> | <i>Ξ</i> | \mitXi       | mathematical italic capital xi           |
| U+1D6F0 | <i>Ο</i> | <i>Ο</i> | <i>Ο</i> | <i>Ο</i> | <i>Ο</i> | <i>Ο</i> | \mitOmicron  | mathematical italic capital omicron      |
| U+1D6F1 | <i>Π</i> | <i>Π</i> | <i>Π</i> | <i>Π</i> | <i>Π</i> | <i>Π</i> | \mitPi       | mathematical italic capital pi           |
| U+1D6F2 | <i>Ρ</i> | <i>Ρ</i> | <i>Ρ</i> | <i>Ρ</i> | <i>Ρ</i> | <i>Ρ</i> | \mitRho      | mathematical italic capital rho          |
| U+1D6F3 | <i>Θ</i> | <i>Θ</i> | <i>Θ</i> | <i>Θ</i> | <i>Θ</i> | <i>Θ</i> | \mitvarTheta | mathematical italic capital theta symbol |
| U+1D6F4 | <i>Σ</i> | <i>Σ</i> | <i>Σ</i> | <i>Σ</i> | <i>Σ</i> | <i>Σ</i> | \mitSigma    | mathematical italic capital sigma        |
| U+1D6F5 | <i>Τ</i> | <i>Τ</i> | <i>Τ</i> | <i>Τ</i> | <i>Τ</i> | <i>Τ</i> | \mitTau      | mathematical italic capital tau          |

| USV     | L | X | S | P | D | F | Macro       | Description                         |
|---------|---|---|---|---|---|---|-------------|-------------------------------------|
| U+1D6F6 | Ɣ | Ɣ | Ɣ | Ɣ | Ɣ | Ɣ | \mitUpsilon | mathematical italic capital upsilon |
| U+1D6F7 | Ƥ | Ƥ | Ƥ | Ƥ | Ƥ | Ƥ | \mitPhi     | mathematical italic capital phi     |
| U+1D6F8 | Ӯ | Ӯ | Ӯ | Ӯ | Ӯ | Ӯ | \mitChi     | mathematical italic capital chi     |
| U+1D6F9 | Ѱ | Ѱ | Ѱ | Ѱ | Ѱ | Ѱ | \mitPsi     | mathematical italic capital psi     |
| U+1D6FA | Ӯ | Ӯ | Ӯ | Ӯ | Ӯ | Ӯ | \mitOmega   | mathematical italic capital omega   |

### 13.1.6 Italic Greek, lowercase

| USV     | L | X | S | P | D | F | Macro          | Description                          |
|---------|---|---|---|---|---|---|----------------|--------------------------------------|
| U+1D6FC | ɑ | ɑ | ɑ | ɑ | ɑ | ɑ | \mitalpha      | mathematical italic small alpha      |
| U+1D6FD | β | β | β | β | β | β | \mitbeta       | mathematical italic small beta       |
| U+1D6FE | γ | γ | γ | γ | γ | γ | \mitgamma      | mathematical italic small gamma      |
| U+1D6FF | δ | δ | δ | δ | δ | δ | \mitdelta      | mathematical italic small delta      |
| U+1D700 | ε | ε | ε | ε | ε | ε | \mitvarepsilon | mathematical italic small varepsilon |
| U+1D701 | ζ | ζ | ζ | ζ | ζ | ζ | \mitzeta       | mathematical italic small zeta       |
| U+1D702 | η | η | η | η | η | η | \miteta        | mathematical italic small eta        |
| U+1D703 | θ | θ | θ | θ | θ | θ | \mittheta      | mathematical italic small theta      |
| U+1D704 | ι | ι | ι | ι | ι | ι | \mitiota       | mathematical italic small iota       |
| U+1D705 | κ | κ | κ | κ | κ | κ | \mitkappa      | mathematical italic small kappa      |
| U+1D706 | λ | λ | λ | λ | λ | λ | \mitlambda     | mathematical italic small lambda     |
| U+1D707 | μ | μ | μ | μ | μ | μ | \mitmu         | mathematical italic small mu         |
| U+1D708 | ν | ν | ν | ν | ν | ν | \mitnu         | mathematical italic small nu         |
| U+1D709 | ξ | ξ | ξ | ξ | ξ | ξ | \mitxi         | mathematical italic small xi         |
| U+1D70A | օ | օ | օ | օ | օ | օ | \mitomicron    | mathematical italic small omicron    |
| U+1D70B | π | π | π | π | π | π | \mitpi         | mathematical italic small pi         |

| USV     | L | X | S | P | D | F | Macro        | Description                              |
|---------|---|---|---|---|---|---|--------------|--|
| U+1D70C | ρ | ρ | ρ | ρ | ρ | ρ | \mitrho      | mathematical italic small rho            |
| U+1D70D | ς | ς | ς | ς | ς | ς | \mitvarsigma | mathematical italic small final sigma    |
| U+1D70E | σ | σ | σ | σ | σ | σ | \mitsigma    | mathematical italic small sigma          |
| U+1D70F | τ | τ | τ | τ | τ | τ | \mittau      | mathematical italic small tau            |
| U+1D710 | υ | υ | υ | υ | υ | υ | \mitupsilon  | mathematical italic small upsilon        |
| U+1D711 | φ | φ | φ | φ | φ | φ | \mitvarphi   | mathematical italic small phi            |
| U+1D712 | χ | χ | χ | χ | χ | χ | \mitchi      | mathematical italic small chi            |
| U+1D713 | ψ | ψ | ψ | ψ | ψ | ψ | \mitpsi      | mathematical italic small psi            |
| U+1D714 | ω | ω | ω | ω | ω | ω | \mitomega    | mathematical italic small omega          |
| U+1D715 | ∂ | ∂ | ∂ | ∂ | ∂ | ∂ | \mitpartial  | mathematical italic partial differential |
| U+1D716 | ε | ε | ε | ε | ε | ε | \mitepsilon  | mathematical italic varepsilon symbol    |
| U+1D717 | θ | θ | θ | θ | θ | θ | \mitvartheta | mathematical italic theta symbol         |
| U+1D718 | κ | κ | κ | κ | κ | κ | \mitvarkappa | mathematical italic kappa symbol         |
| U+1D719 | ϕ | ϕ | ϕ | ϕ | ϕ | ϕ | \mitphi      | mathematical italic phi symbol           |
| U+1D71A | ϱ | ϱ | ϱ | ϱ | ϱ | ϱ | \mitvarrho   | mathematical italic rho symbol           |
| U+1D71B | ϖ | ϖ | ϖ | ϖ | ϖ | ϖ | \mitvarpi    | mathematical italic pi symbol            |

### 13.1.7 Script, Latin, uppercase

| USV     | L | X | S | P | D | F | Macro  | Description                   |
|---------|---|---|---|---|---|---|--------|-------------------------------|
| U+1D49C | 𝒜 | 𝒜 | 𝒜 | 𝒜 | 𝒜 |   | \mscrA | mathematical script capital a |
| U+1D49E | 𝒞 | 𝒞 | 𝒞 | 𝒞 | 𝒞 |   | \mscrC | mathematical script capital c |
| U+1D49F | 𝒟 | 𝒟 | 𝒟 | 𝒟 | 𝒟 |   | \mscrD | mathematical script capital d |
| U+1D4A2 | 𝒢 | 𝒢 | 𝒢 | 𝒢 | 𝒢 |   | \mscrG | mathematical script capital g |
| U+1D4A5 | 𝒤 | 𝒤 | 𝒤 | 𝒤 | 𝒤 |   | \mscrJ | mathematical script capital j |

| USV     | L | X | S | P | D | F | Macro  | Description                   |
|---------|---|---|---|---|---|---|--------|-------------------------------|
| U+1D4A6 | ꝑ | Ꝓ | ꝓ | Ꝕ | ꝕ |   | \mscrK | mathematical script capital k |
| U+1D4A9 | ꝑ | Ꝓ | ꝓ | Ꝕ | ꝕ |   | \mscrN | mathematical script capital n |
| U+1D4AA | ꝑ | Ꝓ | ꝓ | Ꝕ | ꝕ |   | \mscrO | mathematical script capital o |
| U+1D4AB | ꝑ | Ꝓ | ꝓ | Ꝕ | ꝕ |   | \mscrP | mathematical script capital p |
| U+1D4AC | ꝑ | Ꝓ | ꝓ | Ꝕ | ꝕ |   | \mscrQ | mathematical script capital q |
| U+1D4AE | ꝑ | Ꝓ | ꝓ | Ꝕ | ꝕ |   | \mscrS | mathematical script capital s |
| U+1D4AF | ꝑ | Ꝓ | ꝓ | Ꝕ | ꝕ |   | \mscrT | mathematical script capital t |
| U+1D4B0 | ꝑ | Ꝓ | ꝓ | Ꝕ | ꝕ |   | \mscrU | mathematical script capital u |
| U+1D4B1 | ꝑ | Ꝓ | ꝓ | Ꝕ | ꝕ |   | \mscrV | mathematical script capital v |
| U+1D4B2 | ꝑ | Ꝓ | ꝓ | Ꝕ | ꝕ |   | \mscrW | mathematical script capital w |
| U+1D4B3 | ꝑ | Ꝓ | ꝓ | Ꝕ | ꝕ |   | \mscrX | mathematical script capital x |
| U+1D4B4 | ꝑ | Ꝓ | ꝓ | Ꝕ | ꝕ |   | \mscrY | mathematical script capital y |
| U+1D4B5 | ꝑ | Ꝓ | ꝓ | Ꝕ | ꝕ |   | \mscrZ | mathematical script capital z |

### 13.1.8 Script, Latin, lowercase

| USV     | L | X | S | P | D | F | Macro  | Description                 |
|---------|---|---|---|---|---|---|--------|-----------------------------|
| U+1D4B6 | ꝏ | ꝏ | ꝏ | ꝏ | ꝏ |   | \mscra | mathematical script small a |
| U+1D4B7 | ꝏ | ꝏ | ꝏ | ꝏ | ꝏ |   | \mscrb | mathematical script small b |
| U+1D4B8 | ꝏ | ꝏ | ꝏ | ꝏ | ꝏ |   | \mscrc | mathematical script small c |
| U+1D4B9 | ꝏ | ꝏ | ꝏ | ꝏ | ꝏ |   | \mscrd | mathematical script small d |
| U+1D4BB | ꝏ | ꝏ | ꝏ | ꝏ | ꝏ |   | \mscrf | mathematical script small f |
| U+1D4BD | ꝏ | ꝏ | ꝏ | ꝏ | ꝏ |   | \mscrh | mathematical script small h |
| U+1D4BE | ꝏ | ꝏ | ꝏ | ꝏ | ꝏ |   | \mscri | mathematical script small i |
| U+1D4BF | ꝏ | ꝏ | ꝏ | ꝏ | ꝏ |   | \mscrj | mathematical script small j |

| USV     | L | X | S | P | D | F | Macro  | Description                 |
|---------|---|---|---|---|---|---|--------|-----------------------------|
| U+1D4C0 | ꝑ | Ꝓ | ꝓ | Ꝕ | ꝕ | Ꝗ | \mscrk | mathematical script small k |
| U+1D4C1 | ꝑ | Ꝓ | ꝓ | Ꝕ | ꝕ | Ꝗ | \mscrl | mathematical script small l |
| U+1D4C2 | ꝑ | Ꝓ | ꝓ | Ꝕ | ꝕ | Ꝗ | \mscrm | mathematical script small m |
| U+1D4C3 | ꝑ | Ꝓ | ꝓ | Ꝕ | ꝕ | Ꝗ | \mscrn | mathematical script small n |
| U+1D4C5 | ꝑ | Ꝓ | ꝓ | Ꝕ | ꝕ | Ꝗ | \mscrp | mathematical script small p |
| U+1D4C6 | ꝑ | Ꝓ | ꝓ | Ꝕ | ꝕ | Ꝗ | \mscrq | mathematical script small q |
| U+1D4C7 | ꝑ | Ꝓ | ꝓ | Ꝕ | ꝕ | Ꝗ | \mscrr | mathematical script small r |
| U+1D4C8 | ꝑ | Ꝓ | ꝓ | Ꝕ | ꝕ | Ꝗ | \mscrs | mathematical script small s |
| U+1D4C9 | ꝑ | Ꝓ | ꝓ | Ꝕ | ꝕ | Ꝗ | \mscrt | mathematical script small t |
| U+1D4CA | ꝑ | Ꝓ | ꝓ | Ꝕ | ꝕ | Ꝗ | \mscru | mathematical script small u |
| U+1D4CB | ꝑ | Ꝓ | ꝓ | Ꝕ | ꝕ | Ꝗ | \mscrv | mathematical script small v |
| U+1D4CC | ꝑ | Ꝓ | ꝓ | Ꝕ | ꝕ | Ꝗ | \mscrw | mathematical script small w |
| U+1D4CD | ꝑ | Ꝓ | ꝓ | Ꝕ | ꝕ | Ꝗ | \mscrx | mathematical script small x |
| U+1D4CE | ꝑ | Ꝓ | ꝓ | Ꝕ | ꝕ | Ꝗ | \mscry | mathematical script small y |
| U+1D4CF | ꝑ | Ꝓ | ꝓ | Ꝕ | ꝕ | Ꝗ | \mscrz | mathematical script small z |

### 13.1.9 Fraktur, Latin, uppercase

| USV     | L | X | S | P | D | F | Macro   | Description                    |
|---------|---|---|---|---|---|---|---------|--------------------------------|
| U+1D504 | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | \mfrakA | mathematical fraktur capital a |
| U+1D505 | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | \mfrakB | mathematical fraktur capital b |
| U+1D507 | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | \mfrakD | mathematical fraktur capital d |
| U+1D508 | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | \mfrakE | mathematical fraktur capital e |
| U+1D509 | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | \mfrakF | mathematical fraktur capital f |
| U+1D50A | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | \mfrakG | mathematical fraktur capital g |

| USV     | L | X | S | P | D | F | Macro        | Description                    |
|---------|---|---|---|---|---|---|--------------|--------------------------------|
| U+1D50D | ҂ | ҃ | ҄ | ҅ | ҆ | ҇ | \mathfrak{J} | mathematical fraktur capital j |
| U+1D50E | ҈ | ҉ | Ҋ | ҋ | Ҍ | ҍ | \mathfrak{K} | mathematical fraktur capital k |
| U+1D50F | Ҏ | ҏ | Ґ | ґ | Ғ | ғ | \mathfrak{L} | mathematical fraktur capital l |
| U+1D510 | Ҏ | ҏ | Ґ | ґ | Ғ | ғ | \mathfrak{M} | mathematical fraktur capital m |
| U+1D511 | Ҏ | ҏ | Ґ | ґ | Ғ | ғ | \mathfrak{N} | mathematical fraktur capital n |
| U+1D512 | Ҕ | ҕ | Җ | җ | Ҙ | ҙ | \mathfrak{O} | mathematical fraktur capital o |
| U+1D513 | Ҕ | ҕ | Җ | җ | Ҙ | ҙ | \mathfrak{P} | mathematical fraktur capital p |
| U+1D514 | Ҕ | ҕ | Җ | җ | Ҙ | ҙ | \mathfrak{Q} | mathematical fraktur capital q |
| U+1D516 | Ҕ | ҕ | Җ | җ | Ҙ | ҙ | \mathfrak{S} | mathematical fraktur capital s |
| U+1D517 | Ҕ | ҕ | Җ | җ | Ҙ | ҙ | \mathfrak{T} | mathematical fraktur capital t |
| U+1D518 | Ҕ | ҕ | Җ | җ | Ҙ | ҙ | \mathfrak{U} | mathematical fraktur capital u |
| U+1D519 | Ҕ | ҕ | Җ | җ | Ҙ | ҙ | \mathfrak{V} | mathematical fraktur capital v |
| U+1D51A | Ҕ | ҕ | Җ | җ | Ҙ | ҙ | \mathfrak{W} | mathematical fraktur capital w |
| U+1D51B | Ҕ | ҕ | Җ | җ | Ҙ | ҙ | \mathfrak{X} | mathematical fraktur capital x |
| U+1D51C | Ҕ | ҕ | Җ | җ | Ҙ | ҙ | \mathfrak{Y} | mathematical fraktur capital y |

