# 1 Inline-ματη

Normal:  $A Ax\alpha + \chi b$ Sans:  $A Ax\alpha + \chi b$  **Bold-Sans:**  $A Ax\alpha + \chi b$ Normal:  $A Ax\alpha + \chi b$ **Bold:**  $A Ax\alpha + \chi b$ 

# 2 Display- $\mu \alpha \tau \eta$

Text in roman family

$$\sqrt{(a_1 + a_2 + \gamma)^2} = \sum_{i=1}^{2} a_i + \gamma \tag{1}$$

Text in sans family

$$\sqrt{(a_1 + a_2 + \gamma)^2} = \sum_{i=1}^2 a_i + \gamma$$
 (2)

Text in sans family, bold version

$$\sqrt{(a_1 + a_2 + \gamma)^2} = \sum_{i=1}^2 a_i + \gamma$$
 (3)

Text in roman family, bold version

$$\sqrt{(a_1 + a_2 + \gamma)^2} = \sum_{i=1}^{2} a_i + \gamma \tag{4}$$

## 3 Saved for sans math

FiraSans-TLF sl mb  $\boldsymbol{xxffBB}$ 

Size of math and text letters should be identical.

# 4 Serif

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Table 1: Glyphs contained in the font "T1FiraSans-TLF/m/n"  $\,$ 

	О	1	2	3	4	<i>'</i> 5	6	7	
'00x	0	1	^ 2	~ 3	4	<b>"</b> 5	6	7	″0x
	8	- 9	10	s <sup>11</sup>	ر 12	<b>,</b> 13	<b>〈</b> 14	<b>&gt;</b> 15	
'02x	<b>"</b> 16	<b>"</b> 17	<b>"</b> 18	<b>«</b> 19	<b>»</b> 20	- 21	— <sub>22</sub>	23	″1x
′03x	fj 24	I 25	<b>J</b> 26	ff 27	fi 28	fl 29	ffi 30	ffl 31	
'04x	_ 32	! 33	" 34	# 35	\$ 36	<b>%</b> 37	<b>&amp;</b> 38	, 39	<b>"</b> 0
′05x	<b>(</b> 40	) 41	<b>*</b> 42	+ 43	, 44	- 45	. 46	/ 47	″2x
'06x	0 48	1 49	2 50	3 51	4 52	5 53	6 54	7 55	″3x
	8 56	9 57	: 58	; 59	< 60	= 61	> 62	? 63	
	@ 64	<b>A</b> 65	B 66	C 67	D 68	E 69	F 70	<b>G</b> 71	<b>"</b> a
	H 72	I 73	<b>J</b> 74	K 75	L 76	M 77	N 78	O 79	″4x
	P 80	Q 81	R 82	S 83	T 84	U 85	V 86	W 87	<b>"</b> -
′13x	X 88	Y 89	Z 90	[ 91	\ 92	] 93	^ <sub>94</sub>	_ 95	″5x
′14x	96	<b>a</b> 97	b 98	<b>C</b> 99	<b>d</b> 100	<b>e</b> 101	<b>f</b> 102	g <sub>103</sub>	<b>"</b> 0
′15x	h 104	i 105	<b>j</b> 106	k 107	l 108	m 109	n 110	<b>O</b> 111	″6x
′16x	<b>p</b> 112	<b>q</b> 113	r 114	<b>S</b> 115	<b>t</b> 116	<b>U</b> 117	<b>V</b> 118	<b>W</b> 119	<b>"</b> -
17x	<b>X</b> 120	<b>y</b> 121	<b>Z</b> 122	{ 123	124	} 125	~ 126	- 127	″7x
′20x	<b>Ă</b> 128	<b>A</b> 129	Ć 130	Č 131	Ď 132	Ě 133	<b>Ę</b> 134	Ğ 135	″0
'21x	Ĺ 136	Ľ 137	Ł 138	<b>Ń</b> 139	<b>Ň</b> 140	<b>Ŋ</b> 141	Ő 142	Ŕ 143	″8x
′22x	Ř 144	Ś 145	Š 146	<b>Ş</b> 147	Ť 148	Ţ 149	Ű 150	Ů 151	″0
′23x	Ÿ <sub>152</sub>	<b>Ź</b> 153	<b>Ž</b> 154	Ż 155	<b>IJ</b> 156	i <sub>157</sub>	đ <sub>158</sub>	<b>§</b> 159	″9x
′24x	<b>ă</b> 160	<b>ą</b> 161	<b>Ć</b> 162	<b>Č</b> 163	<b>ď</b> 164	<b>ě</b> 165	<b>ę</b> 166	ğ <sub>167</sub>	″ A
′25x	ĺ 168	<b>(</b> 169	<b>ł</b> 170	ń 171	ň 172	<b>ŋ</b> 173	<b>ő</b> 174	ŕ 175	"Ax
'26x	<b>ř</b> 176	<b>Ś</b> 177	<b>Š</b> 178	<b>Ş</b> 179	<b>ť</b> 180	<b>ţ</b> 181	<b>ű</b> 182	<b>ů</b> 183	″D
′27x	ÿ <sub>184</sub>	<b>Ź</b> 185	<b>Ž</b> 186	Ż 187	ij <sub>188</sub>	189	190 خ	£ 191	″Bx
′30x	À 192	<b>Á</b> 193	194	à 195	Ä 196	Å 197	Æ 198	Ç 199	<b>"</b> a
'31x	È 200	É 201	<b>Ê</b> 202	Ë 203	Ì 204	ĺ 205	Î 206	Ϊ 207	″Cx
′32x	Ð 208	Ñ 209	Ò 210	Ó 211	Ô 212	Õ 213	Ö 214	Œ 215	
′33x	Ø 216	Ù 217	Ú 218	Û 219	Ü 220	Ý 221	Þ 222	SS 223	″Dx
′34x	à 224	<b>á</b> 225	â 226	ã 227	ä 228	<b>å</b> 229	æ 230	<b>Ç</b> 231	<b>"</b> =
′35x	è 232	é 233	ê 234	ë 235	Ì 236	<b>í</b> 237	Î 238	ï 239	Ex
'36x	ð <sub>240</sub>	ñ <sub>241</sub>	<b>Ò</b> 242	Ó 243	<b>Ô</b> 244	Õ 245	Ö 246	<b>©</b> 247	<b>"</b> -
′37x	<b>Ø</b> 248	<b>ù</b> 249	<b>Ú</b> 250	û 251	Ü 252	ý <sub>253</sub>	þ <sub>254</sub>	ß 255	″Fx
	″8	″9	"A	″B	″C	″D	″E	″F	

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$$\bar{x} = \frac{1}{n} \sum_{i=1}^{i=n} x_i = \frac{x_1 + x_2 + \dots + x_n}{n}$$

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$$\int_0^\infty e^{-\alpha x^2} dx = \frac{1}{2} \sqrt{\int_{-\infty}^\infty e^{-\alpha x^2}} dx \int_{-\infty}^\infty e^{-\alpha y^2} dy = \frac{1}{2} \sqrt{\frac{\pi}{\alpha}}$$

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$$\frac{\partial^2 \Phi}{\partial x^2} + \frac{\partial^2 \Phi}{\partial y^2} + \frac{\partial^2 \Phi}{\partial z^2} = \frac{1}{c^2} \frac{\partial^2 \Phi}{\partial t^2}$$

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**Simplest form of the Central Limit Theorem:** Let  $X_1, X_2, \cdots$  be a sequence of i.i.d. random variables with mean 0 and variance 1 on a probability space  $(\Omega, \mathcal{F}, Pr)$ . Then

$$\Pr\left(\frac{X_1+\cdots+X_n}{\sqrt{n}}\leq \nu\right)\to \mathfrak{N}(\nu):-\int_{-\infty}^{\nu}\frac{\mathrm{e}^{-t^2/2}}{\sqrt{2\pi}}\,\mathrm{d}t\quad\text{as }n\to\infty,$$

or, equivalently, letting  $S_n := \sum_{1}^{n} X_k$ 

$$\mathbb{E} f\left(S_n \, / \, \sqrt{n}\right) \to \int_{-\infty}^{\infty} f(t) \frac{\mathrm{e}^{-t^2/2}}{\sqrt{2\pi}} \, \mathrm{d}t \quad \text{as } n \to \infty \text{, for every } f \in \mathrm{b} \mathcal{C}(\mathbb{R}).$$

$$4/3 = 1.333$$

# 5 Serif Bold

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$$\sqrt[n]{a} \cdot \sqrt[n]{b} = \sqrt[n]{ab}$$

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$$\sqrt[8]{a} \cdot \sqrt[8]{b} = \sqrt[8]{ab}$$

## 8 Serif

#### 8.1 Overview Serif

Default:  $a\alpha\alpha b\beta G\Gamma P\Pi\alpha\beta$  mathnormal:  $a\alpha b\beta G\Gamma P\Pi$  mathrm:  $a\alpha b\beta G\Gamma P\Pi$  mathup:  $a\alpha b\beta G\Gamma P\Pi$  mathit:  $a\alpha b\beta G\Gamma P\Pi$  mathbf:  $a\alpha b\beta G\Gamma P\Pi$  mathbft:  $a\alpha b\beta G\Gamma P\Pi$ 

Default:  $a\alpha\alpha b\beta G\Gamma P\Pi\alpha\beta$  mathnormal:  $a\alpha b\beta G\Gamma P\Pi$  mathrm:  $a\alpha\alpha b\beta G\Gamma P\Pi$  mathup:  $a\alpha\alpha b\beta G\Gamma P\Pi$  mathit:  $a\alpha b\beta G\Gamma P\Pi$  mathbf:  $a\alpha b\beta G\Gamma P\Pi$  mathbf:  $a\alpha b\beta G\Gamma P\Pi$  mathbf:  $a\alpha b\beta G\Gamma P\Pi$ 

Default:  $a\alpha\alpha b\beta G\Gamma P\Pi\alpha\beta$  mathnormal:  $a\alpha b\beta G\Gamma P\Pi$  mathrm:  $a\alpha b\beta G\Gamma P\Pi$  mathup:  $a\alpha b\beta G\Gamma P\Pi$  mathit:  $a\alpha b\beta G\Gamma P\Pi$  mathbf:  $a\alpha b\beta G\Gamma P\Pi$  mathbf:  $a\alpha b\beta G\Gamma P\Pi$  mathbfit:  $a\alpha b\beta G\Gamma P\Pi$ 

Default:  $a\alpha\alpha b\beta G\Gamma P\Pi\alpha\beta$  mathnormal:  $a\alpha b\beta G\Gamma P\Pi$  mathrm:  $a\alpha b\beta G\Gamma P\Pi$  mathup:  $a\alpha b\beta G\Gamma P\Pi$  mathit:  $a\alpha b\beta G\Gamma P\Pi$  mathbf:  $a\alpha b\beta G\Gamma P\Pi$  mathbf:  $a\alpha b\beta G\Gamma P\Pi$  mathbf:  $a\alpha b\beta G\Gamma P\Pi$ 