### 13.1.10 Fraktur, Latin, lowercase

| USV     | L | X | S | P | D | F | Macro      | Description                  |
|---------|---|---|---|---|---|---|------------|------------------------------|
| U+1D51E | ҂ | ҃ | ҄ | ҅ | ҆ | ҇ | \mathfraka | mathematical fraktur small a |
| U+1D51F | ҃ | ҄ | ҅ | ҆ | ҇ | ҈ | \mathfrakb | mathematical fraktur small b |
| U+1D520 | ҃ | ҄ | ҅ | ҆ | ҇ | ҈ | \mathfrakc | mathematical fraktur small c |
| U+1D521 | ҃ | ҄ | ҅ | ҆ | ҇ | ҈ | \mathfrakd | mathematical fraktur small d |
| U+1D522 | ҃ | ҄ | ҅ | ҆ | ҇ | ҈ | \mathfrake | mathematical fraktur small e |
| U+1D523 | ҃ | ҄ | ҅ | ҆ | ҇ | ҈ | \mathfrakf | mathematical fraktur small f |

| USV     | L | X | S | P | D | F | Macro        | Description                  |
|---------|---|---|---|---|---|---|--------------|------------------------------|
| U+1D524 | ℊ | ℊ | ℊ | ℊ | ℊ | ℊ | \mathfrak{g} | mathematical fraktur small g |
| U+1D525 | ℎ | ℎ | ℎ | ℎ | ℎ | ℎ | \mathfrak{h} | mathematical fraktur small h |
| U+1D526 | ℒ | ℒ | ℒ | ℒ | ℒ | ℒ | \mathfrak{i} | mathematical fraktur small i |
| U+1D527 | ℍ | ℍ | ℍ | ℍ | ℍ | ℍ | \mathfrak{j} | mathematical fraktur small j |
| U+1D528 | ℋ | ℋ | ℋ | ℋ | ℋ | ℋ | \mathfrak{k} | mathematical fraktur small k |
| U+1D529 | ℌ | ℌ | ℌ | ℌ | ℌ | ℌ | \mathfrak{l} | mathematical fraktur small l |
| U+1D52A | ℍ | ℍ | ℍ | ℍ | ℍ | ℍ | \mathfrak{m} | mathematical fraktur small m |
| U+1D52B | ℍ | ℍ | ℍ | ℍ | ℍ | ℍ | \mathfrak{n} | mathematical fraktur small n |
| U+1D52C | ℍ | ℍ | ℍ | ℍ | ℍ | ℍ | \mathfrak{o} | mathematical fraktur small o |
| U+1D52D | ℍ | ℍ | ℍ | ℍ | ℍ | ℍ | \mathfrak{p} | mathematical fraktur small p |
| U+1D52E | ℍ | ℍ | ℍ | ℍ | ℍ | ℍ | \mathfrak{q} | mathematical fraktur small q |
| U+1D52F | ℍ | ℍ | ℍ | ℍ | ℍ | ℍ | \mathfrak{r} | mathematical fraktur small r |
| U+1D530 | ℍ | ℍ | ℍ | ℍ | ℍ | ℍ | \mathfrak{s} | mathematical fraktur small s |
| U+1D531 | ℍ | ℍ | ℍ | ℍ | ℍ | ℍ | \mathfrak{t} | mathematical fraktur small t |
| U+1D532 | ℍ | ℍ | ℍ | ℍ | ℍ | ℍ | \mathfrak{u} | mathematical fraktur small u |
| U+1D533 | ℍ | ℍ | ℍ | ℍ | ℍ | ℍ | \mathfrak{v} | mathematical fraktur small v |
| U+1D534 | ℍ | ℍ | ℍ | ℍ | ℍ | ℍ | \mathfrak{w} | mathematical fraktur small w |
| U+1D535 | ℍ | ℍ | ℍ | ℍ | ℍ | ℍ | \mathfrak{x} | mathematical fraktur small x |
| U+1D536 | ℍ | ℍ | ℍ | ℍ | ℍ | ℍ | \mathfrak{y} | mathematical fraktur small y |
| U+1D537 | ℍ | ℍ | ℍ | ℍ | ℍ | ℍ | \mathfrak{z} | mathematical fraktur small z |

### 13.1.11 Blackboard, Latin, uppercase

| USV     | L | X | S | P | D | F | Macro      | Description                          |
|---------|---|---|---|---|---|---|------------|--------------------------------------|
| U+1D538 | 𝔸 | 𝔸 | 𝔸 | 𝔸 | 𝔸 | 𝔸 | \mathbb{A} | mathematical double-struck capital a |

| USV     | L | X | S | P | D | F | Macro | Description                          |
|---------|---|---|---|---|---|---|-------|--------------------------------------|
| U+1D539 | 🅱 | 🅱 | 🅱 | 🅱 | 🅱 | 🅱 | \BbbB | mathematical double-struck capital b |
| U+1D53B | Ⓓ | Ⓓ | Ⓓ | Ⓓ | Ⓓ | Ⓓ | \BbbD | mathematical double-struck capital d |
| U+1D53C | Ⓔ | Ⓔ | Ⓔ | Ⓔ | Ⓔ | Ⓔ | \BbbE | mathematical double-struck capital e |
| U+1D53D | Ⓕ | Ⓕ | Ⓕ | Ⓕ | Ⓕ | Ⓕ | \BbbF | mathematical double-struck capital f |
| U+1D53E | Ⓖ | Ⓖ | Ⓖ | Ⓖ | Ⓖ | Ⓖ | \BbbG | mathematical double-struck capital g |
| U+1D540 | Ⓘ | Ⓘ | Ⓘ | Ⓘ | Ⓘ | Ⓘ | \BbbI | mathematical double-struck capital i |
| U+1D541 | ⓙ | ⓙ | ⓙ | ⓙ | ⓙ | ⓙ | \BbbJ | mathematical double-struck capital j |
| U+1D542 | ⓚ | ⓚ | ⓚ | ⓚ | ⓚ | ⓚ | \BbbK | mathematical double-struck capital k |
| U+1D543 | Ⓛ | Ⓛ | Ⓛ | Ⓛ | Ⓛ | Ⓛ | \BbbL | mathematical double-struck capital l |
| U+1D544 | Ⓜ | Ⓜ | Ⓜ | Ⓜ | Ⓜ | Ⓜ | \BbbM | mathematical double-struck capital m |
| U+1D546 | ⓯ | ⓯ | ⓯ | ⓯ | ⓯ | ⓯ | \BbbO | mathematical double-struck capital o |
| U+1D54A | Ⓢ | Ⓢ | Ⓢ | Ⓢ | Ⓢ | Ⓢ | \BbbS | mathematical double-struck capital s |
| U+1D54B | Ⓣ | Ⓣ | Ⓣ | Ⓣ | Ⓣ | Ⓣ | \BbbT | mathematical double-struck capital t |
| U+1D54C | Ⓤ | Ⓤ | Ⓤ | Ⓤ | Ⓤ | Ⓤ | \BbbU | mathematical double-struck capital u |
| U+1D54D | ⓾ | ⓾ | ⓾ | ⓾ | ⓾ | ⓾ | \BbbV | mathematical double-struck capital v |
| U+1D54E | ⓿ | ⓿ | ⓿ | ⓿ | ⓿ | ⓿ | \BbbW | mathematical double-struck capital w |
| U+1D54F | ⓾ | ⓾ | ⓾ | ⓾ | ⓾ | ⓾ | \BbbX | mathematical double-struck capital x |
| U+1D550 | ⓾ | ⓾ | ⓾ | ⓾ | ⓾ | ⓾ | \BbbY | mathematical double-struck capital y |

### 13.1.12 Blackboard, Latin, lowercase

| USV     | L | X | S | P | D | F | Macro | Description                        |
|---------|---|---|---|---|---|---|-------|------------------------------------|
| U+1D552 | ⓐ | ⓐ | ⓐ | ⓐ | ⓐ | ⓐ | \Bbba | mathematical double-struck small a |
| U+1D553 | ⓑ | ⓑ | ⓑ | ⓑ | ⓑ | ⓑ | \Bbbb | mathematical double-struck small b |
| U+1D554 | ⓒ | ⓒ | ⓒ | ⓒ | ⓒ | ⓒ | \Bbbc | mathematical double-struck small c |

| USV     | L | X | S | P | D | F | Macro                 | Description                        |
|---------|---|---|---|---|---|---|-----------------------|------------------------------------|
| U+1D555 | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | \\Bbbd                | mathematical double-struck small d |
| U+1D556 | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | \\Bbbe                | mathematical double-struck small e |
| U+1D557 | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | \\Bbbf                | mathematical double-struck small f |
| U+1D558 | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | \\Bbbg                | mathematical double-struck small g |
| U+1D559 | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | \\Bbbh                | mathematical double-struck small h |
| U+1D55A | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | \\Bbbi                | mathematical double-struck small i |
| U+1D55B | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | \\Bbbj                | mathematical double-struck small j |
| U+1D55C | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | \\Bbbk <sup>(a)</sup> | mathematical double-struck small k |
| U+1D55D | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | \\Bbbl                | mathematical double-struck small l |
| U+1D55E | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | \\Bbbm                | mathematical double-struck small m |
| U+1D55F | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | \\Bbbn                | mathematical double-struck small n |
| U+1D560 | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | \\Bbb{o}              | mathematical double-struck small o |
| U+1D561 | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | \\Bbbp                | mathematical double-struck small p |
| U+1D562 | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | \\Bbbq                | mathematical double-struck small q |
| U+1D563 | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | \\Bbb{r}              | mathematical double-struck small r |
| U+1D564 | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | \\Bbbs                | mathematical double-struck small s |
| U+1D565 | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | \\Bbbt                | mathematical double-struck small t |
| U+1D566 | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | \\Bbbu                | mathematical double-struck small u |
| U+1D567 | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | \\Bbbv                | mathematical double-struck small v |
| U+1D568 | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | \\Bbbw                | mathematical double-struck small w |
| U+1D569 | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | \\Bbbx                | mathematical double-struck small x |
| U+1D56A | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | \\Bbby                | mathematical double-struck small y |
| U+1D56B | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | \\Bbbz                | mathematical double-struck small z |

### 13.1.13 Sans serif, Latin, uppercase

| USV     | L | X | S | P | D | F | Macro   | Description                       |
|---------|---|---|---|---|---|---|---------|-----------------------------------|
| U+1D5A0 | A | A | A | A | A |   | \msansA | mathematical sans-serif capital a |
| U+1D5A1 | B | B | B | B | B |   | \msansB | mathematical sans-serif capital b |
| U+1D5A2 | C | C | C | C | C |   | \msansC | mathematical sans-serif capital c |
| U+1D5A3 | D | D | D | D | D |   | \msansD | mathematical sans-serif capital d |
| U+1D5A4 | E | E | E | E | E |   | \msansE | mathematical sans-serif capital e |
| U+1D5A5 | F | F | F | F | F |   | \msansF | mathematical sans-serif capital f |
| U+1D5A6 | G | G | G | G | G |   | \msansG | mathematical sans-serif capital g |
| U+1D5A7 | H | H | H | H | H |   | \msansH | mathematical sans-serif capital h |
| U+1D5A8 | I | I | I | I | I |   | \msansI | mathematical sans-serif capital i |
| U+1D5A9 | J | J | J | J | J |   | \msansJ | mathematical sans-serif capital j |
| U+1D5AA | K | K | K | K | K |   | \msansK | mathematical sans-serif capital k |
| U+1D5AB | L | L | L | L | L |   | \msansL | mathematical sans-serif capital l |
| U+1D5AC | M | M | M | M | M |   | \msansM | mathematical sans-serif capital m |
| U+1D5AD | N | N | N | N | N |   | \msansN | mathematical sans-serif capital n |
| U+1D5AE | O | O | O | O | O |   | \msansO | mathematical sans-serif capital o |
| U+1D5AF | P | P | P | P | P |   | \msansP | mathematical sans-serif capital p |
| U+1D5B0 | Q | Q | Q | Q | Q |   | \msansQ | mathematical sans-serif capital q |
| U+1D5B1 | R | R | R | R | R |   | \msansR | mathematical sans-serif capital r |
| U+1D5B2 | S | S | S | S | S |   | \msansS | mathematical sans-serif capital s |
| U+1D5B3 | T | T | T | T | T |   | \msansT | mathematical sans-serif capital t |
| U+1D5B4 | U | U | U | U | U |   | \msansU | mathematical sans-serif capital u |
| U+1D5B5 | V | V | V | V | V |   | \msansV | mathematical sans-serif capital v |
| U+1D5B6 | W | W | W | W | W |   | \msansW | mathematical sans-serif capital w |

| USV     | L | X | S | P | D | F | Macro   | Description                       |
|---------|---|---|---|---|---|---|---------|-----------------------------------|
| U+1D5B7 | X | X | X | X | X |   | \msansX | mathematical sans-serif capital x |
| U+1D5B8 | Y | Y | Y | Y | Y |   | \msansY | mathematical sans-serif capital y |
| U+1D5B9 | Z | Z | Z | Z | Z |   | \msansZ | mathematical sans-serif capital z |

### 13.1.14 Sans serif, Latin, lowercase

| USV     | L | X | S | P | D | F | Macro   | Description                     |
|---------|---|---|---|---|---|---|---------|---------------------------------|
| U+1D5BA | a | a | a | a | a |   | \msansa | mathematical sans-serif small a |
| U+1D5BB | b | b | b | b | b |   | \msansb | mathematical sans-serif small b |
| U+1D5BC | c | c | c | c | c |   | \msansc | mathematical sans-serif small c |
| U+1D5BD | d | d | d | d | d |   | \msansd | mathematical sans-serif small d |
| U+1D5BE | e | e | e | e | e |   | \msanse | mathematical sans-serif small e |
| U+1D5BF | f | f | f | f | f |   | \msansf | mathematical sans-serif small f |
| U+1D5C0 | g | g | g | g | g |   | \msansg | mathematical sans-serif small g |
| U+1D5C1 | h | h | h | h | h |   | \msansh | mathematical sans-serif small h |
| U+1D5C2 | i | i | i | i | i |   | \msansi | mathematical sans-serif small i |
| U+1D5C3 | j | j | j | j | j |   | \msansj | mathematical sans-serif small j |
| U+1D5C4 | k | k | k | k | k |   | \msansk | mathematical sans-serif small k |
| U+1D5C5 | l | l | l | l | l |   | \msansl | mathematical sans-serif small l |
| U+1D5C6 | m | m | m | m | m |   | \msansm | mathematical sans-serif small m |
| U+1D5C7 | n | n | n | n | n |   | \msansn | mathematical sans-serif small n |
| U+1D5C8 | o | o | o | o | o |   | \msanso | mathematical sans-serif small o |
| U+1D5C9 | p | p | p | p | p |   | \msansp | mathematical sans-serif small p |
| U+1D5CA | q | q | q | q | q |   | \msansq | mathematical sans-serif small q |
| U+1D5CB | r | r | r | r | r |   | \msansr | mathematical sans-serif small r |

| USV     | L | X | S | P | D | F | Macro   | Description                     |
|---------|---|---|---|---|---|---|---------|---------------------------------|
| U+1D5CC | s | s | s | s | s |   | \msanss | mathematical sans-serif small s |
| U+1D5CD | t | t | t | t | t |   | \msanst | mathematical sans-serif small t |
| U+1D5CE | u | u | u | u | u |   | \msansu | mathematical sans-serif small u |
| U+1D5CF | v | v | v | v | v |   | \msansv | mathematical sans-serif small v |
| U+1D5D0 | w | w | w | w | w |   | \msansw | mathematical sans-serif small w |
| U+1D5D1 | x | x | x | x | x |   | \msansx | mathematical sans-serif small x |
| U+1D5D2 | y | y | y | y | y |   | \msansy | mathematical sans-serif small y |
| U+1D5D3 | z | z | z | z | z |   | \msansz | mathematical sans-serif small z |

### 13.1.15 Italic sans serif, Latin, uppercase

| USV     | L | X | S | P | D | F | Macro     | Description                              |
|---------|---|---|---|---|---|---|-----------|--|
| U+1D608 | A | A | A | A | A |   | \mitsansA | mathematical sans-serif italic capital a |
| U+1D609 | B | B | B | B | B |   | \mitsansB | mathematical sans-serif italic capital b |
| U+1D60A | C | C | C | C | C |   | \mitsansC | mathematical sans-serif italic capital c |
| U+1D60B | D | D | D | D | D |   | \mitsansD | mathematical sans-serif italic capital d |
| U+1D60C | E | E | E | E | E |   | \mitsansE | mathematical sans-serif italic capital e |
| U+1D60D | F | F | F | F | F |   | \mitsansF | mathematical sans-serif italic capital f |
| U+1D60E | G | G | G | G | G |   | \mitsansG | mathematical sans-serif italic capital g |
| U+1D60F | H | H | H | H | H |   | \mitsansH | mathematical sans-serif italic capital h |
| U+1D610 | I | I | I | I | I |   | \mitsansI | mathematical sans-serif italic capital i |
| U+1D611 | J | J | J | J | J |   | \mitsansJ | mathematical sans-serif italic capital j |
| U+1D612 | K | K | K | K | K |   | \mitsansK | mathematical sans-serif italic capital k |
| U+1D613 | L | L | L | L | L |   | \mitsansL | mathematical sans-serif italic capital l |
| U+1D614 | M | M | M | M | M |   | \mitsansM | mathematical sans-serif italic capital m |

| USV     | L | X | S | P | D | F | Macro     | Description                              |
|---------|---|---|---|---|---|---|-----------|--|
| U+1D615 | N | N | N | N | N |   | \mitsansN | mathematical sans-serif italic capital n |
| U+1D616 | O | O | O | O | O |   | \mitsansO | mathematical sans-serif italic capital o |
| U+1D617 | P | P | P | P | P |   | \mitsansP | mathematical sans-serif italic capital p |
| U+1D618 | Q | Q | Q | Q | Q |   | \mitsansQ | mathematical sans-serif italic capital q |
| U+1D619 | R | R | R | R | R |   | \mitsansR | mathematical sans-serif italic capital r |
| U+1D61A | S | S | S | S | S |   | \mitsansS | mathematical sans-serif italic capital s |
| U+1D61B | T | T | T | T | T |   | \mitsansT | mathematical sans-serif italic capital t |
| U+1D61C | U | U | U | U | U |   | \mitsansU | mathematical sans-serif italic capital u |
| U+1D61D | V | V | V | V | V |   | \mitsansV | mathematical sans-serif italic capital v |
| U+1D61E | W | W | W | W | W |   | \mitsansW | mathematical sans-serif italic capital w |
| U+1D61F | X | X | X | X | X |   | \mitsansX | mathematical sans-serif italic capital x |
| U+1D620 | Y | Y | Y | Y | Y |   | \mitsansY | mathematical sans-serif italic capital y |
| U+1D621 | Z | Z | Z | Z | Z |   | \mitsansZ | mathematical sans-serif italic capital z |

### 13.1.16 Italic sans serif, Latin, lowercase

| USV     | L | X | S | P | D | F | Macro     | Description                            |
|---------|---|---|---|---|---|---|-----------|--|
| U+1D622 | a | a | a | a | a |   | \mitsansa | mathematical sans-serif italic small a |
| U+1D623 | b | b | b | b | b |   | \mitsansb | mathematical sans-serif italic small b |
| U+1D624 | c | c | c | c | c |   | \mitsansc | mathematical sans-serif italic small c |
| U+1D625 | d | d | d | d | d |   | \mitsansd | mathematical sans-serif italic small d |
| U+1D626 | e | e | e | e | e |   | \mitsanse | mathematical sans-serif italic small e |
| U+1D627 | f | f | f | f | f |   | \mitsansf | mathematical sans-serif italic small f |
| U+1D628 | g | g | g | g | g |   | \mitsansg | mathematical sans-serif italic small g |
| U+1D629 | h | h | h | h | h |   | \mitsansh | mathematical sans-serif italic small h |

| USV     | L | X | S | P | D | F | Macro     | Description                            |
|---------|---|---|---|---|---|---|-----------|--|
| U+1D62A | i | i | i | i | i |   | \mitsansi | mathematical sans-serif italic small i |
| U+1D62B | j | j | j | j | j |   | \mitsansj | mathematical sans-serif italic small j |
| U+1D62C | k | k | k | k | k |   | \mitsansk | mathematical sans-serif italic small k |
| U+1D62D | l | l | l | l | l |   | \mitsansl | mathematical sans-serif italic small l |
| U+1D62E | m | m | m | m | m |   | \mitsansm | mathematical sans-serif italic small m |
| U+1D62F | n | n | n | n | n |   | \mitsansn | mathematical sans-serif italic small n |
| U+1D630 | o | o | o | o | o |   | \mitsanso | mathematical sans-serif italic small o |
| U+1D631 | p | p | p | p | p |   | \mitsansp | mathematical sans-serif italic small p |
| U+1D632 | q | q | q | q | q |   | \mitsansq | mathematical sans-serif italic small q |
| U+1D633 | r | r | r | r | r |   | \mitsansr | mathematical sans-serif italic small r |
| U+1D634 | s | s | s | s | s |   | \mitsanss | mathematical sans-serif italic small s |
| U+1D635 | t | t | t | t | t |   | \mitsanst | mathematical sans-serif italic small t |
| U+1D636 | u | u | u | u | u |   | \mitsansu | mathematical sans-serif italic small u |
| U+1D637 | v | v | v | v | v |   | \mitsansv | mathematical sans-serif italic small v |
| U+1D638 | w | w | w | w | w |   | \mitsansw | mathematical sans-serif italic small w |
| U+1D639 | x | x | x | x | x |   | \mitsansx | mathematical sans-serif italic small x |
| U+1D63A | y | y | y | y | y |   | \mitsansy | mathematical sans-serif italic small y |
| U+1D63B | z | z | z | z | z |   | \mitsansz | mathematical sans-serif italic small z |

### 13.1.17 Typewriter, Latin, uppercase

| USV     | L | X | S | P | D | F | Macro | Description                      |
|---------|---|---|---|---|---|---|-------|----------------------------------|
| U+1D670 | A | A | A | A | A | A | \mttA | mathematical monospace capital a |
| U+1D671 | B | B | B | B | B | B | \mttB | mathematical monospace capital b |
| U+1D672 | C | C | C | C | C | C | \mttC | mathematical monospace capital c |

| USV     | L | X | S | P | D | F | Macro | Description                      |
|---------|---|---|---|---|---|---|-------|----------------------------------|
| U+1D673 | D | D | D | D | D | D | \mttD | mathematical monospace capital d |
| U+1D674 | E | E | E | E | E | E | \mttE | mathematical monospace capital e |
| U+1D675 | F | F | F | F | F | F | \mttF | mathematical monospace capital f |
| U+1D676 | G | G | G | G | G | G | \mttG | mathematical monospace capital g |
| U+1D677 | H | H | H | H | H | H | \mttH | mathematical monospace capital h |
| U+1D678 | I | I | I | I | I | I | \mttI | mathematical monospace capital i |
| U+1D679 | J | J | J | J | J | J | \mttJ | mathematical monospace capital j |
| U+1D67A | K | K | K | K | K | K | \mttK | mathematical monospace capital k |
| U+1D67B | L | L | L | L | L | L | \mttL | mathematical monospace capital l |
| U+1D67C | M | M | M | M | M | M | \mttM | mathematical monospace capital m |
| U+1D67D | N | N | N | N | N | N | \mttN | mathematical monospace capital n |
| U+1D67E | O | O | O | O | O | O | \mttO | mathematical monospace capital o |
| U+1D67F | P | P | P | P | P | P | \mttP | mathematical monospace capital p |
| U+1D680 | Q | Q | Q | Q | Q | Q | \mttQ | mathematical monospace capital q |
| U+1D681 | R | R | R | R | R | R | \mttR | mathematical monospace capital r |
| U+1D682 | S | S | S | S | S | S | \mttS | mathematical monospace capital s |
| U+1D683 | T | T | T | T | T | T | \mttT | mathematical monospace capital t |
| U+1D684 | U | U | U | U | U | U | \mttU | mathematical monospace capital u |
| U+1D685 | V | V | V | V | V | V | \mttV | mathematical monospace capital v |
| U+1D686 | W | W | W | W | W | W | \mttW | mathematical monospace capital w |
| U+1D687 | X | X | X | X | X | X | \mttX | mathematical monospace capital x |
| U+1D688 | Y | Y | Y | Y | Y | Y | \mttY | mathematical monospace capital y |
| U+1D689 | Z | Z | Z | Z | Z | Z | \mttZ | mathematical monospace capital z |

### 13.1.18 Typewriter, Latin, lowercase

| USV     | L | X | S | P | D | F | Macro | Description                    |
|---------|---|---|---|---|---|---|-------|--------------------------------|
| U+1D68A | a | a | a | a | a | a | \mtta | mathematical monospace small a |
| U+1D68B | b | b | b | b | b | b | \mttb | mathematical monospace small b |
| U+1D68C | c | c | c | c | c | c | \mttc | mathematical monospace small c |
| U+1D68D | d | d | d | d | d | d | \mttd | mathematical monospace small d |
| U+1D68E | e | e | e | e | e | e | \mtte | mathematical monospace small e |
| U+1D68F | f | f | f | f | f | f | \mttf | mathematical monospace small f |
| U+1D690 | g | g | g | g | g | g | \mttg | mathematical monospace small g |
| U+1D691 | h | h | h | h | h | h | \mtth | mathematical monospace small h |
| U+1D692 | i | i | i | i | i | i | \mtti | mathematical monospace small i |
| U+1D693 | j | j | j | j | j | j | \mttj | mathematical monospace small j |
| U+1D694 | k | k | k | k | k | k | \mttk | mathematical monospace small k |
| U+1D695 | l | l | l | l | l | l | \mttl | mathematical monospace small l |
| U+1D696 | m | m | m | m | m | m | \mttm | mathematical monospace small m |
| U+1D697 | n | n | n | n | n | n | \mttn | mathematical monospace small n |
| U+1D698 | o | o | o | o | o | o | \mtto | mathematical monospace small o |
| U+1D699 | p | p | p | p | p | p | \mttp | mathematical monospace small p |
| U+1D69A | q | q | q | q | q | q | \mttq | mathematical monospace small q |
| U+1D69B | r | r | r | r | r | r | \mttr | mathematical monospace small r |
| U+1D69C | s | s | s | s | s | s | \mtts | mathematical monospace small s |
| U+1D69D | t | t | t | t | t | t | \mttt | mathematical monospace small t |
| U+1D69E | u | u | u | u | u | u | \mttu | mathematical monospace small u |
| U+1D69F | v | v | v | v | v | v | \mttv | mathematical monospace small v |
| U+1D6AO | w | w | w | w | w | w | \mttw | mathematical monospace small w |

| USV     | L | X | S | P | D | F | Macro | Description                    |
|---------|---|---|---|---|---|---|-------|--------------------------------|
| U+1D6A1 | x | x | x | x | x | x | \mttx | mathematical monospace small x |
| U+1D6A2 | y | y | y | y | y | y | \mtty | mathematical monospace small y |
| U+1D6A3 | z | z | z | z | z | z | \mttz | mathematical monospace small z |

## 13.2 Bold

### 13.2.1 Bold, Latin, uppercase

| USV     | L | X | S | P | D | F | Macro | Description                 |
|---------|---|---|---|---|---|---|-------|-----------------------------|
| U+1D400 | A | A | A | A | A | A | \mbfA | mathematical bold capital a |
| U+1D401 | B | B | B | B | B | B | \mbfB | mathematical bold capital b |
| U+1D402 | C | C | C | C | C | C | \mbfC | mathematical bold capital c |
| U+1D403 | D | D | D | D | D | D | \mbfD | mathematical bold capital d |
| U+1D404 | E | E | E | E | E | E | \mbfE | mathematical bold capital e |
| U+1D405 | F | F | F | F | F | F | \mbfF | mathematical bold capital f |
| U+1D406 | G | G | G | G | G | G | \mbfG | mathematical bold capital g |
| U+1D407 | H | H | H | H | H | H | \mbfH | mathematical bold capital h |
| U+1D408 | I | I | I | I | I | I | \mbfI | mathematical bold capital i |
| U+1D409 | J | J | J | J | J | J | \mbfJ | mathematical bold capital j |
| U+1D40A | K | K | K | K | K | K | \mbfK | mathematical bold capital k |
| U+1D40B | L | L | L | L | L | L | \mbfL | mathematical bold capital l |
| U+1D40C | M | M | M | M | M | M | \mbfM | mathematical bold capital m |
| U+1D40D | N | N | N | N | N | N | \mbfN | mathematical bold capital n |
| U+1D40E | O | O | O | O | O | O | \mbfO | mathematical bold capital o |
| U+1D40F | P | P | P | P | P | P | \mbfP | mathematical bold capital p |
| U+1D410 | Q | Q | Q | Q | Q | Q | \mbfQ | mathematical bold capital q |

| USV     | L | X | S | P | D | F | Macro | Description                 |
|---------|---|---|---|---|---|---|-------|-----------------------------|
| U+1D411 | R | R | R | R | R | R | \mbfR | mathematical bold capital r |
| U+1D412 | S | S | S | S | S | S | \mbfS | mathematical bold capital s |
| U+1D413 | T | T | T | T | T | T | \mbfT | mathematical bold capital t |
| U+1D414 | U | U | U | U | U | U | \mbfU | mathematical bold capital u |
| U+1D415 | V | V | V | V | V | V | \mbfV | mathematical bold capital v |
| U+1D416 | W | W | W | W | W | W | \mbfW | mathematical bold capital w |
| U+1D417 | X | X | X | X | X | X | \mbfX | mathematical bold capital x |
| U+1D418 | Y | Y | Y | Y | Y | Y | \mbfY | mathematical bold capital y |
| U+1D419 | Z | Z | Z | Z | Z | Z | \mbfZ | mathematical bold capital z |

### 13.2.2 Bold, Latin, lowercase

| USV     | L | X | S | P | D | F | Macro | Description               |
|---------|---|---|---|---|---|---|-------|---------------------------|
| U+1D41A | a | a | a | a | a | a | \mbfa | mathematical bold small a |
| U+1D41B | b | b | b | b | b | b | \mbfb | mathematical bold small b |
| U+1D41C | c | c | c | c | c | c | \mbfc | mathematical bold small c |
| U+1D41D | d | d | d | d | d | d | \mbfd | mathematical bold small d |
| U+1D41E | e | e | e | e | e | e | \mbfe | mathematical bold small e |
| U+1D41F | f | f | f | f | f | f | \mbff | mathematical bold small f |
| U+1D420 | g | g | g | g | g | g | \mbfg | mathematical bold small g |
| U+1D421 | h | h | h | h | h | h | \mbfh | mathematical bold small h |
| U+1D422 | i | i | i | i | i | i | \mbfi | mathematical bold small i |
| U+1D423 | j | j | j | j | j | j | \mbfj | mathematical bold small j |
| U+1D424 | k | k | k | k | k | k | \mbfk | mathematical bold small k |
| U+1D425 | l | l | l | l | l | l | \mbfl | mathematical bold small l |

| USV     | L        | X        | S        | P        | D        | F        | Macro   | Description               |
|---------|----------|----------|----------|----------|----------|----------|---------|---------------------------|
| U+1D426 | <b>m</b> | <b>m</b> | <b>m</b> | <b>m</b> | <b>m</b> | <b>m</b> | \mbf{m} | mathematical bold small m |
| U+1D427 | <b>n</b> | <b>n</b> | <b>n</b> | <b>n</b> | <b>n</b> | <b>n</b> | \mbf{n} | mathematical bold small n |
| U+1D428 | <b>o</b> | <b>o</b> | <b>o</b> | <b>o</b> | <b>o</b> | <b>o</b> | \mbf{o} | mathematical bold small o |
| U+1D429 | <b>p</b> | <b>p</b> | <b>p</b> | <b>p</b> | <b>p</b> | <b>p</b> | \mbf{p} | mathematical bold small p |
| U+1D42A | <b>q</b> | <b>q</b> | <b>q</b> | <b>q</b> | <b>q</b> | <b>q</b> | \mbf{q} | mathematical bold small q |
| U+1D42B | <b>r</b> | <b>r</b> | <b>r</b> | <b>r</b> | <b>r</b> | <b>r</b> | \mbf{r} | mathematical bold small r |
| U+1D42C | <b>s</b> | <b>s</b> | <b>s</b> | <b>s</b> | <b>s</b> | <b>s</b> | \mbf{s} | mathematical bold small s |
| U+1D42D | <b>t</b> | <b>t</b> | <b>t</b> | <b>t</b> | <b>t</b> | <b>t</b> | \mbf{t} | mathematical bold small t |
| U+1D42E | <b>u</b> | <b>u</b> | <b>u</b> | <b>u</b> | <b>u</b> | <b>u</b> | \mbf{u} | mathematical bold small u |
| U+1D42F | <b>v</b> | <b>v</b> | <b>v</b> | <b>v</b> | <b>v</b> | <b>v</b> | \mbf{v} | mathematical bold small v |
| U+1D430 | <b>w</b> | <b>w</b> | <b>w</b> | <b>w</b> | <b>w</b> | <b>w</b> | \mbf{w} | mathematical bold small w |
| U+1D431 | <b>x</b> | <b>x</b> | <b>x</b> | <b>x</b> | <b>x</b> | <b>x</b> | \mbf{x} | mathematical bold small x |
| U+1D432 | <b>y</b> | <b>y</b> | <b>y</b> | <b>y</b> | <b>y</b> | <b>y</b> | \mbf{y} | mathematical bold small y |
| U+1D433 | <b>z</b> | <b>z</b> | <b>z</b> | <b>z</b> | <b>z</b> | <b>z</b> | \mbf{z} | mathematical bold small z |