## 8.2 Formulas Serif

α, β, γ, δ, ε, ζ, η, θ, ι, κ, λ, μ, ν, ξ, ο, π, ρ, σ, ς, τ, υ, φ, χ, ψ, ω, ε, Α, Β, Γ, Δ, Ε, Z, Η, Θ, Ι, Κ, Λ, Μ, Ν, Ξ, Ο, Π, Ρ, Σ, Τ, Υ, Φ, Χ, Ψ, Ω, Ε, α, β, γ, δ, ε, ζ, η, θ, ι, κ, λ, μ, ν, ξ, ο, π, ρ, σ, ς, τ, υ, φ, χ, ψ, ω, ε, Α, Β, Γ, Δ, Ε, Z, Η, Θ, Ι, Κ, Λ, Μ, Ν, Ξ, Ο, Π, Ρ, Σ, Τ, Υ, Φ, Χ, Ψ, Ω, Ε, α, β, γ, δ, ε, ζ, η, θ, ι, κ, λ, μ, ν, ξ, ο, π, ρ, σ, ς, τ, υ, φ, χ, ψ, ω, ε, Α, Β, Γ, Δ, Ε, Ζ, Η, Θ, Ι, Κ, Λ, Μ, Ν, Ξ, Ο, Π, Ρ, Σ, Τ, Υ, Φ, Χ, Ψ, Ω, Ε,

 $\alpha$ ,  $\beta$ ,  $\gamma$ ,  $\delta$ ,  $\epsilon$ ,  $\zeta$ ,  $\eta$ ,  $\theta$ ,  $\iota$ ,  $\kappa$ ,  $\lambda$ ,  $\mu$ ,  $\nu$ ,  $\xi$ , o,  $\pi$ ,  $\rho$ ,  $\sigma$ ,  $\zeta$ ,  $\tau$ ,  $\upsilon$ ,  $\phi$ ,  $\chi$ ,  $\psi$ ,  $\omega$ ,  $\epsilon$ , A, B,  $\Gamma$ ,  $\Delta$ , E, Z, H,  $\Theta$ , I, K,  $\Lambda$ , M, N,  $\Xi$ , O,  $\Pi$ , P,  $\Sigma$ , T, Y,  $\Phi$ , X,  $\Psi$ ,  $\Omega$ , F,

$$\alpha a > 0$$
,  $\beta b + (3 \times 27)$ ,  $\Gamma G = 7 < 8$ ,  $\lambda a > 0$ ,  $\beta b + (3 \times 27)$ ,  $\Gamma G = 7 < 8$ ,  $\lambda$ 

$$s \pm 3\gamma + y - 1 = 4 \times 7$$

$$\sum_{i=0}^{N} x^{i}$$

$$\int_{-\infty}^{\infty} x f(x) \, \mathrm{d}x = \left(\frac{27}{2}\right)$$

 $s \pm 3\gamma + y - 1 \times 7$ 

$$\sum_{i=0}^{N} x^{i}$$

$$\int_{-\infty}^{\infty} x f(x) \, \mathrm{d}x = \left(\frac{27}{2}\right)$$

 $s \pm 3y + y - 1 \times 7$ 

$$\sum_{i=0}^{N} x^{i}$$

$$\int_{-\infty}^{\infty} x f(x) \, \mathbf{d}x = \left(\frac{27}{2}\right)$$

 $s \pm 3y + y - 1 \times 7$ 

$$\sum_{i=0}^{N} x^{i}$$

$$\int_{-\infty}^{\infty} x f(x) dx = \left(\frac{27}{2}\right)$$

# 8.3 Math Alphabets Serif

Default

0,1,2,3,4,5,6,7,8,9, A,B,C,D,E,F,G,H,I,J,K,L,M,N,O,P,Q,R,S,T,U,V,W,X,Y,Z, a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s,t,u,v,w,x,y,z,  $A,B,\Gamma,\Delta,E,Z,H,\Theta,I,K,\Lambda,M,N,\Xi,O,\Pi,P,\Sigma,T,\Upsilon,\Phi,X,\Psi,\Omega,$   $\alpha,\beta,\gamma,\delta,\epsilon,\zeta,\eta,\theta,\iota,\kappa,\lambda,\mu,\nu,\xi,o,\pi,\rho,\sigma,\tau,\upsilon,\phi,\chi,\psi,\omega,\epsilon,\vartheta,\varpi,\rho,\varsigma,\varphi,$ 

```
0.1.2.3.4.5.6.7.8.9.
                                             A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z,
                                               a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z,
                                             A, B, \Gamma, \Delta, E, Z, H, \Theta, I, K, \Lambda, M, N, \Xi, O, \Pi, P, \Sigma, T, \Upsilon, \Phi, X, \Psi, \Omega,
                                                \alpha, \beta, \gamma, \delta, \epsilon, \zeta, \eta, \theta, \iota, \kappa, \lambda, \mu, \nu, \xi, o, \pi, \rho, \sigma, \tau, \nu, \phi, \chi, \psi, \omega, \epsilon, \vartheta, \varpi, \rho, \zeta, \varphi,
Math Italic (\mathit)
                                                0, 1, 2, 3, 4, 5, 6, 7, 8, 9,
                                               A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z,
                                               a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z,
                                               A, B, `, ', E, Z, H, `, I, K, `, M, N, `, O, '', P, `, T, `, `, X, -, `,
                                                \alpha, \beta, \gamma, \delta, \epsilon, \zeta, \eta, \theta, \iota, \kappa, \lambda, \mu, \nu, \xi, o, \pi, \rho, \sigma, \tau, \nu, \phi, \chi, \psi, \omega, \epsilon, \vartheta, \varpi, \rho, \varsigma, \varphi,
Math Roman (\mathrm)
                                               0, 1, 2, 3, 4, 5, 6, 7, 8, 9,
                                               A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z,
                                               a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z,
                                               A, B, \Gamma, \Delta, E, Z, H, \Theta, I, K, \Lambda, M, N, \Xi, O, \Pi, P, \Sigma, T, \Upsilon, \Phi, X, \Psi, \Omega,
                                                \alpha, \beta, \gamma, \delta, \epsilon, \zeta, \eta, \theta, \iota, \kappa, \lambda, \mu, \nu, \xi, o, \pi, \rho, \sigma, \tau, \nu, \phi, \chi, \psi, \omega, \epsilon, \vartheta, \varpi, \varrho, \varsigma, \varphi,
Math Bold (\mathbf)
                                         0, 1, 2, 3, 4, 5, 6, 7, 8, 9,
                                         A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z,
                                         a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z,
                                         A,B,\Gamma,\Delta,E,Z,H,\Theta,I,K,\Lambda,M,N,\Xi,O,\Pi,P,\Sigma,T,\Upsilon,\Phi,X,\Psi,\Omega,
                                         \alpha, \beta, \gamma, \delta, \epsilon, \zeta, \eta, \theta, \iota, \kappa, \lambda, \mu, \nu, \xi, o, \pi, \rho, \sigma, \tau, \nu, \phi, \chi, \psi, \omega, \epsilon, \vartheta, \varpi, \varrho, \zeta, \varphi,
Caligraphic (\mathcal)
                                   \mathcal{A}, \mathcal{B}, \mathcal{C}, \mathcal{D}, \mathcal{E}, \mathcal{F}, \mathcal{G}, \mathcal{H}, \mathcal{I}, \mathcal{I}, \mathcal{H}, \mathcal{L}, \mathcal{M}, \mathcal{N}, \mathcal{O}, \mathcal{P}, \mathcal{Q}, \mathcal{R}, \mathcal{F}, \mathcal{T}, \mathcal{U}, \mathcal{V}, \mathcal{W}, \mathcal{X}, \mathcal{Y}, \mathcal{Z}, \mathcal{Y}, \mathcal{Z}, \mathcal{Y}, \mathcal{Z}, \mathcal{Y}, \mathcal{Z}, \mathcal{Z}
Script (\mathscr)
                                   \mathscr{A}, \mathscr{B}, \mathscr{C}, \mathscr{D}, \mathscr{E}, \mathscr{F}, \mathscr{G}, \mathcal{H}, \mathscr{I}, \mathscr{J}, \mathscr{K}, \mathscr{L}, \mathscr{M}, \mathscr{N}, \mathscr{O}, \mathscr{P}, \mathscr{Q}, \mathscr{R}, \mathscr{S}, \mathscr{T}, \mathscr{U}, \mathscr{V}, \mathscr{W}, \mathscr{X}, \mathscr{Y}, \mathscr{Z}, \mathscr{Y}, \mathscr{Z}, \mathscr{Y}, \mathscr{Z}, \mathscr{Y}, \mathscr{Y}
Fraktur (\mathfrak)
                                                                \mathfrak{A}, \mathfrak{B}, \mathfrak{C}, \mathfrak{D}, \mathfrak{E}, \mathfrak{F}, \mathfrak{G}, \mathfrak{H}, \mathfrak{I}, \mathfrak{I}, \mathfrak{K}, \mathfrak{L}, \mathfrak{M}, \mathfrak{N}, \mathfrak{D}, \mathfrak{P}, \mathfrak{Q}, \mathfrak{R}, \mathfrak{E}, \mathfrak{T}, \mathfrak{U}, \mathfrak{V}, \mathfrak{W}, \mathfrak{X}, \mathfrak{Y}, \mathfrak{Z}, \mathfrak{Z}
                                                                a, b, c, d, e, f, g, h, i, j, t, l, m, n, o, p, q, r, s, t, u, v, w, r, h, z,
Blackboard Bold (\mathbb)
```

Math Normal (\mathnormal)

A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z,

## 8.4 Character Sidebearings Serif

Default

```
\begin{split} |A| + |B| + |C| + |D| + |E| + |F| + |G| + |H| + |I| + |J| + |K| + |L| + |M| + \\ |N| + |O| + |P| + |Q| + |R| + |S| + |T| + |U| + |V| + |W| + |X| + |Y| + |Z| + \\ |a| + |b| + |c| + |d| + |e| + |f| + |g| + |h| + |i| + |j| + |k| + |l| + |m| + \\ |n| + |o| + |p| + |q| + |r| + |s| + |t| + |u| + |v| + |w| + |x| + |y| + |z| + \\ |A| + |B| + |\Gamma| + |\Delta| + |E| + |Z| + |H| + |\Theta| + |I| + |K| + |A| + |M| + \\ |N| + |E| + |O| + |\Pi| + |P| + |E| + |T| + |T| + |\Phi| + |X| + |\Psi| + |\Omega| + \\ |\alpha| + |\beta| + |\gamma| + |\delta| + |\epsilon| + |\zeta| + |\eta| + |\theta| + |\iota| + |\kappa| + |\lambda| + |\mu| + \\ |v| + |\xi| + |o| + |\pi| + |\rho| + |\sigma| + |\tau| + |v| + |\phi| + |\chi| + |\psi| + |\omega| + \\ |\varepsilon| + |\vartheta| + |\sigma| + |\varrho| + |\zeta| + |\varphi| + \end{split}
```

Math Roman (\mathrm)

$$\begin{split} |A| + |B| + |C| + |D| + |E| + |F| + |G| + |H| + |I| + |J| + |K| + |L| + |M| + \\ |N| + |O| + |P| + |Q| + |R| + |S| + |T| + |U| + |V| + |W| + |X| + |Y| + |Z| + \\ |a| + |b| + |c| + |d| + |e| + |f| + |g| + |h| + |i| + |j| + |k| + |l| + |m| + \\ |n| + |o| + |p| + |q| + |r| + |s| + |t| + |u| + |v| + |w| + |x| + |y| + |z| + \\ |A| + |B| + |\Gamma| + |\Delta| + |E| + |Z| + |H| + |\Theta| + |I| + |K| + |\Lambda| + |M| + \\ |N| + |E| + |O| + |\Pi| + |P| + |\Sigma| + |T| + |\Upsilon| + |\Phi| + |X| + |\Psi| + |\Omega| + \\ \end{split}$$

Math Bold (\mathbf)

$$\begin{split} |A| + |B| + |C| + |D| + |E| + |F| + |G| + |H| + |I| + |J| + |K| + |L| + |M| + \\ |N| + |O| + |P| + |Q| + |R| + |S| + |T| + |U| + |V| + |W| + |X| + |Y| + |Z| + \\ |a| + |b| + |c| + |d| + |e| + |f| + |g| + |h| + |i| + |j| + |k| + |l| + |m| + \\ |n| + |o| + |p| + |q| + |r| + |s| + |t| + |u| + |v| + |w| + |x| + |y| + |z| + \\ |A| + |B| + |T| + |\Delta| + |E| + |Z| + |H| + |\Theta| + |I| + |K| + |A| + |M| + \\ |N| + |\mathcal{Z}| + |O| + |II| + |P| + |\mathcal{Z}| + |T| + |\Upsilon| + |\Phi| + |X| + |\Psi| + |\Omega| + \\ \end{split}$$

Math Calligraphic (\mathcal)

$$\begin{split} |\mathcal{A}| + |\mathcal{B}| + |\mathcal{C}| + |\mathcal{D}| + |\mathcal{E}| + |\mathcal{F}| + |\mathcal{G}| + |\mathcal{H}| + |\mathcal{I}| + |\mathcal{I}| + |\mathcal{H}| +$$

# 8.5 Superscript Positioning Serif

Default

$$\begin{split} A^2 + B^2 + C^2 + D^2 + E^2 + F^2 + G^2 + H^2 + I^2 + J^2 + K^2 + L^2 + M^2 + \\ N^2 + O^2 + P^2 + Q^2 + R^2 + S^2 + T^2 + U^2 + V^2 + W^2 + X^2 + Y^2 + Z^2 + \\ a^2 + b^2 + c^2 + d^2 + e^2 + f^2 + g^2 + h^2 + i^2 + j^2 + k^2 + l^2 + m^2 + \\ n^2 + o^2 + p^2 + q^2 + r^2 + s^2 + t^2 + u^2 + v^2 + w^2 + x^2 + y^2 + z^2 + \\ A^2 + B^2 + \Gamma^2 + \Delta^2 + E^2 + Z^2 + H^2 + \Theta^2 + I^2 + K^2 + \Lambda^2 + M^2 + \\ N^2 + \Xi^2 + O^2 + \Pi^2 + P^2 + \Sigma^2 + T^2 + \Upsilon^2 + \Phi^2 + X^2 + \Psi^2 + \Omega^2 + \\ \alpha^2 + \beta^2 + \gamma^2 + \delta^2 + \epsilon^2 + \zeta^2 + \eta^2 + \theta^2 + \iota^2 + \kappa^2 + \lambda^2 + \mu^2 + \\ v^2 + \xi^2 + o^2 + \pi^2 + \rho^2 + \sigma^2 + \tau^2 + v^2 + \phi^2 + \chi^2 + \psi^2 + \omega^2 + \\ \varepsilon^2 + \vartheta^2 + \varpi^2 + \varrho^2 + \zeta^2 + \varphi^2 + \end{split}$$

Math Roman (\mathrm)

$$\begin{split} &A^2+B^2+C^2+D^2+E^2+F^2+G^2+H^2+I^2+J^2+K^2+L^2+M^2+\\ &N^2+O^2+P^2+Q^2+R^2+S^2+T^2+U^2+V^2+W^2+X^2+Y^2+Z^2+\\ &a^2+b^2+c^2+d^2+e^2+f^2+g^2+h^2+i^2+j^2+k^2+l^2+m^2+\\ &n^2+o^2+p^2+q^2+r^2+s^2+t^2+u^2+v^2+w^2+x^2+y^2+z^2+\\ &A^2+B^2+\Gamma^2+\Delta^2+E^2+Z^2+H^2+\Theta^2+I^2+K^2+\Lambda^2+M^2+\\ &N^2+\Xi^2+O^2+\Pi^2+P^2+\Sigma^2+T^2+\Upsilon^2+\Phi^2+X^2+\Psi^2+\Omega^2+\\ \end{split}$$

Math Bold (\mathbf)

$$A^{2} + B^{2} + C^{2} + D^{2} + E^{2} + F^{2} + G^{2} + H^{2} + I^{2} + J^{2} + K^{2} + L^{2} + M^{2} + N^{2} + O^{2} + P^{2} + Q^{2} + R^{2} + S^{2} + T^{2} + U^{2} + V^{2} + W^{2} + X^{2} + Y^{2} + Z^{2} + a^{2} + b^{2} + c^{2} + d^{2} + e^{2} + f^{2} + g^{2} + h^{2} + i^{2} + j^{2} + k^{2} + l^{2} + m^{2} + n^{2} + o^{2} + p^{2} + q^{2} + r^{2} + s^{2} + t^{2} + u^{2} + v^{2} + w^{2} + x^{2} + y^{2} + z^{2} + A^{2} + B^{2} + \Gamma^{2} + \Delta^{2} + E^{2} + Z^{2} + H^{2} + \Theta^{2} + I^{2} + K^{2} + \Lambda^{2} + M^{2} + N^{2} + \Xi^{2} + O^{2} + \Pi^{2} + P^{2} + \Sigma^{2} + T^{2} + \Upsilon^{2} + \Phi^{2} + X^{2} + \Psi^{2} + \Omega^{2} + \Omega^{2$$

Math Calligraphic (\mathcal)

$$\mathcal{A}^{2} + \mathcal{B}^{2} + \mathcal{C}^{2} + \mathcal{B}^{2} + \mathcal{E}^{2} + \mathcal{F}^{2} + \mathcal{F}^{2} + \mathcal{G}^{2} + \mathcal{H}^{2} + \mathcal{F}^{2} + \mathcal{F}^{2} + \mathcal{H}^{2} + \mathcal{H}^{2}$$

## 8.6 Subscript Positioning Serif

Default

$$\begin{split} A_i + B_i + C_i + D_i + E_i + F_i + G_i + H_i + I_i + J_i + K_i + L_i + M_i + \\ N_i + O_i + P_i + Q_i + R_i + S_i + T_i + U_i + V_i + W_i + X_i + Y_i + Z_i + \\ a_i + b_i + c_i + d_i + e_i + f_i + g_i + h_i + i_i + j_i + k_i + l_i + m_i + \\ n_i + o_i + p_i + q_i + r_i + s_i + t_i + u_i + v_i + w_i + x_i + y_i + z_i + \\ A_i + B_i + \Gamma_i + \Delta_i + E_i + Z_i + H_i + \Theta_i + I_i + K_i + \Lambda_i + M_i + \\ N_i + \Xi_i + O_i + \Pi_i + P_i + \Sigma_i + T_i + \Upsilon_i + \Phi_i + X_i + \Psi_i + \Omega_i + \\ \alpha_i + \beta_i + \gamma_i + \delta_i + \epsilon_i + \zeta_i + \eta_i + \theta_i + \iota_i + \kappa_i + \lambda_i + \mu_i + \\ \nu_i + \xi_i + o_i + \pi_i + \rho_i + \sigma_i + \tau_i + v_i + \phi_i + \chi_i + \psi_i + \omega_i + \\ \varepsilon_i + \vartheta_i + \varpi_i + \varrho_i + \zeta_i + \varphi_i + \end{split}$$

Math Roman (\mathrm)

$$\begin{split} \mathbf{A}_{i} + \mathbf{B}_{i} + \mathbf{C}_{i} + \mathbf{D}_{i} + \mathbf{E}_{i} + \mathbf{F}_{i} + \mathbf{G}_{i} + \mathbf{H}_{i} + \mathbf{I}_{i} + \mathbf{J}_{i} + \mathbf{K}_{i} + \mathbf{L}_{i} + \mathbf{M}_{i} + \\ \mathbf{N}_{i} + \mathbf{O}_{i} + \mathbf{P}_{i} + \mathbf{Q}_{i} + \mathbf{R}_{i} + \mathbf{S}_{i} + \mathbf{T}_{i} + \mathbf{U}_{i} + \mathbf{V}_{i} + \mathbf{W}_{i} + \mathbf{X}_{i} + \mathbf{Y}_{i} + \mathbf{Z}_{i} + \\ \mathbf{a}_{i} + \mathbf{b}_{i} + \mathbf{c}_{i} + \mathbf{d}_{i} + \mathbf{e}_{i} + \mathbf{f}_{i} + \mathbf{g}_{i} + \mathbf{h}_{i} + \mathbf{i}_{i} + \mathbf{j}_{i} + \mathbf{k}_{i} + \mathbf{l}_{i} + \mathbf{m}_{i} + \\ \mathbf{n}_{i} + \mathbf{o}_{i} + \mathbf{p}_{i} + \mathbf{q}_{i} + \mathbf{r}_{i} + \mathbf{s}_{i} + \mathbf{t}_{i} + \mathbf{u}_{i} + \mathbf{v}_{i} + \mathbf{w}_{i} + \mathbf{x}_{i} + \mathbf{y}_{i} + \mathbf{z}_{i} + \\ \mathbf{A}_{i} + \mathbf{B}_{i} + \mathbf{\Gamma}_{i} + \mathbf{\Delta}_{i} + \mathbf{E}_{i} + \mathbf{Z}_{i} + \mathbf{H}_{i} + \mathbf{\Theta}_{i} + \mathbf{I}_{i} + \mathbf{K}_{i} + \mathbf{\Lambda}_{i} + \mathbf{M}_{i} + \\ \mathbf{N}_{i} + \mathbf{\Xi}_{i} + \mathbf{O}_{i} + \mathbf{\Pi}_{i} + \mathbf{P}_{i} + \mathbf{\Sigma}_{i} + \mathbf{T}_{i} + \mathbf{\Upsilon}_{i} + \mathbf{\Phi}_{i} + \mathbf{X}_{i} + \mathbf{\Psi}_{i} + \mathbf{\Omega}_{i} + \\ \end{split}$$