### 13.2.3 Bold Greek, uppercase

| USV     | L        | X        | S        | P        | D        | F        | Macro         | Description                       |
|---------|----------|----------|----------|----------|----------|----------|---------------|-----------------------------------|
| U+1D6A8 | <b>A</b> | <b>A</b> | <b>A</b> | <b>A</b> | <b>A</b> | <b>A</b> | \mbf{Alpha}   | mathematical bold capital alpha   |
| U+1D6A9 | <b>B</b> | <b>B</b> | <b>B</b> | <b>B</b> | <b>B</b> | <b>B</b> | \mbf{Beta}    | mathematical bold capital beta    |
| U+1D6AA | <b>Γ</b> | <b>Γ</b> | <b>Γ</b> | <b>Γ</b> | <b>Γ</b> | <b>Γ</b> | \mbf{Gamma}   | mathematical bold capital gamma   |
| U+1D6AB | <b>Δ</b> | <b>Δ</b> | <b>Δ</b> | <b>Δ</b> | <b>Δ</b> | <b>Δ</b> | \mbf{Delta}   | mathematical bold capital delta   |
| U+1D6AC | <b>Ε</b> | <b>Ε</b> | <b>Ε</b> | <b>Ε</b> | <b>Ε</b> | <b>Ε</b> | \mbf{Epsilon} | mathematical bold capital epsilon |
| U+1D6AD | <b>Ζ</b> | <b>Ζ</b> | <b>Ζ</b> | <b>Ζ</b> | <b>Ζ</b> | <b>Ζ</b> | \mbf{Zeta}    | mathematical bold capital zeta    |
| U+1D6AE | <b>Η</b> | <b>Η</b> | <b>Η</b> | <b>Η</b> | <b>Η</b> | <b>Η</b> | \mbf{Eta}     | mathematical bold capital eta     |

| USV     | L | X | S | P | D | F | Macro        | Description                            |
|---------|---|---|---|---|---|---|--------------|--|
| U+1D6AF | Θ | Θ | Θ | Θ | Θ | Θ | \mbfTheta    | mathematical bold capital theta        |
| U+1D6B0 | I | I | I | I | I | I | \mbfIota     | mathematical bold capital iota         |
| U+1D6B1 | K | K | K | K | K | K | \mbfKappa    | mathematical bold capital kappa        |
| U+1D6B2 | Λ | Λ | Λ | Λ | Λ | Λ | \mbfLambda   | mathematical bold capital lambda       |
| U+1D6B3 | M | M | M | M | M | M | \mbfMu       | mathematical bold capital mu           |
| U+1D6B4 | N | N | N | N | N | N | \mbfNu       | mathematical bold capital nu           |
| U+1D6B5 | Ξ | Ξ | Ξ | Ξ | Ξ | Ξ | \mbfXi       | mathematical bold capital xi           |
| U+1D6B6 | Ο | Ο | Ο | Ο | Ο | Ο | \mbfOmicron  | mathematical bold capital omicron      |
| U+1D6B7 | Π | Π | Π | Π | Π | Π | \mbfPi       | mathematical bold capital pi           |
| U+1D6B8 | Ρ | Ρ | Ρ | Ρ | Ρ | Ρ | \mbfRho      | mathematical bold capital rho          |
| U+1D6B9 | Θ | Θ | Θ | Θ | Θ | Θ | \mbfvarTheta | mathematical bold capital theta symbol |
| U+1D6BA | Σ | Σ | Σ | Σ | Σ | Σ | \mbfSigma    | mathematical bold capital sigma        |
| U+1D6BB | Τ | Τ | Τ | Τ | Τ | Τ | \mbfTau      | mathematical bold capital tau          |
| U+1D6BC | Υ | Υ | Υ | Υ | Υ | Υ | \mbfUpsilon  | mathematical bold capital upsilon      |
| U+1D6BD | Φ | Φ | Φ | Φ | Φ | Φ | \mbfPhi      | mathematical bold capital phi          |
| U+1D6BE | Χ | Χ | Χ | Χ | Χ | Χ | \mbfChi      | mathematical bold capital chi          |
| U+1D6BF | Ψ | Ψ | Ψ | Ψ | Ψ | Ψ | \mbfPsi      | mathematical bold capital psi          |
| U+1D6C0 | Ω | Ω | Ω | Ω | Ω | Ω | \mbfOmega    | mathematical bold capital omega        |

#### 13.2.4 Bold Greek, lowercase

| USV     | L | X | S | P | D | F | Macro     | Description                   |
|---------|---|---|---|---|---|---|-----------|-------------------------------|
| U+1D6C2 | α | α | α | α | α | α | \mbfalpha | mathematical bold small alpha |
| U+1D6C3 | β | β | β | β | β | β | \mbfbeta  | mathematical bold small beta  |
| U+1D6C4 | γ | γ | γ | γ | γ | γ | \mbfgamma | mathematical bold small gamma |

| USV     | L | X | S | P | D | F | Macro          | Description                            |
|---------|---|---|---|---|---|---|----------------|--|
| U+1D6C5 | δ | δ | δ | δ | δ | δ | \mbfdelta      | mathematical bold small delta          |
| U+1D6C6 | ε | ε | ε | ε | ε | ε | \mbfvarepsilon | mathematical bold small varepsilon     |
| U+1D6C7 | ζ | ζ | ζ | ζ | ζ | ζ | \mbfzeta       | mathematical bold small zeta           |
| U+1D6C8 | η | η | η | η | η | η | \mbfeta        | mathematical bold small eta            |
| U+1D6C9 | θ | θ | θ | θ | θ | θ | \mbftheta      | mathematical bold small theta          |
| U+1D6CA | ι | ι | ι | ι | ι | ι | \mbfiota       | mathematical bold small iota           |
| U+1D6CB | κ | κ | κ | κ | κ | κ | \mbfkappa      | mathematical bold small kappa          |
| U+1D6CC | λ | λ | λ | λ | λ | λ | \mbflambda     | mathematical bold small lambda         |
| U+1D6CD | μ | μ | μ | μ | μ | μ | \mbfmu         | mathematical bold small mu             |
| U+1D6CE | ν | ν | ν | ν | ν | ν | \mbfnu         | mathematical bold small nu             |
| U+1D6CF | ξ | ξ | ξ | ξ | ξ | ξ | \mbfxi         | mathematical bold small xi             |
| U+1D6D0 | ο | ο | ο | ο | ο | ο | \mbfomicron    | mathematical bold small omicron        |
| U+1D6D1 | π | π | π | π | π | π | \mbfpi         | mathematical bold small pi             |
| U+1D6D2 | ρ | ρ | ρ | ρ | ρ | ρ | \mbfrho        | mathematical bold small rho            |
| U+1D6D3 | ς | ς | ς | ς | ς | ς | \mbfvarsigma   | mathematical bold small final sigma    |
| U+1D6D4 | σ | σ | σ | σ | σ | σ | \mbfsigma      | mathematical bold small sigma          |
| U+1D6D5 | τ | τ | τ | τ | τ | τ | \mbftau        | mathematical bold small tau            |
| U+1D6D6 | υ | υ | υ | υ | υ | υ | \mbfupsilon    | mathematical bold small upsilon        |
| U+1D6D7 | φ | φ | φ | φ | φ | φ | \mbfvarphi     | mathematical bold small phi            |
| U+1D6D8 | χ | χ | χ | χ | χ | χ | \mbfchi        | mathematical bold small chi            |
| U+1D6D9 | ψ | ψ | ψ | ψ | ψ | ψ | \mbfpsi        | mathematical bold small psi            |
| U+1D6DA | ω | ω | ω | ω | ω | ω | \mbfomega      | mathematical bold small omega          |
| U+1D6DB | ∂ | ∂ | ∂ | ∂ | ∂ | ∂ | \mbfpartial    | mathematical bold partial differential |
| U+1D6DC | € | € | € | € | € | € | \mbfepsilon    | mathematical bold varepsilon symbol    |

| USV     | L | X  | S | P | D | F | Macro        | Description                    |
|---------|---|----|---|---|---|---|--------------|--------------------------------|
| U+1D6DD | θ | θ  | θ | θ | θ | θ | \mbfvartheta | mathematical bold theta symbol |
| U+1D6DE | κ | κ  | κ | κ | κ | κ | \mbfvarkappa | mathematical bold kappa symbol |
| U+1D6DF | φ | Φ  | φ | φ | Φ | φ | \mbfphi      | mathematical bold phi symbol   |
| U+1D6EO | ρ | QE | ρ | ρ | ρ | ρ | \mbfvarrho   | mathematical bold rho symbol   |
| U+1D6E1 | ϖ | ϖ  | ϖ | ϖ | ϖ | ϖ | \mbfvarpi    | mathematical bold pi symbol    |

### 13.2.5 Bold italic, Latin, uppercase

| USV     | L | X | S | P | D | F | Macro   | Description                        |
|---------|---|---|---|---|---|---|---------|------------------------------------|
| U+1D468 | A | A | A | A | A | A | \mbfitA | mathematical bold italic capital a |
| U+1D469 | B | B | B | B | B | B | \mbfitB | mathematical bold italic capital b |
| U+1D46A | C | C | C | C | C | C | \mbfitC | mathematical bold italic capital c |
| U+1D46B | D | D | D | D | D | D | \mbfitD | mathematical bold italic capital d |
| U+1D46C | E | E | E | E | E | E | \mbfitE | mathematical bold italic capital e |
| U+1D46D | F | F | F | F | F | F | \mbfitF | mathematical bold italic capital f |
| U+1D46E | G | G | G | G | G | G | \mbfitG | mathematical bold italic capital g |
| U+1D46F | H | H | H | H | H | H | \mbfitH | mathematical bold italic capital h |
| U+1D470 | I | I | I | I | I | I | \mbfitI | mathematical bold italic capital i |
| U+1D471 | J | J | J | J | J | J | \mbfitJ | mathematical bold italic capital j |
| U+1D472 | K | K | K | K | K | K | \mbfitK | mathematical bold italic capital k |
| U+1D473 | L | L | L | L | L | L | \mbfitL | mathematical bold italic capital l |
| U+1D474 | M | M | M | M | M | M | \mbfitM | mathematical bold italic capital m |
| U+1D475 | N | N | N | N | N | N | \mbfitN | mathematical bold italic capital n |
| U+1D476 | O | O | O | O | O | O | \mbfitO | mathematical bold italic capital o |
| U+1D477 | P | P | P | P | P | P | \mbfitP | mathematical bold italic capital p |

| USV     | L | X | S | P | D | F | Macro   | Description                        |
|---------|---|---|---|---|---|---|---------|------------------------------------|
| U+1D478 | Q | Q | Q | Q | Q | Q | \mbfitQ | mathematical bold italic capital q |
| U+1D479 | R | R | R | R | R | R | \mbfitR | mathematical bold italic capital r |
| U+1D47A | S | S | S | S | S | S | \mbfitS | mathematical bold italic capital s |
| U+1D47B | T | T | T | T | T | T | \mbfitT | mathematical bold italic capital t |
| U+1D47C | U | U | U | U | U | U | \mbfitU | mathematical bold italic capital u |
| U+1D47D | V | V | V | V | V | V | \mbfitV | mathematical bold italic capital v |
| U+1D47E | W | W | W | W | W | W | \mbfitW | mathematical bold italic capital w |
| U+1D47F | X | X | X | X | X | X | \mbfitX | mathematical bold italic capital x |
| U+1D480 | Y | Y | Y | Y | Y | Y | \mbfitY | mathematical bold italic capital y |
| U+1D481 | Z | Z | Z | Z | Z | Z | \mbfitZ | mathematical bold italic capital z |

### 13.2.6 Bold italic, Latin, lowercase

| USV     | L | X | S | P | D | F | Macro   | Description                      |
|---------|---|---|---|---|---|---|---------|----------------------------------|
| U+1D482 | a | a | a | a | a | a | \mbfita | mathematical bold italic small a |
| U+1D483 | b | b | b | b | b | b | \mbfitb | mathematical bold italic small b |
| U+1D484 | c | c | c | c | c | c | \mbfitc | mathematical bold italic small c |
| U+1D485 | d | d | d | d | d | d | \mbfitd | mathematical bold italic small d |
| U+1D486 | e | e | e | e | e | e | \mbfite | mathematical bold italic small e |
| U+1D487 | f | f | f | f | f | f | \mbfitf | mathematical bold italic small f |
| U+1D488 | g | g | g | g | g | g | \mbfitg | mathematical bold italic small g |
| U+1D489 | h | h | h | h | h | h | \mbfith | mathematical bold italic small h |
| U+1D48A | i | i | i | i | i | i | \mbfiti | mathematical bold italic small i |
| U+1D48B | j | j | j | j | j | j | \mbfitj | mathematical bold italic small j |
| U+1D48C | k | k | k | k | k | k | \mbfitk | mathematical bold italic small k |

| USV     | L | X | S | P | D | F | Macro   | Description                      |
|---------|---|---|---|---|---|---|---------|----------------------------------|
| U+1D48D | l | l | l | l | l | l | \mbfitl | mathematical bold italic small l |
| U+1D48E | m | m | m | m | m | m | \mbfitm | mathematical bold italic small m |
| U+1D48F | n | n | n | n | n | n | \mbfitn | mathematical bold italic small n |
| U+1D490 | o | o | o | o | o | o | \mbfito | mathematical bold italic small o |
| U+1D491 | p | p | p | p | p | p | \mbfitp | mathematical bold italic small p |
| U+1D492 | q | q | q | q | q | q | \mbfitq | mathematical bold italic small q |
| U+1D493 | r | r | r | r | r | r | \mbfitr | mathematical bold italic small r |
| U+1D494 | s | s | s | s | s | s | \mbfits | mathematical bold italic small s |
| U+1D495 | t | t | t | t | t | t | \mbfitt | mathematical bold italic small t |
| U+1D496 | u | u | u | u | u | u | \mbfitu | mathematical bold italic small u |
| U+1D497 | v | v | v | v | v | v | \mbfitv | mathematical bold italic small v |
| U+1D498 | w | w | w | w | w | w | \mbfitw | mathematical bold italic small w |
| U+1D499 | x | x | x | x | x | x | \mbfitx | mathematical bold italic small x |
| U+1D49A | y | y | y | y | y | y | \mbfity | mathematical bold italic small y |
| U+1D49B | z | z | z | z | z | z | \mbfitz | mathematical bold italic small z |