Math Bold (\mathbf)

$$\begin{aligned} &A_{i} + B_{i} + C_{i} + D_{i} + E_{i} + F_{i} + G_{i} + H_{i} + I_{i} + J_{i} + K_{i} + L_{i} + M_{i} + \\ &N_{i} + O_{i} + P_{i} + Q_{i} + R_{i} + S_{i} + T_{i} + U_{i} + V_{i} + W_{i} + X_{i} + Y_{i} + Z_{i} + \\ &a_{i} + b_{i} + c_{i} + d_{i} + e_{i} + f_{i} + g_{i} + h_{i} + i_{i} + j_{i} + k_{i} + l_{i} + m_{i} + \\ &n_{i} + o_{i} + p_{i} + q_{i} + r_{i} + s_{i} + t_{i} + u_{i} + v_{i} + w_{i} + x_{i} + y_{i} + z_{i} + \\ &A_{i} + B_{i} + \Gamma_{i} + \Delta_{i} + E_{i} + Z_{i} + H_{i} + \Theta_{i} + I_{i} + K_{i} + \Lambda_{i} + M_{i} + \\ &N_{i} + \Xi_{i} + O_{i} + \Pi_{i} + P_{i} + \Sigma_{i} + T_{i} + \Upsilon_{i} + \Phi_{i} + X_{i} + \Psi_{i} + \Omega_{i} + \end{aligned}$$

Math Calligraphic (\mathcal)

$$\begin{split} \mathscr{A}_i + \mathscr{B}_i + \mathscr{C}_i + \mathscr{D}_i + \mathscr{E}_i + \mathscr{F}_i + \mathscr{G}_i + \mathscr{H}_i + \mathscr{J}_i + \mathscr{J}_i + \mathscr{K}_i + \mathscr{L}_i + \mathscr{M}_i + \\ \mathscr{N}_i + \mathscr{O}_i + \mathscr{P}_i + \mathscr{Q}_i + \mathscr{R}_i + \mathscr{S}_i + \mathscr{T}_i + \mathscr{U}_i + \mathscr{V}_i + \mathscr{W}_i + \mathscr{X}_i + \mathscr{Y}_i + \mathscr{Z}_i + \\ \end{split}$$

# 8.7 Accent Positioning Serif

Default

Math Italic (\mathit)

$$\hat{0} + \hat{1} + \hat{2} + \hat{3} + \hat{4} + \hat{5} + \hat{6} + \hat{7} + \hat{8} + \hat{9} + \\ \hat{A} + \hat{B} + \hat{C} + \hat{D} + \hat{E} + \hat{F} + \hat{G} + \hat{H} + \hat{I} + \hat{J} + \hat{K} + \hat{L} + \hat{M} + \\ \hat{N} + \hat{O} + \hat{P} + \hat{Q} + \hat{R} + \hat{S} + \hat{T} + \hat{U} + \hat{V} + \hat{W} + \hat{X} + \hat{Y} + \hat{Z} + \\ \hat{a} + \hat{b} + \hat{c} + \hat{d} + \hat{e} + \hat{f} + \hat{g} + \hat{h} + \hat{i} + \hat{j} + \hat{k} + \hat{I} + \hat{m} + \\ \hat{n} + \hat{o} + \hat{p} + \hat{q} + \hat{r} + \hat{s} + \hat{t} + \hat{u} + \hat{v} + \hat{w} + \hat{x} + \hat{y} + \hat{z} + \\ \hat{A} + \hat{B} + \hat{\Gamma} + \hat{\Delta} + \hat{E} + \hat{Z} + \hat{H} + \hat{\Theta} + \hat{I} + \hat{K} + \hat{\Lambda} + \hat{M} + \\ \hat{N} + \hat{\Xi} + \hat{O} + \hat{\Pi} + \hat{P} + \hat{\Sigma} + \hat{T} + \hat{\Upsilon} + \hat{\Phi} + \hat{X} + \hat{\Psi} + \hat{\Omega} +$$

$$\hat{0} + \hat{1} + \hat{2} + \hat{3} + \hat{4} + \hat{5} + \hat{6} + \hat{7} + \hat{8} + \hat{9} + \\ \hat{A} + \hat{B} + \hat{C} + \hat{D} + \hat{E} + \hat{F} + \hat{G} + \hat{H} + \hat{I} + \hat{J} + \hat{K} + \hat{L} + \hat{M} + \\ \hat{N} + \hat{O} + \hat{P} + \hat{Q} + \hat{R} + \hat{S} + \hat{T} + \hat{U} + \hat{V} + \hat{W} + \hat{X} + \hat{Y} + \hat{Z} + \\ \hat{a} + \hat{b} + \hat{c} + \hat{d} + \hat{e} + \hat{f} + \hat{g} + \hat{h} + \hat{i} + \hat{j} + \hat{k} + \hat{l} + \hat{m} + \\ \hat{n} + \hat{o} + \hat{p} + \hat{q} + \hat{r} + \hat{s} + \hat{t} + \hat{u} + \hat{v} + \hat{w} + \hat{x} + \hat{y} + \hat{z} + \\ \hat{A} + \hat{B} + \hat{\Gamma} + \hat{\Delta} + \hat{E} + \hat{Z} + \hat{H} + \hat{\Theta} + \hat{I} + \hat{K} + \hat{\lambda} + \hat{M} + \\ \hat{N} + \hat{\Xi} + \hat{O} + \hat{\Pi} + \hat{P} + \hat{\Sigma} + \hat{T} + \hat{T} + \hat{\Phi} + \hat{X} + \hat{\Psi} + \hat{\Omega} +$$

Math Calligraphic (\mathcal)

$$\hat{A} + \hat{B} + \hat{C} + \hat{D} + \hat{E} + \hat{F} + \hat{G} + \hat{H} + \hat{J} + \hat{J} + \hat{J} + \hat{H} +$$

## 8.8 Differentials Serif

 $\begin{aligned} \mathrm{d}A + \mathrm{d}B + \mathrm{d}C + \mathrm{d}D + \mathrm{d}E + \mathrm{d}F + \mathrm{d}G + \mathrm{d}H + \mathrm{d}I + \mathrm{d}J + \mathrm{d}K + \mathrm{d}L + \mathrm{d}M + \\ \mathrm{d}N + \mathrm{d}O + \mathrm{d}P + \mathrm{d}Q + \mathrm{d}R + \mathrm{d}S + \mathrm{d}T + \mathrm{d}U + \mathrm{d}V + \mathrm{d}W + \mathrm{d}X + \mathrm{d}Y + \mathrm{d}Z + \\ \mathrm{d}a + \mathrm{d}b + \mathrm{d}c + \mathrm{d}d + \mathrm{d}e + \mathrm{d}f + \mathrm{d}g + \mathrm{d}h + \mathrm{d}i + \mathrm{d}j + \mathrm{d}k + \mathrm{d}l + \mathrm{d}m + \\ \mathrm{d}n + \mathrm{d}o + \mathrm{d}p + \mathrm{d}q + \mathrm{d}r + \mathrm{d}s + \mathrm{d}t + \mathrm{d}u + \mathrm{d}v + \mathrm{d}w + \mathrm{d}x + \mathrm{d}y + \mathrm{d}z + \\ \mathrm{d}A + \mathrm{d}B + \mathrm{d}\Gamma + \mathrm{d}\Delta + \mathrm{d}E + \mathrm{d}Z + \mathrm{d}H + \mathrm{d}\Theta + \mathrm{d}I + \mathrm{d}K + \mathrm{d}\Lambda + \mathrm{d}M + \\ \mathrm{d}N + \mathrm{d}\Xi + \mathrm{d}O + \mathrm{d}\Pi + \mathrm{d}P + \mathrm{d}\Sigma + \mathrm{d}T + \mathrm{d}\Upsilon + \mathrm{d}\Phi + \mathrm{d}X + \mathrm{d}\Psi + \mathrm{d}\Omega + \\ \mathrm{d}\alpha + \mathrm{d}\beta + \mathrm{d}\gamma + \mathrm{d}\delta + \mathrm{d}\epsilon + \mathrm{d}\zeta + \mathrm{d}\eta + \mathrm{d}\theta + \mathrm{d}\iota + \mathrm{d}\kappa + \mathrm{d}\lambda + \mathrm{d}\mu + \\ \mathrm{d}v + \mathrm{d}\xi + \mathrm{d}o + \mathrm{d}\pi + \mathrm{d}\rho + \mathrm{d}\sigma + \mathrm{d}\tau + \mathrm{d}v + \mathrm{d}\phi + \mathrm{d}\chi + \mathrm{d}\psi + \mathrm{d}\omega + \\ \mathrm{d}\epsilon + \mathrm{d}\vartheta + \mathrm{d}\sigma + \mathrm{d}\varrho + \mathrm{d}\varsigma + \mathrm{d}\varphi + \mathrm{d} + \mathrm{d}\Theta + \mathrm{d}I + \mathrm{d}K + \mathrm{d}\Lambda + \mathrm{d}M + \\ \mathrm{d}\Lambda + \mathrm$ 

$$\begin{split} \partial A + \partial B + \partial C + \partial D + \partial E + \partial F + \partial G + \partial H + \partial I + \partial J + \partial K + \partial L + \partial M + \\ \partial N + \partial O + \partial P + \partial Q + \partial R + \partial S + \partial T + \partial U + \partial V + \partial W + \partial X + \partial Y + \partial Z + \\ \partial a + \partial b + \partial c + \partial d + \partial e + \partial f + \partial g + \partial h + \partial i + \partial j + \partial k + \partial l + \partial m + \\ \partial n + \partial o + \partial P + \partial q + \partial r + \partial S + \partial t + \partial u + \partial v + \partial w + \partial X + \partial y + \partial Z + \\ \partial A + \partial B + \partial \Gamma + \partial \Delta + \partial E + \partial Z + \partial H + \partial \Theta + \partial I + \partial K + \partial \Lambda + \partial M + \\ \partial N + \partial \Xi + \partial O + \partial \Pi + \partial P + \partial \Sigma + \partial T + \partial \Upsilon + \partial \Phi + \partial X + \partial \Psi + \partial \Omega + \\ \partial \alpha + \partial \beta + \partial \gamma + \partial \delta + \partial \epsilon + \partial \zeta + \partial \eta + \partial \theta + \partial \iota + \partial \kappa + \partial \lambda + \partial \mu + \\ \partial v + \partial \xi + \partial o + \partial \pi + \partial \rho + \partial \sigma + \partial \tau + \partial v + \partial \phi + \partial \chi + \partial \psi + \partial \omega + \\ \partial \varepsilon + \partial \vartheta + \partial \varpi + \partial \varrho + \partial \zeta + \partial \varphi + \\ \partial A + \partial B + \partial \Gamma + \partial \Delta + \partial E + \partial Z + \partial H + \partial \Theta + \partial I + \partial K + \partial \Lambda + \partial M + \\ \partial N + \partial \Xi + \partial O + \partial \Pi + \partial P + \partial \Sigma + \partial T + \partial \Upsilon + \partial \Phi + \partial X + \partial \Psi + \partial \Omega + \\ \partial A + \partial B + \partial \Gamma + \partial \Delta + \partial E + \partial Z + \partial H + \partial \Theta + \partial I + \partial K + \partial \Lambda + \partial M + \\ \partial N + \partial \Xi + \partial O + \partial \Pi + \partial P + \partial \Sigma + \partial T + \partial \Upsilon + \partial \Phi + \partial X + \partial \Psi + \partial \Omega + \\ \partial A + \partial B + \partial \Gamma + \partial \Delta + \partial E + \partial C + \partial T + \partial \Upsilon + \partial \Phi + \partial C +$$

# 8.9 Slash Kerning Serif

 $A/2+B/2+C/2+D/2+E/2+F/2+G/2+H/2+I/2+J/2+K/2+L/2+M/2+N/2+B/2+C/2+D/2+E/2+F/2+G/2+H/2+I/2+J/2+K/2+L/2+M/2+N/2+O/2+P/2+Q/2+R/2+S/2+T/2+U/2+V/2+W/2+X/2+Y/2+Z/2+A/2+b/2+c/2+d/2+e/2+f/2+g/2+h/2+i/2+j/2+k/2+l/2+m/2+n/2+o/2+p/2+q/2+r/2+s/2+t/2+u/2+v/2+w/2+x/2+y/2+z/2+A/2+B/2+\Gamma/2+\Delta/2+E/2+Z/2+H/2+\Theta/2+I/2+K/2+A/2+M/2+N/2+E/2+O/2+H/2+P/2+E/2+T/2+Y/2+\Phi/2+X/2+\Psi/2+O/2+\Psi/2+O/2+\Psi/2+\$ 

## 8.10 Big Operators Serif

$$\sum_{i=1}^{n} x^{n} \prod_{i=1}^{n} x^{n} \prod_{i=1}^{n} x^{n} \int_{i=1}^{n} x^{n} \oint_{i=1}^{n} x^{n}$$

$$\bigotimes_{i=1}^{n} x^{n} \bigoplus_{i=1}^{n} x^{n} \bigcap_{i=1}^{n} x^{n} \bigvee_{i=1}^{n} x^{n} \bigcup_{i=1}^{n} x^{n} \bigcup_{i=1}^{n} x^{n} \bigcap_{i=1}^{n} x^{n}$$

## 8.11 Radicals Serif

$$\sqrt{x+y} \qquad \sqrt{x^2+y^2} \qquad \sqrt{x_i^2+y_j^2} \qquad \sqrt{\left(\frac{\cos x}{2}\right)} \qquad \sqrt{\left(\frac{\sin x}{2}\right)}$$

$$\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{x+y}}}}}}$$

## 8.12 Over- and Underbraces Serif

$$x \longrightarrow x+y \longrightarrow x^2+y^2 \longrightarrow x_i^2+y_j^2 \longrightarrow x+y \longrightarrow x_i+y_j \longrightarrow x_i^2+y_j^2$$

### 8.13 Normal and Wide Accents Serif

$$\dot{x}$$
  $\ddot{x}$   $\ddot{x}$   $\bar{x}$   $\bar{x}$ 

 $\hat{x}$   $\check{x}$   $\check{x}$   $\check{x}$   $\dot{x}$   $\dot{x}$   $\dot{x}$   $\dot{x}$   $\dot{x}$   $\dot{x}$   $\dot{x}$ 

## 8.14 Long Arrows Serif



# 8.15 Left and Right Delimiters Serif

$$-(f) - -[f] - -|f| - -[f] - -\langle f \rangle - -\{f\} -$$

Using \left and \right.

$$-(f) - -[f] - -|f| - -|f| - -|f| - -|f| - -|f|$$

$$-)f(--)f[--/f/--|f| - -|f| - -|f|$$

# 8.16 Big-g-g Delimiters Serif

## 8.17 Binary Operators Serif

$x \pm y$	\pm	$x \cap y$	\cap	$x \diamond y$	\diamond	$x \oplus y$	\oplus
$x \mp y$	\mp	$x \cup y$	\cup	$x \triangle y$	\bigtriangleup	$x \ominus y$	\ominus
$x \times y$	\times	$x \uplus y$	\uplus	$x \nabla y$	\bigtriangledown	$x \otimes y$	\otimes
$x \div y$	\div	$x\sqcap y$	\sqcap	$x \triangleleft y$	$\triangleleft$	$x \oslash y$	\oslash
x*y	\ast	$x \sqcup y$	\sqcup	$x \triangleright y$	$\triangleright$	$x \odot y$	\odot
$x \star y$	\star	$x \lor y$	\vee	$x \triangleleft y$	\lhd	$x \bigcirc y$	\bigcirc
$x \circ y$	\circ	$x \wedge y$	\wedge	$x \triangleright y$	\rhd	$x \dagger y$	\dagger
$x \bullet y$	\bullet	$x \setminus y$	\setminus	$x \triangleleft y$	\unlhd	$x \ddagger y$	\ddagger
$x \cdot y$	\cdot	$x \wr y$	\wr	$x \trianglerighteq y$	\unrhd	x§ $y$	\S
x+y	+	x-y	_	$x \coprod y$	$\aggreen$ amalg	$x^{\P}y$	\P

## 8.18 Relations Serif

```
x \le y
          \leq
                                                            x \equiv y
                                                                       \equiv
                                                                                     x \models y
                                                                                               \models
                              x \ge y
                                        \geq
                                                                       \sim
x \prec y
          \prec
                              x \succ y
                                        \succ
                                                            x \sim y
                                                                                     x \perp y
                                                                                               \perp
x \leq y
          \preceq
                              x \succeq y
                                        \succeq
                                                            x \simeq y
                                                                       \simeq
                                                                                     x \mid y
                                                                                               \mid
x \ll y
          \11
                                                                       \asymp
                                                                                     x \parallel y
                                                                                               \parallel
                              x \gg y
                                        \gg
                                                            x \simeq y
          \subset
                                        \supset
                                                                       \approx
                                                                                               \bowtie
x \subset y
                              x \supset y
                                                            x \approx y
                                                                                     x \bowtie y
x \subseteq y
          \subseteq
                              x \supseteq y
                                        \supseteq
                                                            x \cong y
                                                                       \cong
                                                                                               \Join
                                                                                     x \bowtie y
                                                                                               \smile
x \sqsubset y
          \sqsubset
                              x \supset y
                                        \sqsupset
                                                            x \neq y
                                                                       \neq
                                                                                     x \smile y
                                                                                               \frown
x \sqsubseteq y
          \sqsubseteq
                              x \supseteq y
                                        \sqsupseteq
                                                            x \doteq y
                                                                       \doteq
                                                                                     x - y
x \in y
          \in
                                        \ni
                                                                       \propto
                              x \ni y
                                                            x \propto y
                                                                                     x = y
                                        \dashv
x \vdash y
          \vdash
                              x \dashv y
                                                            x < y
                                                                                     x > y
x:y
```

### 8.19 Punctuation Serif

```
x,y , x;y ; x:y \colon x.y \ldotp x\cdot y \cdotp
```

#### 8.20 Arrows Serif

$x \leftarrow y$	\leftarrow	$x \leftarrow y$	$\label{longleftarrow}$	$x \uparrow y$	\uparrow
$x \leftarrow y$	\Leftarrow	$x \leftarrow y$	\Longleftarrow	$x \uparrow y$	\Uparrow
$x \rightarrow y$	\rightarrow	$x \longrightarrow y$	$\label{longright} \$	$x \downarrow y$	\downarrow
$x \Rightarrow y$	$\Rightarrow$	$x \Longrightarrow y$	$ackslash  ext{Longrightarrow}$	$x \downarrow y$	\Downarrow
$x \longleftrightarrow y$	$\$ leftrightarrow	$x \longleftrightarrow y$	\longleftrightarrow	$x \uparrow y$	\updownarrow
$x \Leftrightarrow y$	$ackslash  ext{Leftrightarrow}$	$x \longleftrightarrow y$	\Longleftrightarrow	$x \updownarrow y$	\Updownarrow
$x \mapsto y$	\mapsto	$x \longmapsto y$	$\label{longmapsto} \$	$x \nearrow y$	\nearrow
$x \leftarrow y$	$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	$x \hookrightarrow y$	$\$ hookrightarrow	$x \searrow y$	\searrow
$x \leftarrow y$	$\$ leftharpoonup	$x \rightarrow y$	\rightharpoonup	$x \swarrow y$	\swarrow
$x \leftarrow y$	$\$ leftharpoondown	$x \rightarrow y$	$\$ rightharpoondown	$x \setminus y$	\nwarrow
$x \rightleftharpoons y$	\rightleftharpoons	$x \leadsto y$	\leadsto		

## 8.21 Miscellaneous Symbols Serif

```
\ldots
                     x \cdots y
                               \cdots
                                                        \vdots
                                                                          x \cdot y
                                                                                   \ddots
x...y
                                                x:y
хХу
         \aleph
                               \prime
                                                x \forall y
                                                        \forall
                                                                                   \infty
                     x/y
                                                                          x \infty y
хħу
         \hbar
                     x\emptyset y
                               \emptyset
                                                x\exists y
                                                        \exists
                                                                          x \square y
                                                                                   \mathbb{Z}
         \imath
                               \nabla
                                                                                   \Diamond
хıу
                     x\nabla y
                                                x\neg y
                                                        \neg
                                                                          x \Diamond y
         \jmath
                     x\sqrt{y}
                               \surd
                                                xby
                                                        \flat
                                                                          x \triangle y
                                                                                   \triangle
хју
         \ell
                               \top
                                                        \natural
                                                                          x♣y
                                                                                   \clubsuit
x\ell y
                     x T y
                                                x 
atural y
         \wp
                     x \perp y
                               \bot
                                                        \sharp
                                                                          x \diamondsuit y
                                                                                   \diamondsuit
хюу
                                                x \sharp y
         \Re
                     x||y
                                                        \backslash
                                                                          x \nabla y
                                                                                   \heartsuit
x\Re y
                               1/
                                                x \setminus y
x\Im y
         \Im
                     x \angle y
                               \angle
                                                x\partial y
                                                        \partial
                                                                          x♠y
                                                                                    \spadesuit
                                                                                    !
х℧у
         \mho
                                                x|y
                                                                          x!y
                     x.y
```

# 8.22 Variable-Sized Operators Serif

```
\sum
                             \bigcap
                                           x \odot y
                                                    \bigodot
x \prod y
                             \bigcup
                                           x \otimes y
                                                    \bigotimes
        \prod
x \coprod y
        \coprod
                    x \mid y
                            \bigsqcup x \oplus y
                                                    \bigoplus
x \mid y
        \int
                    x \bigvee y
                            \bigvee
                                           x+y
                                                    \biguplus
                            \bigwedge
x \phi y
        \oint
```

# 8.23 Log-Like Operators Serif

```
x \operatorname{arccos} y = x \operatorname{cos} y
                           x \csc y
                                       x \exp y
                                                    xkery
                                                                  x \lim \sup y
                                                                                  x \min y
                                                                                              x \sinh y
x arcsin y
             x coshy
                           x \deg y
                                       x \gcd y
                                                    x \log y
                                                                   x \ln y
                                                                                  xPry
                                                                                              x \sup y
                           x \det y
                                       x hom y
                                                    x \lim y
                                                                   x \log y
x arctan y
              x \cot y
                                                                                  x \sec y
                                                                                              xtany
x argy
              x coth y
                           x \dim y = x \inf y
                                                    x \lim \inf y
                                                                  x \max y
                                                                                  x \sin y
                                                                                              x tanh y
```