### 13.2.7 Bold italic Greek, uppercase

| USV     | L | X | S | P | D | F | Macro         | Description                              |
|---------|---|---|---|---|---|---|---------------|--|
| U+1D71C | A | A | A | A | A | A | \mbfitAlpha   | mathematical bold italic capital alpha   |
| U+1D71D | B | B | B | B | B | B | \mbfitBeta    | mathematical bold italic capital beta    |
| U+1D71E | Γ | Γ | Γ | Γ | Γ | Γ | \mbfitGamma   | mathematical bold italic capital gamma   |
| U+1D71F | Δ | Δ | Δ | Δ | Δ | Δ | \mbfitDelta   | mathematical bold italic capital delta   |
| U+1D720 | Ε | Ε | Ε | Ε | Ε | Ε | \mbfitEpsilon | mathematical bold italic capital epsilon |
| U+1D721 | Ζ | Ζ | Ζ | Ζ | Ζ | Ζ | \mbfitZeta    | mathematical bold italic capital zeta    |

| USV     | L         | X         | S         | P         | D         | F         | Macro          | Description                                   |
|---------|-----------|-----------|-----------|-----------|-----------|-----------|----------------|---|
| U+1D722 | <b>H</b>  | <b>H</b>  | <b>H</b>  | <b>H</b>  | <b>H</b>  | <b>H</b>  | \mbfitEta      | mathematical bold italic capital eta          |
| U+1D723 | <b>Θ</b>  | <b>Θ</b>  | <b>Θ</b>  | <b>Θ</b>  | <b>Θ</b>  | <b>Θ</b>  | \mbfitTheta    | mathematical bold italic capital theta        |
| U+1D724 | <b>I</b>  | <b>I</b>  | <b>I</b>  | <b>I</b>  | <b>I</b>  | <b>I</b>  | \mbfitIota     | mathematical bold italic capital iota         |
| U+1D725 | <b>K</b>  | <b>K</b>  | <b>K</b>  | <b>K</b>  | <b>K</b>  | <b>K</b>  | \mbfitKappa    | mathematical bold italic capital kappa        |
| U+1D726 | <b>Λ</b>  | <b>Λ</b>  | <b>Λ</b>  | <b>Λ</b>  | <b>Λ</b>  | <b>Λ</b>  | \mbfitLambda   | mathematical bold italic capital lambda       |
| U+1D727 | <b>M</b>  | <b>M</b>  | <b>M</b>  | <b>M</b>  | <b>M</b>  | <b>M</b>  | \mbfitMu       | mathematical bold italic capital mu           |
| U+1D728 | <b>N</b>  | <b>N</b>  | <b>N</b>  | <b>N</b>  | <b>N</b>  | <b>N</b>  | \mbfitNu       | mathematical bold italic capital nu           |
| U+1D729 | <b>Ξ</b>  | <b>Ξ</b>  | <b>Ξ</b>  | <b>Ξ</b>  | <b>Ξ</b>  | <b>Ξ</b>  | \mbfitXi       | mathematical bold italic capital xi           |
| U+1D72A | <b>Ο</b>  | <b>Ο</b>  | <b>Ο</b>  | <b>Ο</b>  | <b>Ο</b>  | <b>Ο</b>  | \mbfitOmicron  | mathematical bold italic capital omicron      |
| U+1D72B | <b>Π</b>  | <b>Π</b>  | <b>Π</b>  | <b>Π</b>  | <b>Π</b>  | <b>Π</b>  | \mbfitPi       | mathematical bold italic capital pi           |
| U+1D72C | <b>Ρ</b>  | <b>Ρ</b>  | <b>Ρ</b>  | <b>Ρ</b>  | <b>Ρ</b>  | <b>Ρ</b>  | \mbfitRho      | mathematical bold italic capital rho          |
| U+1D72D | <b>Θ̄</b> | <b>Θ̄</b> | <b>Θ̄</b> | <b>Θ̄</b> | <b>Θ̄</b> | <b>Θ̄</b> | \mbfitvarTheta | mathematical bold italic capital theta symbol |
| U+1D72E | <b>Σ̄</b> | <b>Σ̄</b> | <b>Σ̄</b> | <b>Σ̄</b> | <b>Σ̄</b> | <b>Σ̄</b> | \mbfitSigma    | mathematical bold italic capital sigma        |
| U+1D72F | <b>Τ̄</b> | <b>Τ̄</b> | <b>Τ̄</b> | <b>Τ̄</b> | <b>Τ̄</b> | <b>Τ̄</b> | \mbfitTau      | mathematical bold italic capital tau          |
| U+1D730 | <b>Ῡ</b> | <b>Ῡ</b> | <b>Ῡ</b> | <b>Ῡ</b> | <b>Ῡ</b> | <b>Ῡ</b> | \mbfitUpsilon  | mathematical bold italic capital upsilon      |
| U+1D731 | <b>Φ̄</b> | <b>Φ̄</b> | <b>Φ̄</b> | <b>Φ̄</b> | <b>Φ̄</b> | <b>Φ̄</b> | \mbfitPhi      | mathematical bold italic capital phi          |
| U+1D732 | <b>Χ̄</b> | <b>Χ̄</b> | <b>Χ̄</b> | <b>Χ̄</b> | <b>Χ̄</b> | <b>Χ̄</b> | \mbfitChi      | mathematical bold italic capital chi          |
| U+1D733 | <b>Ψ̄</b> | <b>Ψ̄</b> | <b>Ψ̄</b> | <b>Ψ̄</b> | <b>Ψ̄</b> | <b>Ψ̄</b> | \mbfitPsi      | mathematical bold italic capital psi          |
| U+1D734 | <b>Ω̄</b> | <b>Ω̄</b> | <b>Ω̄</b> | <b>Ω̄</b> | <b>Ω̄</b> | <b>Ω̄</b> | \mbfitOmega    | mathematical bold italic capital omega        |

### 13.2.8 Bold italic Greek, lowercase

| USV     | L         | X         | S         | P         | D         | F         | Macro       | Description                          |
|---------|-----------|-----------|-----------|-----------|-----------|-----------|-------------|--------------------------------------|
| U+1D736 | <b>ᾱ</b> | <b>ᾱ</b> | <b>ᾱ</b> | <b>ᾱ</b> | <b>ᾱ</b> | <b>ᾱ</b> | \mbfitalpha | mathematical bold italic small alpha |
| U+1D737 | <b>β̄</b> | <b>β̄</b> | <b>β̄</b> | <b>β̄</b> | <b>β̄</b> | <b>β̄</b> | \mbfitbeta  | mathematical bold italic small beta  |

| USV     | L | X | S | P | D | F | Macro            | Description                                   |
|---------|---|---|---|---|---|---|------------------|---|
| U+1D738 | γ | γ | γ | γ | γ | γ | \mbfitgamma      | mathematical bold italic small gamma          |
| U+1D739 | δ | δ | δ | δ | δ | δ | \mbfitdelta      | mathematical bold italic small delta          |
| U+1D73A | ε | ε | ε | ε | ε | ε | \mbfitvarepsilon | mathematical bold italic small varepsilon     |
| U+1D73B | ζ | ζ | ζ | ζ | ζ | ζ | \mbfitzeta       | mathematical bold italic small zeta           |
| U+1D73C | η | η | η | η | η | η | \mbfiteta        | mathematical bold italic small eta            |
| U+1D73D | θ | θ | θ | θ | θ | θ | \mbfittheta      | mathematical bold italic small theta          |
| U+1D73E | ι | ι | ι | ι | ι | ι | \mbfitiota       | mathematical bold italic small iota           |
| U+1D73F | κ | κ | κ | κ | κ | κ | \mbfitkappa      | mathematical bold italic small kappa          |
| U+1D740 | λ | λ | λ | λ | λ | λ | \mbfitlambda     | mathematical bold italic small lambda         |
| U+1D741 | μ | μ | μ | μ | μ | μ | \mbfitmu         | mathematical bold italic small mu             |
| U+1D742 | ν | ν | ν | ν | ν | ν | \mbfitnu         | mathematical bold italic small nu             |
| U+1D743 | ξ | ξ | ξ | ξ | ξ | ξ | \mbfitxi         | mathematical bold italic small xi             |
| U+1D744 | ο | ο | ο | ο | ο | ο | \mbfitomicron    | mathematical bold italic small omicron        |
| U+1D745 | π | π | π | π | π | π | \mbfitpi         | mathematical bold italic small pi             |
| U+1D746 | ρ | ρ | ρ | ρ | ρ | ρ | \mbfitrho        | mathematical bold italic small rho            |
| U+1D747 | ς | ς | ς | ς | ς | ς | \mbfitvarsigma   | mathematical bold italic small final sigma    |
| U+1D748 | σ | σ | σ | σ | σ | σ | \mbfitsigma      | mathematical bold italic small sigma          |
| U+1D749 | τ | τ | τ | τ | τ | τ | \mbfittau        | mathematical bold italic small tau            |
| U+1D74A | υ | υ | υ | υ | υ | υ | \mbfitupsilon    | mathematical bold italic small upsilon        |
| U+1D74B | φ | φ | φ | φ | φ | φ | \mbfitvarphi     | mathematical bold italic small phi            |
| U+1D74C | χ | χ | χ | χ | χ | χ | \mbfitchi        | mathematical bold italic small chi            |
| U+1D74D | ψ | ψ | ψ | ψ | ψ | ψ | \mbfitpsi        | mathematical bold italic small psi            |
| U+1D74E | ω | ω | ω | ω | ω | ω | \mbfitomega      | mathematical bold italic small omega          |
| U+1D74F | ∂ | ∂ | ∂ | ∂ | ∂ | ∂ | \mbfitpartial    | mathematical bold italic partial differential |

| USV     | L | X | S | P | D | F | Macro          | Description                                |
|---------|---|---|---|---|---|---|----------------|--|
| U+1D750 | € | € | € | € | € | € | \mbfitepsilon  | mathematical bold italic varepsilon symbol |
| U+1D751 | ϑ | ϑ | ϑ | ϑ | ϑ | ϑ | \mbfitvartheta | mathematical bold italic theta symbol      |
| U+1D752 | ϰ | ϰ | ϰ | ϰ | ϰ | ϰ | \mbfitvarkappa | mathematical bold italic kappa symbol      |
| U+1D753 | ϕ | ϕ | ϕ | ϕ | ϕ | ϕ | \mbfitphi      | mathematical bold italic phi symbol        |
| U+1D754 | ϱ | ϱ | ϱ | ϱ | ϱ | ϱ | \mbfitvarrho   | mathematical bold italic rho symbol        |
| U+1D755 | ϖ | ϖ | ϖ | ϖ | ϖ | ϖ | \mbfitvarpi    | mathematical bold italic pi symbol         |

### 13.2.9 Bold script, Latin, uppercase

| USV     | L | X | S | P | D | F | Macro    | Description                        |
|---------|---|---|---|---|---|---|----------|------------------------------------|
| U+1D4D0 | 𝒜 | 𝒜 | 𝒜 | 𝒜 | 𝒜 | 𝒜 | \mbfscrA | mathematical bold script capital a |
| U+1D4D1 | ℬ | ℬ | ℬ | ℬ | ℬ | ℬ | \mbfscrB | mathematical bold script capital b |
| U+1D4D2 | 𝒢 | 𝒢 | 𝒢 | 𝒢 | 𝒢 | 𝒢 | \mbfscrC | mathematical bold script capital c |
| U+1D4D3 | 𝒟 | 𝒟 | 𝒟 | 𝒟 | 𝒟 | 𝒟 | \mbfscrD | mathematical bold script capital d |
| U+1D4D4 | ℰ | ℰ | ℰ | ℰ | ℰ | ℰ | \mbfscrE | mathematical bold script capital e |
| U+1D4D5 | ℱ | ℱ | ℱ | ℱ | ℱ | ℱ | \mbfscrF | mathematical bold script capital f |
| U+1D4D6 | 𝒢 | 𝒢 | 𝒢 | 𝒢 | 𝒢 | 𝒢 | \mbfscrG | mathematical bold script capital g |
| U+1D4D7 | 𝒢 | 𝒢 | 𝒢 | 𝒢 | 𝒢 | 𝒢 | \mbfscrH | mathematical bold script capital h |
| U+1D4D8 | 𝒢 | 𝒢 | 𝒢 | 𝒢 | 𝒢 | 𝒢 | \mbfscrI | mathematical bold script capital i |
| U+1D4D9 | 𝒢 | 𝒢 | 𝒢 | 𝒢 | 𝒢 | 𝒢 | \mbfscrJ | mathematical bold script capital j |
| U+1D4DA | 𝒢 | 𝒢 | 𝒢 | 𝒢 | 𝒢 | 𝒢 | \mbfscrK | mathematical bold script capital k |
| U+1D4DB | 𝒢 | 𝒢 | 𝒢 | 𝒢 | 𝒢 | 𝒢 | \mbfscrL | mathematical bold script capital l |
| U+1D4DC | ℳ | ℳ | ℳ | ℳ | ℳ | ℳ | \mbfscrM | mathematical bold script capital m |
| U+1D4DD | 𝒢 | 𝒢 | 𝒢 | 𝒢 | 𝒢 | 𝒢 | \mbfscrN | mathematical bold script capital n |
| U+1D4DE | ℴ | ℴ | ℴ | ℴ | ℴ | ℴ | \mbfscrO | mathematical bold script capital o |

| USV     | L | X | S | P | D | F | Macro    | Description                        |
|---------|---|---|---|---|---|---|----------|------------------------------------|
| U+1D4DF | Ƥ | Ƥ | Ƥ | Ƥ | Ƥ | Ƥ | \mbfscrP | mathematical bold script capital p |
| U+1D4E0 | ޤ | ޤ | ޤ | ޤ | ޤ | ޤ | \mbfscrQ | mathematical bold script capital q |
| U+1D4E1 | ޤ | ޤ | ޤ | ޤ | ޤ | ޤ | \mbfscrR | mathematical bold script capital r |
| U+1D4E2 | ޤ | ޤ | ޤ | ޤ | ޤ | ޤ | \mbfscrS | mathematical bold script capital s |
| U+1D4E3 | ޤ | ޤ | ޤ | ޤ | ޤ | ޤ | \mbfscrT | mathematical bold script capital t |
| U+1D4E4 | ޤ | ޤ | ޤ | ޤ | ޤ | ޤ | \mbfscrU | mathematical bold script capital u |
| U+1D4E5 | ޤ | ޤ | ޤ | ޤ | ޤ | ޤ | \mbfscrV | mathematical bold script capital v |
| U+1D4E6 | ޤ | ޤ | ޤ | ޤ | ޤ | ޤ | \mbfscrW | mathematical bold script capital w |
| U+1D4E7 | ޤ | ޤ | ޤ | ޤ | ޤ | ޤ | \mbfscrX | mathematical bold script capital x |
| U+1D4E8 | ޤ | ޤ | ޤ | ޤ | ޤ | ޤ | \mbfscrY | mathematical bold script capital y |
| U+1D4E9 | ޤ | ޤ | ޤ | ޤ | ޤ | ޤ | \mbfscrZ | mathematical bold script capital z |

### 13.2.10 Bold script, Latin, lowercase

| USV     | L | X | S | P | D | F | Macro    | Description                      |
|---------|---|---|---|---|---|---|----------|----------------------------------|
| U+1D4EA | ܾ | ܾ | ܾ | ܾ | ܾ | ܾ | \mbfscra | mathematical bold script small a |
| U+1D4EB | ܭ | ܭ | ܭ | ܭ | ܭ | ܭ | \mbfscrb | mathematical bold script small b |
| U+1D4EC | ܮ | ܮ | ܮ | ܮ | ܮ | ܮ | \mbfscrc | mathematical bold script small c |
| U+1D4ED | ܯ | ܯ | ܯ | ܯ | ܯ | ܯ | \mbfscrd | mathematical bold script small d |
| U+1D4EE | ܰ | ܰ | ܰ | ܰ | ܰ | ܰ | \mbfscre | mathematical bold script small e |
| U+1D4EF | ܱ | ܱ | ܱ | ܱ | ܱ | ܱ | \mbfscrf | mathematical bold script small f |
| U+1D4FO | ܲ | ܲ | ܲ | ܲ | ܲ | ܲ | \mbfscrg | mathematical bold script small g |
| U+1D4F1 | ܳ | ܳ | ܳ | ܳ | ܳ | ܳ | \mbfscrh | mathematical bold script small h |
| U+1D4F2 | ܴ | ܴ | ܴ | ܴ | ܴ | ܴ | \mbfscri | mathematical bold script small i |
| U+1D4F3 | ܵ | ܵ | ܵ | ܵ | ܵ | ܵ | \mbfscrj | mathematical bold script small j |

| USV     | L | X | S | P | D | F | Macro    | Description                      |
|---------|---|---|---|---|---|---|----------|----------------------------------|
| U+1D4F4 | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | \mbfscrk | mathematical bold script small k |
| U+1D4F5 | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | \mbfscrl | mathematical bold script small l |
| U+1D4F6 | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | \mbfscrm | mathematical bold script small m |
| U+1D4F7 | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | \mbfscrn | mathematical bold script small n |
| U+1D4F8 | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | \mbfscro | mathematical bold script small o |
| U+1D4F9 | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | \mbfscrp | mathematical bold script small p |
| U+1D4FA | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | \mbfscrq | mathematical bold script small q |
| U+1D4FB | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | \mbfscrr | mathematical bold script small r |
| U+1D4FC | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | \mbfscrs | mathematical bold script small s |
| U+1D4FD | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | \mbfscrt | mathematical bold script small t |
| U+1D4FE | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | \mbfscru | mathematical bold script small u |
| U+1D4FF | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | \mbfscrv | mathematical bold script small v |
| U+1D500 | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | \mbfscrw | mathematical bold script small w |
| U+1D501 | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | \mbfscrx | mathematical bold script small x |
| U+1D502 | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | \mbfscry | mathematical bold script small y |
| U+1D503 | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | \mbfscrz | mathematical bold script small z |