## 8.24 Delimiters Serif

```
x(y)
                      x)y
                                           x \uparrow y
                                                     \uparrow
                                                                           x \uparrow y
                                                                                     \Uparrow
x[y]
       x]y
                                           x \downarrow y
                                                     \downarrow
                                                                           x \downarrow y
                                                                                     \Downarrow
x{y}
       \{
                      x}y
                             \}
                                           x \uparrow y
                                                     \updownarrow
                                                                           x \updownarrow y
                                                                                     \Updownarrow
                                                     \lceil
                                                                                     \rceil
x \mid y
       \lfloor
                     x \rfloor y
                             \rfloor
                                           x[y]
                                                                           xy
       \langle
                     x\rangle y
                             \rangle x/y
                                                                           x \setminus y
                                                                                     \backslash
x\langle y
                      x||y
x|y
                             \backslash I
```

# 8.25 Large Delimiters Serif

```
\rmoustache \rightarrowvert | \rmoustache \rightarrowvert | \
```

#### 8.26 Math Mode Accents Serif

```
\hat{a} \hat{a} \hat{a} \cdot{a} \hat{a} \bar{a} \hat{a} \dot{a} \hat{a} \breve{a} \hat{a} \check{a} \hat{a} \grave{a} \hat{a} \vec{a} \hat{a} \ddot{a} \hat{a} \tilde{a}
```

## 8.27 Miscellaneous Constructions Serif

```
abc
       \widetilde{abc}
                               abc
                                      \widehat{abc}
       \overleftarrow{abc}
àbc
                              abć
                                      \overrightarrow{abc}
abc
       \overline{abc}
                               abc
                                      \underline{abc}
abc
       \overbrace{abc}
                                      \underbrace{abc}
                               abc .
                               √abc
\sqrt{abc}
       \sqrt{abc}
                                     \sqrt[n]{abc}
                               abc
xyz
f
       f,
                                      \frac{abc}{xyz}
```

#### 8.28 AMS Delimiters Serif

 $x^{T}y$  \ullcorner  $x^{T}y$  \urlcorner  $x \perp y$  \llcorner  $x \perp y$  \llcorner

## 8.29 AMS Arrows Serif

```
x \longrightarrow y
           \dashrightarrow
                                             x ←-- y
                                                        \dashleftarrow
x = y
           \leftleftarrows
                                             x \hookrightarrow y
                                                        \leftrightarrows
x \Leftarrow y
           \Lleftarrow
                                                        \twoheadleftarrow
                                             x \leftarrow y
x \leftarrow y
           \leftarrowtail
                                             x \notin y
                                                        \looparrowleft
x \leftrightharpoons y
           \leftrightharpoons
                                                        \curvearrowleft
                                             x \cap y
x \circlearrowleft y
           \circlearrowleft
                                             x \uparrow y
                                                        \Lsh
                                                         \upharpoonleft
x \uparrow \uparrow y
           \upuparrows
                                             x \mid y
           \downharpoonleft
                                                         \multimap
x \downarrow y
                                             x \rightarrow y
           \leftrightsquigarrow
                                            x \rightrightarrows y
                                                        \rightrightarrows
x \leftrightarrow y
x \rightleftharpoons y
           \rightleftarrows
                                                        \rightrightarrows
                                             x \rightrightarrows y
           \rightleftarrows
                                                        \twoheadrightarrow
x \rightleftharpoons y
                                             x \rightarrow y
           \rightarrowtail
                                                        \looparrowright
x \mapsto y
                                             x \Rightarrow y
           \rightleftharpoons
                                                        \curvearrowright
x \rightleftharpoons y
                                             x \cap y
           \circlearrowright
                                             x 
ightharpoonup y
                                                        \Rsh
x \circlearrowleft y
           \downdownarrows
                                                         \upharpoonright
x \downarrow \downarrow y
                                             x \mid y
x \mid y
           \downharpoonright
                                             x \rightsquigarrow y
                                                        \rightsquigarrow
```

## 8.30 AMS Negated Arrows Serif

```
x \leftrightarrow y \nleftarrow x \nrightarrow y \nrightarrow x \nleftrightarrow y \nRightarrow x \nleftrightarrow y \nleftrightarrow x \nleftrightarrow y \nLeftrightarrow
```

## 8.31 AMS Greek Serif

xfy \digamma xxy \varkappa

# 8.32 AMS Hebrew Serif

 $x \times y = x \cdot y = x \cdot$ 

# 8.33 AMS Miscellaneous Serif

хћу	\hbar	хћу	\hslash
$x \triangle y$	\vartriangle	$x \nabla y$	\triangledown
$x\Box y$	\square	$x \Diamond y$	\lozenge
x(S) $y$	\circledS	x∠y	\angle
x≰y	\measuredangle	x∄y	\nexists
х℧у	\mho	$x \pm y$	$\backslash \texttt{Finv}^u$
$x$ $\ni y$	$\backslash \mathtt{Game}^u$	xk $y$	\Bbbk <sup>u</sup>
x y	\backprime	хØу	\varnothing
$x \blacktriangle y$	\blacktriangle	$x \nabla y$	\blacktriangledown
<i>x</i> <b>■</b> <i>y</i>	\blacksquare	<i>x</i> <b>♦</b> <i>y</i>	\blacklozenge
$x \bigstar y$	\bigstar	x∢y	\sphericalangle
xC $y$	\complement	хðу	\eth
x/y	$ackslash  exttt{diagup}^u$	$x \setminus y$	$\diagdown^u$

<sup>&</sup>lt;sup>u</sup> Not defined in amssymb.sty, define using the \newsymbol command.

# 8.34 AMS Binary Operators Serif

x + y	\dotplus	$x \setminus y$	\smallsetminus
$x \cap y$	\Cap	$x \cup y$	\Cup
$x \overline{\wedge} y$	\barwedge	$x \vee y$	\veebar
$x \overline{\wedge} y$	\doublebarwedge	$x \boxminus y$	\boxminus
$x \boxtimes y$	\boxtimes	$x \square y$	\boxdot
$x \boxplus y$	\boxplus	x * y	\divideontimes
$x \ltimes y$	\ltimes	$x \rtimes y$	\rtimes
$x \setminus y$	\leftthreetimes	$x \angle y$	\rightthreetimes
$x \downarrow y$	\curlywedge	$x \land y$	\curlyvee
$x \ominus y$	\circleddash	$x \otimes y$	\circledast
$x \odot y$	\circledcirc	$x \cdot y$	\centerdot
$x \intercal y$	\intercal		

## 8.35 AMS Relations Serif

- $x \leq y$  \leqslant
- $x \lesssim y$  \lesssim
- $x \ge y$  \approxeq
- $x \ll y \setminus 111$
- $x \leq y$  \lesseqgtr
- x = y \doteqdot
- x = y \fallingdotseq
- x = y \backsimeq
- $x \in y$  \Subset
- $x \leq y$  \preccurlyeq
- $x \lesssim y$  \precsim
- $x \triangleleft y$  \vartriangleleft
- $x \models y \quad \forall x$
- $x \smile y$  \smallsmile
- x = y \bumpeq
- $x \ge y \setminus \text{geqq}$
- $x \geqslant y$  \eqslantgtr
- $x \gtrsim y$  \gtrapprox
- $x \gg y \setminus ggg$
- $x \geq y$  \gtreqless
- x = y \eqcirc
- $x \triangleq y$  \triangleq
- $x \approx y$  \thickapprox
- $x \ni y$  \Supset
- $x \succcurlyeq y$  \succcurlyeq
- $x \gtrsim y$  \succsim
- $x \triangleright y$  \vartriangleright
- $x \Vdash y \quad \forall x \mid \forall y$
- $x \parallel y$  \shortparallel
- $x \pitchfork y$  \pitchfork
- $x \triangleleft y$  \blacktriangleleft
- $x \ni y$  \backepsilon
- x:y \because

# 8.36 AMS Negated Relations Serif

$x \not< y$	\nless	$x \not \leq y$	\nleq
$x \not \leq y$	$\nleqslant$	$x \not \leq y$	\nleqq
$x \leq y$	\lneq		\lneqq
$x \leq y$	\lvertneqq		$\label{lnsim}$
$x \lessapprox y$	$\label{lnapprox}$	$x \not\prec y$	\nprec
$x \not \perp y$	\npreceq	$x \not\supset y$	\precnsim
$x \not\gtrsim y$	\precnapprox	<i>x</i> <b>~</b> <i>y</i>	\nsim
	\nshortmid	$x \nmid y$	\nmid
	$\nvdash$	$x \not\models y$	\nvDash
$x \not = y$	$\ntriangleleft$	$x \not \equiv y$	$\n$
$x \not\subseteq y$	\nsubseteq	$x \subsetneq y$	\subsetneq
$x \not\subseteq y$	\varsubsetneq	$x \subsetneq y$	\subsetneqq
$x \not\subseteq y$	$\varsubsetneqq$	$x \not> y$	\ngtr
$x \not\geq y$	\ngeq	$x \not\geq y$	$\ngeqslant$
$x \not \geq y$	\ngeqq		\gneq
$x \ngeq y$	\gneqq	$x \geqq y$	\gvertneqq
$x \gtrsim y$	\gnsim	$x \gtrapprox y$	\gnapprox
$x \not\succ y$	\nsucc		\nsucceq
$x \not \sqsubseteq y$	\nsucceqq	$x \not\gtrsim y$	\succnsim
<i>x</i>	$\scalebox{succnapprox}$	$x \not\cong y$	\ncong
хиу	\nshortparallel	$x \not\parallel y$	nparallel
$x \not\models y$	\nvDash	$x \not\Vdash y$	\nVDash
$x \not\triangleright y$	$\ntriangleright$	$x \not\trianglerighteq y$	\ntrianglerighteq
$x \not\supseteq y$	nsupseteq	$x \not\supseteq y$	\nsupseteqq
	$\supsetneq$	$x \ni y$	$\vert var supset neq$
$x \supseteq y$	\supsetneqq	$x \not\supseteq y$	$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $

# 9 Serif Bold

# 9.1 Overview Serif Bold

Default:  $aab\beta G\Gamma P\Pi \alpha\beta$  mathnormal:  $a\alpha b\beta G\Gamma P\Pi$  mathrm:  $a\alpha \alpha b\beta G\Gamma P\Pi$  mathup:  $a\alpha \alpha b\beta G\Gamma P\Pi$  mathit:  $a\alpha b\beta G\Gamma P\Pi$  mathbf:  $a\alpha b\beta G\Gamma P\Pi$  mathbf:  $a\alpha b\beta G\Gamma P\Pi$  mathbf:  $a\alpha b\beta G\Gamma P\Pi$ 