### 13.2.11 Bold fraktur, Latin, uppercase

| USV     | L | X | S | P | D | F | Macro     | Description                         |
|---------|---|---|---|---|---|---|-----------|-------------------------------------|
| U+1D56C | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | \mbffrakA | mathematical bold fraktur capital a |
| U+1D56D | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | \mbffrakB | mathematical bold fraktur capital b |
| U+1D56E | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | \mbffrakC | mathematical bold fraktur capital c |
| U+1D56F | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | \mbffrakD | mathematical bold fraktur capital d |
| U+1D570 | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | ꝑ | \mbffrakE | mathematical bold fraktur capital e |

| USV     | L | X | S | P | D | F | Macro     | Description                         |
|---------|---|---|---|---|---|---|-----------|-------------------------------------|
| U+1D571 | Ƒ | Ƒ | Ƒ | Ƒ | Ƒ | Ƒ | \mbffrakF | mathematical bold fraktur capital f |
| U+1D572 | Ԍ | Ԍ | Ԍ | Ԍ | Ԍ | Ԍ | \mbffrakG | mathematical bold fraktur capital g |
| U+1D573 | Ԥ | Ԥ | Ԥ | Ԥ | Ԥ | Ԥ | \mbffrakH | mathematical bold fraktur capital h |
| U+1D574 | Ԇ | Ԇ | Ԇ | Ԇ | Ԇ | Ԇ | \mbffrakI | mathematical bold fraktur capital i |
| U+1D575 | ԇ | ԇ | ԇ | ԇ | ԇ | ԇ | \mbffrakJ | mathematical bold fraktur capital j |
| U+1D576 | Ԉ | Ԉ | Ԉ | Ԉ | Ԉ | Ԉ | \mbffrakK | mathematical bold fraktur capital k |
| U+1D577 | ܂ | ܂ | ܂ | ܂ | ܂ | ܂ | \mbffrakL | mathematical bold fraktur capital l |
| U+1D578 | ܃ | ܃ | ܃ | ܃ | ܃ | ܃ | \mbffrakM | mathematical bold fraktur capital m |
| U+1D579 | ܄ | ܄ | ܄ | ܄ | ܄ | ܄ | \mbffrakN | mathematical bold fraktur capital n |
| U+1D57A | ܅ | ܅ | ܅ | ܅ | ܅ | ܅ | \mbffrakO | mathematical bold fraktur capital o |
| U+1D57B | ܆ | ܆ | ܆ | ܆ | ܆ | ܆ | \mbffrakP | mathematical bold fraktur capital p |
| U+1D57C | ܇ | ܇ | ܇ | ܇ | ܇ | ܇ | \mbffrakQ | mathematical bold fraktur capital q |
| U+1D57D | ܈ | ܈ | ܈ | ܈ | ܈ | ܈ | \mbffrakR | mathematical bold fraktur capital r |
| U+1D57E | ܉ | ܉ | ܉ | ܉ | ܉ | ܉ | \mbffrakS | mathematical bold fraktur capital s |
| U+1D57F | ܊ | ܊ | ܊ | ܊ | ܊ | ܊ | \mbffrakT | mathematical bold fraktur capital t |
| U+1D580 | ܋ | ܋ | ܋ | ܋ | ܋ | ܋ | \mbffrakU | mathematical bold fraktur capital u |
| U+1D581 | ܌ | ܌ | ܌ | ܌ | ܌ | ܌ | \mbffrakV | mathematical bold fraktur capital v |
| U+1D582 | ܍ | ܍ | ܍ | ܍ | ܍ | ܍ | \mbffrakW | mathematical bold fraktur capital w |
| U+1D583 | ܏ | ܏ | ܏ | ܏ | ܏ | ܏ | \mbffrakX | mathematical bold fraktur capital x |
| U+1D584 | ܏ | ܏ | ܏ | ܏ | ܏ | ܏ | \mbffrakY | mathematical bold fraktur capital y |
| U+1D585 | ܏ | ܏ | ܏ | ܏ | ܏ | ܏ | \mbffrakZ | mathematical bold fraktur capital z |

### 13.2.12 Bold fraktur, Latin, lowercase

| USV     | L | X | S | P | D | F | Macro     | Description                       |
|---------|---|---|---|---|---|---|-----------|-----------------------------------|
| U+1D586 | 𝓪 | 𝓪 | 𝓪 | 𝓪 | 𝓪 | 𝓪 | \mbffraka | mathematical bold fraktur small a |
| U+1D587 | 𝓫 | 𝓫 | 𝓫 | 𝓫 | 𝓫 | 𝓫 | \mbffrakb | mathematical bold fraktur small b |
| U+1D588 | 𝓬 | 𝓬 | 𝓬 | 𝓬 | 𝓬 | 𝓬 | \mbffrakc | mathematical bold fraktur small c |
| U+1D589 | 𝓭 | 𝓭 | 𝓭 | 𝓭 | 𝓭 | 𝓭 | \mbffrakd | mathematical bold fraktur small d |
| U+1D58A | 𝓮 | 𝓮 | 𝓮 | 𝓮 | 𝓮 | 𝓮 | \mbffrake | mathematical bold fraktur small e |
| U+1D58B | 𝓯 | 𝓯 | 𝓯 | 𝓯 | 𝓯 | 𝓯 | \mbffrakf | mathematical bold fraktur small f |
| U+1D58C | 𝓰 | 𝓰 | 𝓰 | 𝓰 | 𝓰 | 𝓰 | \mbffrakg | mathematical bold fraktur small g |
| U+1D58D | 𝓱 | հ | հ | հ | հ | հ | \mbffrakh | mathematical bold fraktur small h |
| U+1D58E | 𝓲 | 𝓲 | 𝓲 | 𝓲 | 𝓲 | 𝓲 | \mbffraki | mathematical bold fraktur small i |
| U+1D58F | ຈ | ຈ | ຈ | ຈ | ຈ | ຈ | \mbffrakj | mathematical bold fraktur small j |
| U+1D590 | ݂ | ݂ | ݂ | ݂ | ݂ | ݂ | \mbffrakk | mathematical bold fraktur small k |
| U+1D591 | ݄ | ݄ | ݄ | ݄ | ݄ | ݄ | \mbffrakl | mathematical bold fraktur small l |
| U+1D592 | ݅ | ݅ | ݅ | ݅ | ݅ | ݅ | \mbffrakm | mathematical bold fraktur small m |
| U+1D593 | ݆ | ݆ | ݆ | ݆ | ݆ | ݆ | \mbffrakn | mathematical bold fraktur small n |
| U+1D594 | ݇ | ݇ | ݇ | ݇ | ݇ | ݇ | \mbffrako | mathematical bold fraktur small o |
| U+1D595 | ݈ | ݈ | ݈ | ݈ | ݈ | ݈ | \mbffrakp | mathematical bold fraktur small p |
| U+1D596 | ݉ | ݉ | ݉ | ݉ | ݉ | ݉ | \mbffrakq | mathematical bold fraktur small q |
| U+1D597 | ݊ | ݊ | ݊ | ݊ | ݊ | ݊ | \mbffrakr | mathematical bold fraktur small r |
| U+1D598 | ݋ | ݋ | ݋ | ݋ | ݋ | ݋ | \mbffraks | mathematical bold fraktur small s |
| U+1D599 | ݌ | ݌ | ݌ | ݌ | ݌ | ݌ | \mbffrakt | mathematical bold fraktur small t |
| U+1D59A | ݍ | ݍ | ݍ | ݍ | ݍ | ݍ | \mbffraku | mathematical bold fraktur small u |
| U+1D59B | ݏ | ݏ | ݏ | ݏ | ݏ | ݏ | \mbffrakv | mathematical bold fraktur small v |
| U+1D59C | ݏ | ݏ | ݏ | ݏ | ݏ | ݏ | \mbffrakw | mathematical bold fraktur small w |
| U+1D59D | ݏ | ݏ | ݏ | ݏ | ݏ | ݏ | \mbffrakx | mathematical bold fraktur small x |

| USV     | L | X | S | P | D | F | Macro     | Description                       |
|---------|---|---|---|---|---|---|-----------|-----------------------------------|
| U+1D59E | ȳ | ȫ | ȭ | Ȯ | ȯ | ȱ | \mbffraky | mathematical bold fraktur small y |
| U+1D59F | ȳ | ȫ | ȭ | Ȯ | ȯ | ȱ | \mbffrakz | mathematical bold fraktur small z |

### 13.2.13 Bold sans serif, Latin, uppercase

| USV     | L | X | S | P | D | F | Macro     | Description                            |
|---------|---|---|---|---|---|---|-----------|--|
| U+1D5D4 | ȴ | ȴ | ȴ | ȴ | ȴ | ȴ | \mbfsansA | mathematical sans-serif bold capital a |
| U+1D5D5 | ȴ | ȴ | ȴ | ȴ | ȴ | ȴ | \mbfsansB | mathematical sans-serif bold capital b |
| U+1D5D6 | ȴ | ȴ | ȴ | ȴ | ȴ | ȴ | \mbfsansC | mathematical sans-serif bold capital c |
| U+1D5D7 | ȴ | ȴ | ȴ | ȴ | ȴ | ȴ | \mbfsansD | mathematical sans-serif bold capital d |
| U+1D5D8 | ȴ | ȴ | ȴ | ȴ | ȴ | ȴ | \mbfsansE | mathematical sans-serif bold capital e |
| U+1D5D9 | ȴ | ȴ | ȴ | ȴ | ȴ | ȴ | \mbfsansF | mathematical sans-serif bold capital f |
| U+1D5DA | ȴ | ȴ | ȴ | ȴ | ȴ | ȴ | \mbfsansG | mathematical sans-serif bold capital g |
| U+1D5DB | ȴ | ȴ | ȴ | ȴ | ȴ | ȴ | \mbfsansH | mathematical sans-serif bold capital h |
| U+1D5DC | ȴ | ȴ | ȴ | ȴ | ȴ | ȴ | \mbfsansI | mathematical sans-serif bold capital i |
| U+1D5DD | ȴ | ȴ | ȴ | ȴ | ȴ | ȴ | \mbfsansJ | mathematical sans-serif bold capital j |
| U+1D5DE | ȴ | ȴ | ȴ | ȴ | ȴ | ȴ | \mbfsansK | mathematical sans-serif bold capital k |
| U+1D5DF | ȴ | ȴ | ȴ | ȴ | ȴ | ȴ | \mbfsansL | mathematical sans-serif bold capital l |
| U+1D5E0 | ȴ | ȴ | ȴ | ȴ | ȴ | ȴ | \mbfsansM | mathematical sans-serif bold capital m |
| U+1D5E1 | ȴ | ȴ | ȴ | ȴ | ȴ | ȴ | \mbfsansN | mathematical sans-serif bold capital n |
| U+1D5E2 | ȴ | ȴ | ȴ | ȴ | ȴ | ȴ | \mbfsansO | mathematical sans-serif bold capital o |
| U+1D5E3 | ȴ | ȴ | ȴ | ȴ | ȴ | ȴ | \mbfsansP | mathematical sans-serif bold capital p |
| U+1D5E4 | ȴ | ȴ | ȴ | ȴ | ȴ | ȴ | \mbfsansQ | mathematical sans-serif bold capital q |
| U+1D5E5 | ȴ | ȴ | ȴ | ȴ | ȴ | ȴ | \mbfsansR | mathematical sans-serif bold capital r |
| U+1D5E6 | ȴ | ȴ | ȴ | ȴ | ȴ | ȴ | \mbfsansS | mathematical sans-serif bold capital s |

| USV     | L | X | S | P | D | F | Macro     | Description                            |
|---------|---|---|---|---|---|---|-----------|--|
| U+1D5E7 | T | T | T | T | T |   | \mbfsansT | mathematical sans-serif bold capital t |
| U+1D5E8 | U | U | U | U | U |   | \mbfsansU | mathematical sans-serif bold capital u |
| U+1D5E9 | V | V | V | V | V |   | \mbfsansV | mathematical sans-serif bold capital v |
| U+1D5EA | W | W | W | W | W |   | \mbfsansW | mathematical sans-serif bold capital w |
| U+1D5EB | X | X | X | X | X |   | \mbfsansX | mathematical sans-serif bold capital x |
| U+1D5EC | Y | Y | Y | Y | Y |   | \mbfsansY | mathematical sans-serif bold capital y |
| U+1D5ED | Z | Z | Z | Z | Z |   | \mbfsansZ | mathematical sans-serif bold capital z |

### 13.2.14 Bold sans serif, Latin, lowercase

| USV     | L | X | S | P | D | F | Macro     | Description                          |
|---------|---|---|---|---|---|---|-----------|--------------------------------------|
| U+1D5EE | a | a | a | a | a |   | \mbfsansa | mathematical sans-serif bold small a |
| U+1D5EF | b | b | b | b | b |   | \mbfsansb | mathematical sans-serif bold small b |
| U+1D5F0 | c | c | c | c | c |   | \mbfsansc | mathematical sans-serif bold small c |
| U+1D5F1 | d | d | d | d | d |   | \mbfsansd | mathematical sans-serif bold small d |
| U+1D5F2 | e | e | e | e | e |   | \mbfsanse | mathematical sans-serif bold small e |
| U+1D5F3 | f | f | f | f | f |   | \mbfsansf | mathematical sans-serif bold small f |
| U+1D5F4 | g | g | g | g | g |   | \mbfsansg | mathematical sans-serif bold small g |
| U+1D5F5 | h | h | h | h | h |   | \mbfsansh | mathematical sans-serif bold small h |
| U+1D5F6 | i | i | i | i | i |   | \mbfsansi | mathematical sans-serif bold small i |
| U+1D5F7 | j | j | j | j | j |   | \mbfsansj | mathematical sans-serif bold small j |
| U+1D5F8 | k | k | k | k | k |   | \mbfsansk | mathematical sans-serif bold small k |
| U+1D5F9 | l | l | l | l | l |   | \mbfsansl | mathematical sans-serif bold small l |
| U+1D5FA | m | m | m | m | m |   | \mbfsansm | mathematical sans-serif bold small m |
| U+1D5FB | n | n | n | n | n |   | \mbfsansn | mathematical sans-serif bold small n |

| USV     | L | X | S | P | D | F | Macro     | Description                          |
|---------|---|---|---|---|---|---|-----------|--------------------------------------|
| U+1D5FC | o | o | o | o | o |   | \mbfsanso | mathematical sans-serif bold small o |
| U+1D5FD | p | p | p | p | p |   | \mbfsansp | mathematical sans-serif bold small p |
| U+1D5FE | q | q | q | q | q |   | \mbfsansq | mathematical sans-serif bold small q |
| U+1D5FF | r | r | r | r | r |   | \mbfsansr | mathematical sans-serif bold small r |
| U+1D600 | s | s | s | s | s |   | \mbfsanss | mathematical sans-serif bold small s |
| U+1D601 | t | t | t | t | t |   | \mbfsanst | mathematical sans-serif bold small t |
| U+1D602 | u | u | u | u | u |   | \mbfsansu | mathematical sans-serif bold small u |
| U+1D603 | v | v | v | v | v |   | \mbfsansv | mathematical sans-serif bold small v |
| U+1D604 | w | w | w | w | w |   | \mbfsansw | mathematical sans-serif bold small w |
| U+1D605 | x | x | x | x | x |   | \mbfsansx | mathematical sans-serif bold small x |
| U+1D606 | y | y | y | y | y |   | \mbfsansy | mathematical sans-serif bold small y |
| U+1D607 | z | z | z | z | z |   | \mbfsansz | mathematical sans-serif bold small z |