Default:  $a\alpha b\beta G\Gamma P\Pi$  mathnormal:  $a\alpha b\beta G\Gamma P\Pi$  mathrm:  $a\alpha b\beta G\Gamma P\Pi$  mathup:  $a\alpha b\beta G\Gamma P\Pi$  mathit:  $a\alpha b\beta G\Gamma P\Pi$ 

mathbf: ααbβGΓΡΠ mathbfit: ααbβGΓΡΠ

Default:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathnormal:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathrm:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathup:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathit:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathbf:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathbf:  $\alpha\alpha b\beta G\Gamma P\Pi$ 

## 9.2 Formulas Serif Bold

α, β, γ, δ, ε, ζ, η, θ, ι, κ, λ, μ, ν, ξ, ο, π, ρ, σ, ς, τ, ν, φ, χ, ψ, ω, ε, Α, Β, Γ, Δ, Ε, Ζ, Η, Θ, Ι, Κ, Λ, Μ, Ν, Ξ, Ο, Π, Ρ, Σ, Τ, Υ, Φ, Χ, Ψ, Ω, Ε, α, β, γ, δ, ε, ζ, η, θ, ι, κ, λ, μ, ν, ξ, ο, π, ρ, σ, ς, τ, ν, φ, χ, ψ, ω, ε, Α, Β, Γ, Δ, Ε, Ζ, Η, Θ, Ι, Κ, Λ, Μ, Ν, Ξ, Ο, Π, Ρ, Σ, Τ, Υ, Φ, Χ, Ψ, Ω, Ε, α, β, γ, δ, ε, ζ, η, θ, ι, κ, λ, μ, ν, ξ, ο, π, ρ, σ, ς, τ, υ, φ, χ, ψ, ω, ε, Α, Β, Γ, Δ, Ε, Ζ, Η, Θ, Ι, Κ, Λ, Μ, Ν, Ξ, Ο, Π, Ρ, Σ, Τ, Υ, Φ, Χ, Ψ, Ω, Ε, α, β, γ, δ, ε, ζ, η, θ, ι, κ, λ, μ, ν, ξ, ο, π, ρ, σ, ς, τ, υ, φ, χ, ψ, ω, ε, Α, Β, Γ, Δ, Ε, Ζ, Η, Θ, Ι, Κ, Λ, Μ, Ν, Ξ, Ο, Π, Ρ, Σ, Τ, Υ, Φ, Χ, Ψ, Ω, Ε, αα > 0, βb + (3 × 27), ΓG = 7 < 8, λ αα > 0, βb + (3 × 27), ΓG = 7 < 8, λ s ± 3γ + y - 1 = 4 × 7

$$\sum_{i=0}^{N} x^{i}$$

$$\int_{-\infty}^{\infty} x f(x) \, \mathrm{d}x = \left(\frac{27}{2}\right)$$

 $s \pm 3\gamma + y - 1 \times 7$ 

$$\sum_{i=0}^{\infty} x^{i}$$

$$\int_{-\infty}^{\infty} x f(x) \, \mathrm{d}x = \left(\frac{27}{2}\right)$$

 $s \pm 3y + y - 1 \times 7$ 

$$\sum_{i=0}^{N} x^{i}$$

$$\int_{-\infty}^{\infty} x f(x) \, \mathbf{d}x = \left(\frac{27}{2}\right)$$

$$s \pm 3\gamma + y - 1 \times 7$$

$$\sum_{i=0}^{N} x^{i}$$

$$\int_{-\infty}^{\infty} x f(x) dx = \left(\frac{27}{2}\right)$$

# 9.3 Math Alphabets Serif Bold

#### **Default**

 $\begin{aligned} &0,1,2,3,4,5,6,7,8,9,\\ &A,B,C,D,E,F,G,H,I,J,K,L,M,N,O,P,Q,R,S,T,U,V,W,X,Y,Z,\\ &a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s,t,u,v,w,x,y,z,\\ &A,B,\Gamma,\Delta,E,Z,H,\Theta,I,K,\Lambda,M,N,\Xi,O,\Pi,P,\Sigma,T,\Upsilon,\Phi,X,\Psi,\Omega,\\ &\alpha,\beta,\gamma,\delta,\epsilon,\zeta,\eta,\theta,\iota,\kappa,\lambda,\mu,\nu,\xi,o,\pi,\rho,\sigma,\tau,\upsilon,\phi,\chi,\psi,\omega,\epsilon,\vartheta,\varpi,\varrho,\varsigma,\varphi, \end{aligned}$ 

### Math Normal (\mathnormal)

 $\begin{array}{l} 0,1,2,3,4,5,6,7,8,9, \\ A,B,C,D,E,F,G,H,I,J,K,L,M,N,O,P,Q,R,S,T,U,V,W,X,Y,Z, \\ a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s,t,u,v,w,x,y,z, \\ A,B,\Gamma,\Delta,E,Z,H,\Theta,I,K,\Lambda,M,N,\Xi,O,\Pi,P,\Sigma,T,\Upsilon,\Phi,X,\Psi,\Omega, \\ \alpha,\beta,\gamma,\delta,\epsilon,\zeta,\eta,\theta,\iota,\kappa,\lambda,\mu,\nu,\xi,o,\pi,\rho,\sigma,\tau,v,\phi,\chi,\psi,\omega,\epsilon,\vartheta,\varpi,\varrho,\varsigma,\varphi, \end{array}$ 

#### Math Italic (\mathit)

0,1,2,3,4,5,6,7,8,9, A,B,C,D,E,F,G,H,I,J,K,L,M,N,O,P,Q,R,S,T,U,V,W,X,Y,Z, a,b,c,d,e,f,g,h,i,j,k,l,m,n,o,p,q,r,s,t,u,v,w,x,y,z,  $A,B,`,`,E,Z,H,`,I,K,`,M,N,`,O,`,P,`,T,`,`,X,^-,`,$   $a,\beta,\gamma,\delta,\epsilon,\zeta,\eta,\theta,\iota,\kappa,\lambda,\mu,\nu,\xi,o,\pi,\rho,\sigma,\tau,\nu,\phi,\chi,\psi,\omega,\epsilon,\vartheta,\varpi,\varrho,\varsigma,\varphi,$ 

## Math Roman (\mathrm)

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z, A, B, Γ, Δ, E, Z, H, Θ, I, K, Λ, M, N, Ξ, O, Π, P, Σ, T, Υ, Φ, X, Ψ, Ω,  $\alpha, \beta, \gamma, \delta, \epsilon, \zeta, \eta, \theta, \iota, \kappa, \lambda, \mu, \nu, \xi, o, \pi, \rho, \sigma, \tau, v, \phi, \chi, \psi, \omega, \epsilon, \vartheta, \varpi, \varrho, \varsigma, \varphi,$ 

0, 1, 2, 3, 4, 5, 6, 7, 8, 9,

A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z,

a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z,

 $A, B, \Gamma, \Delta, E, Z, H, \Theta, I, K, \Lambda, M, N, \Xi, O, \Pi, P, \Sigma, T, \Upsilon, \Phi, X, \Psi, \Omega,$ 

 $\alpha, \beta, \gamma, \delta, \epsilon, \zeta, \eta, \theta, \iota, \kappa, \lambda, \mu, \nu, \xi, o, \pi, \rho, \sigma, \tau, v, \phi, \chi, \psi, \omega, \epsilon, \vartheta, \varpi, \varrho, \zeta, \varphi,$ 

#### Caligraphic (\mathcal)

 $\mathscr{A}, \mathscr{B}, \mathscr{C}, \mathfrak{D}, \mathscr{E}, \mathscr{F}, \mathscr{G}, \mathscr{H}, \mathscr{I}, \mathscr{J}, \mathscr{K}, \mathscr{L}, \mathscr{M}, \mathscr{N}, 0, \mathscr{P}, 2, \mathscr{R}, \mathscr{S}, \mathscr{T}, \mathscr{U}, \mathscr{V}, \mathscr{W}, \mathscr{X}, \mathscr{Y}, \mathscr{Z},$ 

Script (\mathscr)

 $\mathscr{A}, \mathscr{B}, \mathscr{C}, \mathfrak{D}, \mathscr{E}, \mathscr{F}, \mathscr{G}, \mathscr{H}, \mathscr{I}, \mathscr{J}, \mathscr{K}, \mathscr{L}, \mathscr{M}, \mathscr{N}, \mathscr{O}, \mathscr{P}, \mathscr{Q}, \mathscr{R}, \mathscr{S}, \mathscr{T}, \mathscr{U}, \mathscr{V}, \mathscr{W}, \mathscr{X}, \mathscr{Y}, \mathscr{Z},$ 

Fraktur (\mathfrak)

Blackboard Bold (\mathbb)

A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z,

## 9.4 Character Sidebearings Serif Bold

#### Default

$$|A| + |B| + |C| + |D| + |E| + |F| + |G| + |H| + |I| + |J| + |K| + |L| + |M| + |N| + |O| + |P| + |Q| + |R| + |S| + |T| + |U| + |V| + |W| + |X| + |Y| + |Z| + |a| + |b| + |c| + |d| + |e| + |f| + |g| + |h| + |i| + |j| + |k| + |I| + |m| + |n| + |o| + |p| + |q| + |r| + |s| + |t| + |u| + |v| + |w| + |x| + |y| + |z| + |A| + |B| + |\Gamma| + |\Delta| + |E| + |Z| + |H| + |\Theta| + |I| + |K| + |A| + |M| + |N| + |E| + |O| + |\Pi| + |P| + |E| + |T| + |T| + |\Phi| + |X| + |\Psi| + |\Omega| + |\alpha| + |\beta| + |\gamma| + |\delta| + |\epsilon| + |\zeta| + |\eta| + |\theta| + |\iota| + |\kappa| + |\lambda| + |\mu| + |v| + |\xi| + |o| + |\pi| + |\rho| + |\sigma| + |\tau| + |v| + |\phi| + |\chi| + |\psi| + |\omega| + |\epsilon| + |\partial| + |\varphi| + |\zeta| + |\varphi| + |\varphi|$$

$$\begin{split} |A| + |B| + |C| + |D| + |E| + |F| + |G| + |H| + |I| + |J| + |K| + |L| + |M| + \\ |N| + |O| + |P| + |Q| + |R| + |S| + |T| + |U| + |V| + |W| + |X| + |Y| + |Z| + \\ |a| + |b| + |c| + |d| + |e| + |f| + |g| + |h| + |i| + |j| + |k| + |I| + |m| + \\ |n| + |o| + |p| + |q| + |r| + |s| + |t| + |u| + |v| + |w| + |x| + |y| + |z| + \\ |A| + |B| + |\Gamma| + |\Delta| + |E| + |Z| + |H| + |\Theta| + |I| + |K| + |A| + |M| + \\ |N| + |\Xi| + |O| + |\Pi| + |P| + |\Sigma| + |T| + |\Upsilon| + |\Phi| + |X| + |\Psi| + |\Omega| + \end{split}$$

$$\begin{split} |A| + |B| + |C| + |D| + |E| + |F| + |G| + |H| + |I| + |J| + |K| + |L| + |M| + \\ |N| + |O| + |P| + |Q| + |R| + |S| + |T| + |U| + |V| + |W| + |X| + |Y| + |Z| + \\ |a| + |b| + |c| + |d| + |e| + |f| + |g| + |h| + |i| + |j| + |k| + |l| + |m| + \\ |n| + |o| + |p| + |q| + |r| + |s| + |t| + |u| + |v| + |w| + |x| + |y| + |z| + \\ |A| + |B| + |T| + |\Delta| + |E| + |Z| + |H| + |\Theta| + |I| + |K| + |A| + |M| + \\ |N| + |\Xi| + |O| + |\Pi| + |P| + |\Sigma| + |T| + |\Upsilon| + |\Phi| + |X| + |\Psi| + |\Omega| + \\ \end{split}$$