### 13.2.15 Bold italic sans serif, Latin, uppercase

| USV     | L | X | S | P | D | F | Macro       | Description                                   |
|---------|---|---|---|---|---|---|-------------|---|
| U+1D63C | A | A | A | A | A |   | \mbfitsansA | mathematical sans-serif bold italic capital a |
| U+1D63D | B | B | B | B | B |   | \mbfitsansB | mathematical sans-serif bold italic capital b |
| U+1D63E | C | C | C | C | C |   | \mbfitsansC | mathematical sans-serif bold italic capital c |
| U+1D63F | D | D | D | D | D |   | \mbfitsansD | mathematical sans-serif bold italic capital d |
| U+1D640 | E | E | E | E | E |   | \mbfitsansE | mathematical sans-serif bold italic capital e |
| U+1D641 | F | F | F | F | F |   | \mbfitsansF | mathematical sans-serif bold italic capital f |
| U+1D642 | G | G | G | G | G |   | \mbfitsansG | mathematical sans-serif bold italic capital g |
| U+1D643 | H | H | H | H | H |   | \mbfitsansH | mathematical sans-serif bold italic capital h |
| U+1D644 | I | I | I | I | I |   | \mbfitsansI | mathematical sans-serif bold italic capital i |

| USV     | L | X | S | P | D | F | Macro       | Description                                   |
|---------|---|---|---|---|---|---|-------------|---|
| U+1D645 | J | J | J | J | J |   | \mbfitsansJ | mathematical sans-serif bold italic capital j |
| U+1D646 | K | K | K | K | K |   | \mbfitsansK | mathematical sans-serif bold italic capital k |
| U+1D647 | L | L | L | L | L |   | \mbfitsansL | mathematical sans-serif bold italic capital l |
| U+1D648 | M | M | M | M | M |   | \mbfitsansM | mathematical sans-serif bold italic capital m |
| U+1D649 | N | N | N | N | N |   | \mbfitsansN | mathematical sans-serif bold italic capital n |
| U+1D64A | O | O | O | O | O |   | \mbfitsansO | mathematical sans-serif bold italic capital o |
| U+1D64B | P | P | P | P | P |   | \mbfitsansP | mathematical sans-serif bold italic capital p |
| U+1D64C | Q | Q | Q | Q | Q |   | \mbfitsansQ | mathematical sans-serif bold italic capital q |
| U+1D64D | R | R | R | R | R |   | \mbfitsansR | mathematical sans-serif bold italic capital r |
| U+1D64E | S | S | S | S | S |   | \mbfitsansS | mathematical sans-serif bold italic capital s |
| U+1D64F | T | T | T | T | T |   | \mbfitsansT | mathematical sans-serif bold italic capital t |
| U+1D650 | U | U | U | U | U |   | \mbfitsansU | mathematical sans-serif bold italic capital u |
| U+1D651 | V | V | V | V | V |   | \mbfitsansV | mathematical sans-serif bold italic capital v |
| U+1D652 | W | W | W | W | W |   | \mbfitsansW | mathematical sans-serif bold italic capital w |
| U+1D653 | X | X | X | X | X |   | \mbfitsansX | mathematical sans-serif bold italic capital x |
| U+1D654 | Y | Y | Y | Y | Y |   | \mbfitsansY | mathematical sans-serif bold italic capital y |
| U+1D655 | Z | Z | Z | Z | Z |   | \mbfitsansZ | mathematical sans-serif bold italic capital z |

### 13.2.16 Bold italic sans serif, Latin, lowercase

| USV     | L | X | S | P | D | F | Macro       | Description                                 |
|---------|---|---|---|---|---|---|-------------|---|
| U+1D656 | a | a | a | a | a |   | \mbfitsansa | mathematical sans-serif bold italic small a |
| U+1D657 | b | b | b | b | b |   | \mbfitsansb | mathematical sans-serif bold italic small b |
| U+1D658 | c | c | c | c | c |   | \mbfitsansc | mathematical sans-serif bold italic small c |
| U+1D659 | d | d | d | d | d |   | \mbfitsansd | mathematical sans-serif bold italic small d |

| USV     | L | X | S | P | D | F | Macro       | Description                                 |
|---------|---|---|---|---|---|---|-------------|---|
| U+1D65A | e | e | e | e | e |   | \mbfitsanse | mathematical sans-serif bold italic small e |
| U+1D65B | f | f | f | f | f |   | \mbfitsansf | mathematical sans-serif bold italic small f |
| U+1D65C | g | g | g | g | g |   | \mbfitsansg | mathematical sans-serif bold italic small g |
| U+1D65D | h | h | h | h | h |   | \mbfitsansh | mathematical sans-serif bold italic small h |
| U+1D65E | i | i | i | i | i |   | \mbfitsansi | mathematical sans-serif bold italic small i |
| U+1D65F | j | j | j | j | j |   | \mbfitsansj | mathematical sans-serif bold italic small j |
| U+1D660 | k | k | k | k | k |   | \mbfitsansk | mathematical sans-serif bold italic small k |
| U+1D661 | l | l | l | l | l |   | \mbfitsansl | mathematical sans-serif bold italic small l |
| U+1D662 | m | m | m | m | m |   | \mbfitsansm | mathematical sans-serif bold italic small m |
| U+1D663 | n | n | n | n | n |   | \mbfitsansn | mathematical sans-serif bold italic small n |
| U+1D664 | o | o | o | o | o |   | \mbfitsanso | mathematical sans-serif bold italic small o |
| U+1D665 | p | p | p | p | p |   | \mbfitsansp | mathematical sans-serif bold italic small p |
| U+1D666 | q | q | q | q | q |   | \mbfitsansq | mathematical sans-serif bold italic small q |
| U+1D667 | r | r | r | r | r |   | \mbfitsansr | mathematical sans-serif bold italic small r |
| U+1D668 | s | s | s | s | s |   | \mbfitsanss | mathematical sans-serif bold italic small s |
| U+1D669 | t | t | t | t | t |   | \mbfitsanst | mathematical sans-serif bold italic small t |
| U+1D66A | u | u | u | u | u |   | \mbfitsansu | mathematical sans-serif bold italic small u |
| U+1D66B | v | v | v | v | v |   | \mbfitsansv | mathematical sans-serif bold italic small v |
| U+1D66C | w | w | w | w | w |   | \mbfitsansw | mathematical sans-serif bold italic small w |
| U+1D66D | x | x | x | x | x |   | \mbfitsansx | mathematical sans-serif bold italic small x |
| U+1D66E | y | y | y | y | y |   | \mbfitsansy | mathematical sans-serif bold italic small y |
| U+1D66F | z | z | z | z | z |   | \mbfitsansz | mathematical sans-serif bold italic small z |

### 13.2.17 Bold sans serif Greek, uppercase

| USV     | L | X | S | P | D | F | Macro            | Description                                       |
|---------|---|---|---|---|---|---|------------------|---|
| U+1D756 | Ⓐ | Ⓑ | Ⓒ | Ⓓ | Ⓔ | Ⓕ | \mbfsansAlpha    | mathematical sans-serif bold capital alpha        |
| U+1D757 | Ⓑ | Ⓒ | Ⓓ | Ⓔ | Ⓕ | Ⓖ | \mbfsansBeta     | mathematical sans-serif bold capital beta         |
| U+1D758 | Ⓖ | Ⓗ | Ⓖ | Ⓗ | Ⓖ | Ⓗ | \mbfsansGamma    | mathematical sans-serif bold capital gamma        |
| U+1D759 | Ⓓ | Ⓔ | Ⓛ | Ⓓ | Ⓔ | Ⓛ | \mbfsansDelta    | mathematical sans-serif bold capital delta        |
| U+1D75A | Ⓔ | Ⓔ | Ⓔ | Ⓔ | Ⓔ | Ⓔ | \mbfsansEpsilon  | mathematical sans-serif bold capital epsilon      |
| U+1D75B | ⓩ | ⓩ | ⓩ | ⓩ | ⓩ | ⓩ | \mbfsansZeta     | mathematical sans-serif bold capital zeta         |
| U+1D75C | Ⓗ | Ⓗ | Ⓗ | Ⓗ | Ⓗ | Ⓗ | \mbfsansEta      | mathematical sans-serif bold capital eta          |
| U+1D75D | ߠ | ߠ | ߠ | ߠ | ߠ | ߠ | \mbfsansTheta    | mathematical sans-serif bold capital theta        |
| U+1D75E | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | ⓘ | \mbfsansIota     | mathematical sans-serif bold capital iota         |
| U+1D75F | ߞ | ߞ | ߞ | ߞ | ߞ | ߞ | \mbfsansKappa    | mathematical sans-serif bold capital kappa        |
| U+1D760 | ߟ | ߟ | ߟ | ߟ | ߟ | ߟ | \mbfsansLambda   | mathematical sans-serif bold capital lambda       |
| U+1D761 | ߻ | ߻ | ߻ | ߻ | ߻ | ߻ | \mbfsansMu       | mathematical sans-serif bold capital mu           |
| U+1D762 | ߻ | ߻ | ߻ | ߻ | ߻ | ߻ | \mbfsansNu       | mathematical sans-serif bold capital nu           |
| U+1D763 | ߻ | ߻ | ߻ | ߻ | ߻ | ߻ | \mbfsansXi       | mathematical sans-serif bold capital xi           |
| U+1D764 | ߻ | ߻ | ߻ | ߻ | ߻ | ߻ | \mbfsansOmicron  | mathematical sans-serif bold capital omicron      |
| U+1D765 | ߻ | ߻ | ߻ | ߻ | ߻ | ߻ | \mbfsansPi       | mathematical sans-serif bold capital pi           |
| U+1D766 | ߻ | ߻ | ߻ | ߻ | ߻ | ߻ | \mbfsansRho      | mathematical sans-serif bold capital rho          |
| U+1D767 | ߠ | ߠ | ߠ | ߠ | ߠ | ߠ | \mbfsansvarTheta | mathematical sans-serif bold capital theta symbol |
| U+1D768 | ߻ | ߻ | ߻ | ߻ | ߻ | ߻ | \mbfsansSigma    | mathematical sans-serif bold capital sigma        |
| U+1D769 | ߻ | ߻ | ߻ | ߻ | ߻ | ߻ | \mbfsansTau      | mathematical sans-serif bold capital tau          |
| U+1D76A | ߻ | ߻ | ߻ | ߻ | ߻ | ߻ | \mbfsansUpsilon  | mathematical sans-serif bold capital upsilon      |
| U+1D76B | ߻ | ߻ | ߻ | ߻ | ߻ | ߻ | \mbfsansPhi      | mathematical sans-serif bold capital phi          |
| U+1D76C | ߻ | ߻ | ߻ | ߻ | ߻ | ߻ | \mbfsansChi      | mathematical sans-serif bold capital chi          |
| U+1D76D | ߻ | ߻ | ߻ | ߻ | ߻ | ߻ | \mbfsansPsi      | mathematical sans-serif bold capital psi          |

| USV     | L | X | S | P | D | F | Macro         | Description                                |
|---------|---|---|---|---|---|---|---------------|--|
| U+1D76E | Ω | Ω | Ω | Ω | Ω |   | \mbfsansOmega | mathematical sans-serif bold capital omega |

### 13.2.18 Bold sans serif Greek, lowercase

| USV     | L | X | S | P | D | F | Macro              | Description                                    |
|---------|---|---|---|---|---|---|--------------------|--|
| U+1D770 | α | α | α | α | α |   | \mbfsansalpha      | mathematical sans-serif bold small alpha       |
| U+1D771 | β | β | β | β | β |   | \mbfsansbeta       | mathematical sans-serif bold small beta        |
| U+1D772 | γ | γ | γ | γ | γ |   | \mbfsansgamma      | mathematical sans-serif bold small gamma       |
| U+1D773 | δ | δ | δ | δ | δ |   | \mbfsansdelta      | mathematical sans-serif bold small delta       |
| U+1D774 | ε | ε | ε | ε | ε |   | \mbfsansvarepsilon | mathematical sans-serif bold small varepsilon  |
| U+1D775 | ζ | ζ | ζ | ζ | ζ |   | \mbfsanszeta       | mathematical sans-serif bold small zeta        |
| U+1D776 | η | η | η | η | η |   | \mbfsanseta        | mathematical sans-serif bold small eta         |
| U+1D777 | θ | θ | θ | θ | θ |   | \mbfsansttheta     | mathematical sans-serif bold small theta       |
| U+1D778 | ι | ι | ι | ι | ι |   | \mbfsansiota       | mathematical sans-serif bold small iota        |
| U+1D779 | κ | κ | κ | κ | κ |   | \mbfsanskappa      | mathematical sans-serif bold small kappa       |
| U+1D77A | λ | λ | λ | λ | λ |   | \mbfsanslambda     | mathematical sans-serif bold small lambda      |
| U+1D77B | μ | μ | μ | μ | μ |   | \mbfsansmu         | mathematical sans-serif bold small mu          |
| U+1D77C | ν | ν | ν | ν | ν |   | \mbfsansnu         | mathematical sans-serif bold small nu          |
| U+1D77D | ξ | ξ | ξ | ξ | ξ |   | \mbfsansxi         | mathematical sans-serif bold small xi          |
| U+1D77E | ο | ο | ο | ο | ο |   | \mbfsansomicron    | mathematical sans-serif bold small omicron     |
| U+1D77F | π | π | π | π | π |   | \mbfsanspi         | mathematical sans-serif bold small pi          |
| U+1D780 | ρ | ρ | ρ | ρ | ρ |   | \mbfsansrho        | mathematical sans-serif bold small rho         |
| U+1D781 | ς | ς | σ | ς | ς |   | \mbfsansvarsigma   | mathematical sans-serif bold small final sigma |
| U+1D782 | σ | σ | ς | σ | σ |   | \mbfsanssigma      | mathematical sans-serif bold small sigma       |
| U+1D783 | τ | τ | τ | τ | τ |   | \mbfsanstau        | mathematical sans-serif bold small tau         |

| USV     | L | X | S | P | D | F | Macro            | Description                                       |
|---------|---|---|---|---|---|---|------------------|---|
| U+1D784 | υ | υ | υ | υ | υ | υ | \mbfsansupsilon  | mathematical sans-serif bold small upsilon        |
| U+1D785 | φ | φ | φ | φ | φ | φ | \mbfsansvarphi   | mathematical sans-serif bold small phi            |
| U+1D786 | χ | χ | χ | χ | χ | χ | \mbfsanschi      | mathematical sans-serif bold small chi            |
| U+1D787 | ψ | ψ | ψ | ψ | ψ | ψ | \mbfsanspsi      | mathematical sans-serif bold small psi            |
| U+1D788 | ω | ω | ω | ω | ω | ω | \mbfsansomega    | mathematical sans-serif bold small omega          |
| U+1D789 | ∂ | ∂ | ∂ | ∂ | ∂ | ∂ | \mbfsanspartial  | mathematical sans-serif bold partial differential |
| U+1D78A | ε | ε | ε | ε | ε | ε | \mbfsansepsilon  | mathematical sans-serif bold varepsilon symbol    |
| U+1D78B | ϑ | ϑ | ϑ | ϑ | ϑ | ϑ | \mbfsansvartheta | mathematical sans-serif bold theta symbol         |
| U+1D78C | κ | κ | κ | κ | κ | κ | \mbfsansvarkappa | mathematical sans-serif bold kappa symbol         |
| U+1D78D | ϕ | ϕ | ϕ | ϕ | ϕ | ϕ | \mbfsansphi      | mathematical sans-serif bold phi symbol           |
| U+1D78E | ρ | ρ | ρ | ρ | ρ | ρ | \mbfsansvarrho   | mathematical sans-serif bold rho symbol           |
| U+1D78F | ϖ | ϖ | ϖ | ϖ | ϖ | ϖ | \mbfsansvarpi    | mathematical sans-serif bold pi symbol            |

### 13.2.19 Bold italic sans serif Greek, uppercase

| USV     | L | X | S | P | D | F | Macro             | Description   |
|---------|---|---|---|---|---|---|-------------------|---|
| U+1D790 | Α | Α | Α | Α | Α | Α | \mbfitsansAlpha   | mathematical sans-serif bold italic capital alpha   |
| U+1D791 | Β | Β | Β | Β | Β | Β | \mbfitsansBeta    | mathematical sans-serif bold italic capital beta    |
| U+1D792 | Γ | Γ | Γ | Γ | Γ | Γ | \mbfitsansGamma   | mathematical sans-serif bold italic capital gamma   |
| U+1D793 | Δ | Δ | Δ | Δ | Δ | Δ | \mbfitsansDelta   | mathematical sans-serif bold italic capital delta   |
| U+1D794 | Ε | Ε | Ε | Ε | Ε | Ε | \mbfitsansEpsilon | mathematical sans-serif bold italic capital epsilon |
| U+1D795 | Ζ | Ζ | Ζ | Ζ | Ζ | Ζ | \mbfitsansZeta    | mathematical sans-serif bold italic capital zeta    |
| U+1D796 | Η | Η | Η | Η | Η | Η | \mbfitsansEta     | mathematical sans-serif bold italic capital eta     |
| U+1D797 | Θ | Θ | Θ | Θ | Θ | Θ | \mbfitsansTheta   | mathematical sans-serif bold italic capital theta   |
| U+1D798 | Ι | Ι | Ι | Ι | Ι | Ι | \mbfitsansIota    | mathematical sans-serif bold italic capital iota    |

| USV     | L        | X        | S        | P        | D        | F | Macro              | Description  |
|---------|----------|----------|----------|----------|----------|---|--------------------|--|
| U+1D799 | <b>K</b> | <b>K</b> | <b>K</b> | <b>K</b> | <b>K</b> |   | \mbfitsansKappa    | mathematical sans-serif bold italic capital kappa        |
| U+1D79A | <b>Λ</b> | <b>Λ</b> | <b>Λ</b> | <b>Λ</b> | <b>Λ</b> |   | \mbfitsansLambda   | mathematical sans-serif bold italic capital lambda       |
| U+1D79B | <b>M</b> | <b>M</b> | <b>M</b> | <b>M</b> | <b>M</b> |   | \mbfitsansMu       | mathematical sans-serif bold italic capital mu           |
| U+1D79C | <b>N</b> | <b>N</b> | <b>N</b> | <b>N</b> | <b>N</b> |   | \mbfitsansNu       | mathematical sans-serif bold italic capital nu           |
| U+1D79D | <b>Ξ</b> | <b>Ξ</b> | <b>Ξ</b> | <b>Ξ</b> | <b>Ξ</b> |   | \mbfitsansXi       | mathematical sans-serif bold italic capital xi           |
| U+1D79E | <b>Ο</b> | <b>Ο</b> | <b>Ο</b> | <b>Ο</b> | <b>Ο</b> |   | \mbfitsansOmicron  | mathematical sans-serif bold italic capital omicron      |
| U+1D79F | <b>Π</b> | <b>Π</b> | <b>Π</b> | <b>Π</b> | <b>Π</b> |   | \mbfitsansPi       | mathematical sans-serif bold italic capital pi           |
| U+1D7AO | <b>Ρ</b> | <b>Ρ</b> | <b>Ρ</b> | <b>Ρ</b> | <b>Ρ</b> |   | \mbfitsansRho      | mathematical sans-serif bold italic capital rho          |
| U+1D7A1 | <b>Θ</b> | <b>Θ</b> | <b>Θ</b> | <b>Θ</b> | <b>Θ</b> |   | \mbfitsansvarTheta | mathematical sans-serif bold italic capital theta symbol |
| U+1D7A2 | <b>Σ</b> | <b>Σ</b> | <b>Σ</b> | <b>Σ</b> | <b>Σ</b> |   | \mbfitsansSigma    | mathematical sans-serif bold italic capital sigma        |
| U+1D7A3 | <b>Τ</b> | <b>Τ</b> | <b>Τ</b> | <b>Τ</b> | <b>Τ</b> |   | \mbfitsansTau      | mathematical sans-serif bold italic capital tau          |
| U+1D7A4 | <b>Υ</b> | <b>Υ</b> | <b>Υ</b> | <b>Υ</b> | <b>Υ</b> |   | \mbfitsansUpsilon  | mathematical sans-serif bold italic capital upsilon      |
| U+1D7A5 | <b>Φ</b> | <b>Φ</b> | <b>Φ</b> | <b>Φ</b> | <b>Φ</b> |   | \mbfitsansPhi      | mathematical sans-serif bold italic capital phi          |
| U+1D7A6 | <b>Χ</b> | <b>Χ</b> | <b>Χ</b> | <b>Χ</b> | <b>Χ</b> |   | \mbfitsansChi      | mathematical sans-serif bold italic capital chi          |
| U+1D7A7 | <b>Ψ</b> | <b>Ψ</b> | <b>Ψ</b> | <b>Ψ</b> | <b>Ψ</b> |   | \mbfitsansPsi      | mathematical sans-serif bold italic capital psi          |
| U+1D7A8 | <b>Ω</b> | <b>Ω</b> | <b>Ω</b> | <b>Ω</b> | <b>Ω</b> |   | \mbfitsansOmega    | mathematical sans-serif bold italic capital omega        |

### 13.2.20 Bold italic sans serif Greek, lowercase

| USV     | L        | X        | S        | P        | D        | F | Macro                | Description  |
|---------|----------|----------|----------|----------|----------|---|----------------------|--|
| U+1D7AA | <b>α</b> | <b>α</b> | <b>α</b> | <b>α</b> | <b>α</b> |   | \mbfitsansalpha      | mathematical sans-serif bold italic small alpha      |
| U+1D7AB | <b>β</b> | <b>β</b> | <b>β</b> | <b>β</b> | <b>β</b> |   | \mbfitsansbeta       | mathematical sans-serif bold italic small beta       |
| U+1D7AC | <b>γ</b> | <b>γ</b> | <b>γ</b> | <b>γ</b> | <b>γ</b> |   | \mbfitsansgamma      | mathematical sans-serif bold italic small gamma      |
| U+1D7AD | <b>δ</b> | <b>δ</b> | <b>δ</b> | <b>δ</b> | <b>δ</b> |   | \mbfitsansdelta      | mathematical sans-serif bold italic small delta      |
| U+1D7AE | <b>ε</b> | <b>ε</b> | <b>ε</b> | <b>ε</b> | <b>ε</b> |   | \mbfitsansvarepsilon | mathematical sans-serif bold italic small varepsilon |

| USV     | L | X | S | P | D | F | Macro              | Description  |
|---------|---|---|---|---|---|---|--------------------|--|
| U+1D7AF | ζ | ξ | ζ | ζ | ζ |   | \mbfitsanszeta     | mathematical sans-serif bold italic small zeta           |
| U+1D7B0 | η | η | η | η | η |   | \mbfitsanseta      | mathematical sans-serif bold italic small eta            |
| U+1D7B1 | θ | θ | θ | θ | θ |   | \mbfitsanstheta    | mathematical sans-serif bold italic small theta          |
| U+1D7B2 | ι | ι | ι | ι | ι |   | \mbfitsansiota     | mathematical sans-serif bold italic small iota           |
| U+1D7B3 | κ | κ | κ | κ | κ |   | \mbfitsanskappa    | mathematical sans-serif bold italic small kappa          |
| U+1D7B4 | λ | λ | λ | λ | λ |   | \mbfitsanslambda   | mathematical sans-serif bold italic small lambda         |
| U+1D7B5 | μ | μ | μ | μ | μ |   | \mbfitsansmu       | mathematical sans-serif bold italic small mu             |
| U+1D7B6 | ν | ν | ν | ν | ν |   | \mbfitsansnu       | mathematical sans-serif bold italic small nu             |
| U+1D7B7 | ξ | ξ | ξ | ξ | ξ |   | \mbfitsansxi       | mathematical sans-serif bold italic small xi             |
| U+1D7B8 | ο | ο | ο | ο | ο |   | \mbfitsansomicron  | mathematical sans-serif bold italic small omicron        |
| U+1D7B9 | π | π | π | π | π |   | \mbfitsanspi       | mathematical sans-serif bold italic small pi             |
| U+1D7BA | ρ | ρ | ρ | ρ | ρ |   | \mbfitsansrho      | mathematical sans-serif bold italic small rho            |
| U+1D7BB | ς | ς | σ | ς | ς |   | \mbfitsansvarsigma | mathematical sans-serif bold italic small final sigma    |
| U+1D7BC | σ | σ | ς | σ | σ |   | \mbfitsansssigma   | mathematical sans-serif bold italic small sigma          |
| U+1D7BD | τ | τ | τ | τ | τ |   | \mbfitsanstau      | mathematical sans-serif bold italic small tau            |
| U+1D7BE | υ | υ | υ | υ | υ |   | \mbfitsansupsilon  | mathematical sans-serif bold italic small upsilon        |
| U+1D7BF | φ | φ | φ | φ | φ |   | \mbfitsansvarphi   | mathematical sans-serif bold italic small phi            |
| U+1D7C0 | χ | χ | χ | χ | χ |   | \mbfitsanschi      | mathematical sans-serif bold italic small chi            |
| U+1D7C1 | ψ | ψ | ψ | ψ | ψ |   | \mbfitsanspsi      | mathematical sans-serif bold italic small psi            |
| U+1D7C2 | ω | ω | ω | ω | ω |   | \mbfitsansomega    | mathematical sans-serif bold italic small omega          |
| U+1D7C3 | ∂ | ∂ | ∂ | ∂ | ∂ |   | \mbfitsanspartial  | mathematical sans-serif bold italic partial differential |
| U+1D7C4 | ε | ε | ε | ε | ε |   | \mbfitsansepsilon  | mathematical sans-serif bold italic varepsilon symbol    |
| U+1D7C5 | ϑ | ϑ | ϑ | ϑ | ϑ |   | \mbfitsansvartheta | mathematical sans-serif bold italic theta symbol         |
| U+1D7C6 | κ | κ | κ | κ | κ |   | \mbfitsanskappa    | mathematical sans-serif bold italic kappa symbol         |

| USV     | L | X | S | P | D | F | Macro            | Description                                    |
|---------|---|---|---|---|---|---|------------------|--|
| U+1D7C7 | ϕ | ϕ | ϕ | ϕ | ϕ |   | \mbfitsansphi    | mathematical sans-serif bold italic phi symbol |
| U+1D7C8 | ρ | ρ | ρ | ρ | ρ |   | \mbfitsansvarrho | mathematical sans-serif bold italic rho symbol |
| U+1D7C9 | ω | ω | ω | ω | ω |   | \mbfitsansvarpi  | mathematical sans-serif bold italic pi symbol  |

### 13.3 Miscellaneous

| USV     | L | X | S | P | D | F | Macro         | Description                         |
|---------|---|---|---|---|---|---|---------------|-------------------------------------|
| U+000FO | ð | ð | ð | ð | ð | ð | \matheth      | eth                                 |
| U+02010 | - | - | - | - | - | - | \mathhyphen   | hyphen                              |
| U+02102 | ⌚ | ⌚ | ⌚ | ⌚ | ⌚ | ⌚ | \BbbC         | /bbb c, open face c                 |
| U+0210A | ℊ | ℊ | ℊ | ℊ | ℊ | ℊ | \mscrg        | /scr g, script letter g             |
| U+0210B | ℋ | ℋ | ℋ | ℋ | ℋ | ℋ | \mscrH        | hamiltonian (script capital h)      |
| U+0210C | ܵ | ܵ | ܵ | ܵ | ܵ | ܵ | \mfrakH       | /frak h, upper case h               |
| U+0210D | ܪ | ܪ | ܪ | ܪ | ܪ | ܪ | \BbbH         | /bbb h, open face h                 |
| U+0210F | ܵ | ܵ | ܵ | ܵ | ܵ | ܵ | \hslash^{(a)} | /hslash - variant planck's over 2pi |
| U+02110 | ܵ | ܵ | ܵ | ܵ | ܵ | ܵ | \mscrI        | /scr i, script letter i             |
| U+02111 | ܵ | ܵ | ܵ | ܵ | ܵ | ܵ | \Im^{(p)}     | imaginary part                      |
| U+02112 | ܵ | ܵ | ܵ | ܵ | ܵ | ܵ | \mscrL        | lagrangian (script capital l)       |
| U+02113 | ܵ | ܵ | ܵ | ܵ | ܵ | ܵ | \ell^{(p)}    | cursive small l                     |
| U+02115 | ܪ | ܪ | ܪ | ܪ | ܪ | ܪ | \BbbN         | /bbb n, open face n                 |
| U+02118 | ܵ | ܵ | ܵ | ܵ | ܵ | ܵ | \wp^{(p)}     | weierstrass p                       |
| U+02119 | ܪ | ܪ | ܪ | ܪ | ܪ | ܪ | \BbbP         | /bbb p, open face p                 |
| U+0211A | ܪ | ܪ | ܪ | ܪ | ܪ | ܪ | \BbbQ         | /bbb q, open face q                 |
| U+0211B | ܵ | ܵ | ܵ | ܵ | ܵ | ܵ | \mscrR        | /scr r, script letter r             |
| U+0211C | ܵ | ܵ | ܵ | ܵ | ܵ | ܵ | \Re^{(p)}     | real part                           |

| USV     | L | X | S | P | D | F | Macro          | Description                           |
|---------|---|---|---|---|---|---|----------------|---------------------------------------|
| U+0211D | 𝕿 | 𝕿 | 𝕿 | 𝕿 | 𝕿 | 𝕿 | \BbbR          | /bbb r, open face r                   |
| U+02124 | ܶ | ܶ | ܶ | ܶ | ܶ | ܶ | \BbbZ          | /bbb z, open face z                   |
| U+02128 | ܵ | ܵ | ܵ | ܵ | ܵ |   | \frakZ         | /frak z, upper case z                 |
| U+02129 |   | ܱ | ܱ |   |   |   | \turnediota    | turned iota                           |
| U+0212B | ܾ | ܶ | ܶ | ܶ | ܶ | ܶ | \Angstrom      | angstrom capital a, ring              |
| U+0212C | ܷ | ܷ | ܷ | ܷ | ܷ |   | \mscrB         | bernoulli function (script capital b) |
| U+0212D | ܸ | ܸ | ܸ | ܸ | ܸ |   | \mfrakC        | black-letter capital c                |
| U+0212F | ܹ | ܹ | ܹ | ܹ | ܹ |   | \mscre         | /scr e, script letter e               |
| U+02130 | ܺ | ܺ | ܺ | ܺ | ܺ |   | \mscrE         | /scr e, script letter e               |
| U+02131 | ܻ | ܻ | ܻ | ܻ | ܻ |   | \mscrF         | /scr f, script letter f               |
| U+02133 | ܼ | ܼ | ܼ | ܼ | ܼ |   | \mscrM         | physics m-matrix (script capital m)   |
| U+02134 | ܽ | ܽ | ܽ | ܽ | ܽ |   | \mscro         | order of (script small o)             |
| U+02135 | ܾ | ܶ | ܶ | ܶ | ܶ | ܶ | \aleph^{(p)}   | aleph, hebrew                         |
| U+02136 | ܷ | ܷ | ܷ | ܷ | ܷ | ܷ | \beth^{(a)}    | beth, hebrew                          |
| U+02137 | ܸ | ܸ | ܸ | ܸ | ܸ | ܸ | \gimel^{(a)}   | gimel, hebrew                         |
| U+02138 | ܹ | ܹ | ܹ | ܹ | ܹ | ܹ | \daleth^{(a)}  | daleth, hebrew                        |
| U+0213D | ܰ | ܰ | ܰ | ܰ | ܰ | ܰ | \Bbbgamma      | double-struck small gamma             |
| U+0213E | ܱ | ܱ | ܱ | ܱ | ܱ | ܱ | \BbbGamma      | double-struck capital gamma           |
| U+0213F | ܲ | ܲ | ܲ | ܲ | ܲ | ܲ | \BbbPi         | double-struck capital pi              |
| U+02202 | ܰ | ܰ | ܰ | ܰ | ܰ | ܰ | \partial^{(p)} | partial differential                  |
| U+02207 | ܵ | ܵ | ܵ | ܵ | ܵ | ܵ | \nabla^{(p)}   | nabla, del, hamilton operator         |
| U+1D6A4 | ܵ | ܵ | ܵ | ܵ | ܵ | ܵ | \imath^{(p)}   | mathematical italic small dotless i   |
| U+1D6A5 | ܵ | ܵ | ܵ | ܵ | ܵ | ܵ | \jmath^{(p)}   | mathematical italic small dotless j   |
| U+1D6C1 | ܵ | ܵ | ܵ | ܵ | ܵ | ܵ | \mbfnabla      | mathematical bold nabla               |

| USV     | L | X | S | P | D | F | Macro           | Description                               |
|---------|---|---|---|---|---|---|-----------------|---|
| U+1D6FB | ▽ | ▽ | ▽ | ▽ | ▽ | ▽ | \mitnabla       | mathematical italic nabla                 |
| U+1D735 | ▽ | ▽ | ▽ | ▽ | ▽ | ▽ | \mbfitnabla     | mathematical bold italic nabla            |
| U+1D76F | ▽ | ▽ | ▽ | ▽ | ▽ |   | \mbfsansnabla   | mathematical sans-serif bold nabla        |
| U+1D7A9 | ▽ | ▽ | ▽ | ▽ | ▽ |   | \mbfitsansnabla | mathematical sans-serif bold italic nabla |
| U+1D7CA | F | F |   |   | F |   | \mbfDigamma     | mathematical bold capital digamma         |
| U+1D7CB | F | F |   |   | F |   | \mbfdigamma     | mathematical bold small digamma           |