## Math Calligraphic (\mathcal)

$$\begin{split} |\mathcal{A}| + |\mathcal{B}| + |\mathcal{C}| + |\mathcal{D}| + |\mathcal{E}| + |\mathcal{F}| + |\mathcal{G}| + |\mathcal{H}| + |\mathcal{I}| + |\mathcal{I}| + |\mathcal{H}| +$$

# 9.5 Superscript Positioning Serif Bold

**Default** 

$$\begin{split} A^2 + B^2 + C^2 + D^2 + E^2 + F^2 + G^2 + H^2 + I^2 + J^2 + K^2 + L^2 + M^2 + \\ N^2 + O^2 + P^2 + Q^2 + R^2 + S^2 + T^2 + U^2 + V^2 + W^2 + X^2 + Y^2 + Z^2 + \\ a^2 + b^2 + c^2 + d^2 + e^2 + f^2 + g^2 + h^2 + i^2 + j^2 + k^2 + I^2 + m^2 + \\ n^2 + o^2 + p^2 + q^2 + r^2 + s^2 + t^2 + u^2 + v^2 + w^2 + x^2 + y^2 + z^2 + \\ A^2 + B^2 + \Gamma^2 + \Delta^2 + E^2 + Z^2 + H^2 + \Theta^2 + I^2 + K^2 + \Lambda^2 + M^2 + \\ N^2 + \Xi^2 + O^2 + \Pi^2 + P^2 + \Sigma^2 + T^2 + \Upsilon^2 + \Phi^2 + X^2 + \Psi^2 + \Omega^2 + \\ \alpha^2 + \beta^2 + \gamma^2 + \delta^2 + \epsilon^2 + \zeta^2 + \eta^2 + \theta^2 + \iota^2 + \kappa^2 + \lambda^2 + \mu^2 + \\ v^2 + \xi^2 + o^2 + \pi^2 + \rho^2 + \sigma^2 + \tau^2 + v^2 + \phi^2 + \chi^2 + \psi^2 + \omega^2 + \\ \varepsilon^2 + \vartheta^2 + \varpi^2 + \varrho^2 + \zeta^2 + \varphi^2 + \end{split}$$

$$\begin{split} A^2 + B^2 + C^2 + D^2 + E^2 + F^2 + G^2 + H^2 + I^2 + J^2 + K^2 + L^2 + M^2 + \\ N^2 + O^2 + P^2 + Q^2 + R^2 + S^2 + T^2 + U^2 + V^2 + W^2 + X^2 + Y^2 + Z^2 + \\ a^2 + b^2 + c^2 + d^2 + e^2 + f^2 + g^2 + h^2 + i^2 + j^2 + k^2 + I^2 + m^2 + \\ n^2 + o^2 + p^2 + q^2 + r^2 + s^2 + t^2 + u^2 + v^2 + w^2 + x^2 + y^2 + z^2 + \\ A^2 + B^2 + \Gamma^2 + \Delta^2 + E^2 + Z^2 + H^2 + \Theta^2 + I^2 + K^2 + \Lambda^2 + M^2 + \\ N^2 + \Xi^2 + O^2 + \Pi^2 + P^2 + \Sigma^2 + T^2 + \Upsilon^2 + \Phi^2 + X^2 + \Psi^2 + \Omega^2 + \Phi^2 + X^2 + \Phi^2 + \Phi^2$$

$$\begin{split} A^2 + B^2 + C^2 + D^2 + E^2 + F^2 + G^2 + H^2 + I^2 + J^2 + K^2 + L^2 + M^2 + \\ N^2 + O^2 + P^2 + Q^2 + R^2 + S^2 + T^2 + U^2 + V^2 + W^2 + X^2 + Y^2 + Z^2 + \\ a^2 + b^2 + c^2 + d^2 + e^2 + f^2 + g^2 + h^2 + i^2 + j^2 + k^2 + l^2 + m^2 + \\ n^2 + o^2 + p^2 + q^2 + r^2 + s^2 + t^2 + u^2 + v^2 + w^2 + x^2 + y^2 + z^2 + \\ A^2 + B^2 + \Gamma^2 + \Delta^2 + E^2 + Z^2 + H^2 + \Theta^2 + I^2 + K^2 + \Lambda^2 + M^2 + \\ N^2 + \Xi^2 + O^2 + \Pi^2 + P^2 + \Sigma^2 + T^2 + \Upsilon^2 + \Phi^2 + X^2 + \Psi^2 + \Omega^2 + \Delta^2 + \Delta^2$$

Math Calligraphic (\mathcal)

$$\mathcal{A}^{2} + \mathcal{B}^{2} + \mathcal{C}^{2} + \mathcal{D}^{2} + \mathcal{E}^{2} + \mathcal{F}^{2} + \mathcal{H}^{2} + \mathcal{H}^{2}$$

# 9.6 Subscript Positioning Serif Bold

**Default** 

$$\begin{split} A_i + B_i + C_i + D_i + E_i + F_i + G_i + H_i + I_i + J_i + K_i + L_i + M_i + \\ N_i + O_i + P_i + Q_i + R_i + S_i + T_i + U_i + V_i + W_i + X_i + Y_i + Z_i + \\ a_i + b_i + c_i + d_i + e_i + f_i + g_i + h_i + i_i + j_i + k_i + l_i + m_i + \\ n_i + o_i + p_i + q_i + r_i + s_i + t_i + u_i + v_i + w_i + x_i + y_i + z_i + \\ A_i + B_i + \Gamma_i + \Delta_i + E_i + Z_i + H_i + \Theta_i + I_i + K_i + \Lambda_i + M_i + \\ N_i + \Xi_i + O_i + \Pi_i + P_i + \Sigma_i + T_i + \Upsilon_i + \Phi_i + X_i + \Psi_i + \Omega_i + \\ \alpha_i + \beta_i + \gamma_i + \delta_i + \epsilon_i + \zeta_i + \eta_i + \theta_i + \iota_i + \kappa_i + \lambda_i + \mu_i + \\ v_i + \xi_i + o_i + \pi_i + \rho_i + \sigma_i + \tau_i + v_i + \phi_i + \chi_i + \psi_i + \omega_i + \\ \varepsilon_i + \vartheta_i + \varpi_i + \varrho_i + \zeta_i + \varphi_i + \end{split}$$

$$\begin{split} A_i + B_i + C_i + D_i + E_i + F_i + G_i + H_i + I_i + J_i + K_i + L_i + M_i + \\ N_i + O_i + P_i + Q_i + R_i + S_i + T_i + U_i + V_i + W_i + X_i + Y_i + Z_i + \\ a_i + b_i + c_i + d_i + e_i + f_i + g_i + h_i + i_i + j_i + k_i + l_i + m_i + \\ n_i + o_i + p_i + q_i + r_i + s_i + t_i + u_i + v_i + w_i + x_i + y_i + z_i + \\ A_i + B_i + \Gamma_i + \Delta_i + E_i + Z_i + H_i + \Theta_i + I_i + K_i + \Lambda_i + M_i + \\ N_i + \Xi_i + O_i + \Pi_i + P_i + \Sigma_i + T_i + \Upsilon_i + \Phi_i + X_i + \Psi_i + \Omega_i + \\ \end{split}$$

$$\begin{split} A_i + B_i + C_i + D_i + E_i + F_i + G_i + H_i + I_i + J_i + K_i + L_i + M_i + \\ N_i + O_i + P_i + Q_i + R_i + S_i + T_i + U_i + V_i + W_i + X_i + Y_i + Z_i + \\ a_i + b_i + c_i + d_i + e_i + f_i + g_i + h_i + i_i + j_i + k_i + l_i + m_i + \\ n_i + o_i + p_i + q_i + r_i + s_i + t_i + u_i + v_i + w_i + x_i + y_i + z_i + \\ A_i + B_i + \Gamma_i + \Delta_i + E_i + Z_i + H_i + \Theta_i + I_i + K_i + \Lambda_i + M_i + \\ N_i + \Xi_i + O_i + \Pi_i + P_i + \Sigma_i + T_i + \Upsilon_i + \Phi_i + X_i + \Psi_i + \Omega_i + \end{split}$$

Math Calligraphic (\mathcal)

$$\mathcal{A}_i + \mathcal{B}_i + \mathcal{C}_i + \mathcal{D}_i + \mathcal{E}_i + \mathcal{F}_i + \mathcal{G}_i + \mathcal{H}_i + \mathcal{J}_i + \mathcal{J}_i + \mathcal{H}_i + \mathcal{L}_i + \mathcal{M}_i + \mathcal{N}_i + \mathcal{O}_i + \mathcal{P}_i + \mathcal{Q}_i + \mathcal{R}_i + \mathcal{F}_i + \mathcal{T}_i + \mathcal{V}_i + \mathcal{V}_i + \mathcal{W}_i + \mathcal{X}_i + \mathcal{Y}_i + \mathcal{Z}_i + \mathcal$$

## 9.7 Accent Positioning Serif Bold

Default

Math Italic (\mathit)

$$\hat{0} + \hat{1} + \hat{2} + \hat{3} + \hat{4} + \hat{5} + \hat{6} + \hat{7} + \hat{8} + \hat{9} + \\ \hat{A} + \hat{B} + \hat{C} + \hat{D} + \hat{E} + \hat{F} + \hat{G} + \hat{H} + \hat{I} + \hat{J} + \hat{K} + \hat{L} + \hat{M} + \\ \hat{N} + \hat{O} + \hat{P} + \hat{Q} + \hat{R} + \hat{S} + \hat{T} + \hat{U} + \hat{V} + \hat{W} + \hat{X} + \hat{Y} + \hat{Z} + \\ \hat{a} + \hat{b} + \hat{c} + \hat{d} + \hat{e} + \hat{f} + \hat{g} + \hat{h} + \hat{i} + \hat{j} + \hat{k} + \hat{I} + \hat{m} + \hat{\ell} + \hat{\wp} + \hat{i} + \hat{J} + \hat{i} \\ \hat{n} + \hat{o} + \hat{p} + \hat{q} + \hat{r} + \hat{s} + \hat{t} + \hat{u} + \hat{v} + \hat{w} + \hat{x} + \hat{y} + \hat{z} + \\ \hat{A} + \hat{B} + \hat{r} + \hat{r} + \hat{E} + \hat{Z} + \hat{H} + \hat{r} + \hat{I} + \hat{K} + \hat{r} + \hat{M} + \\ \hat{N} + \hat{m} + \hat{O} + \hat{r} + \hat{P} + \hat{r} + \hat{T} + \hat{r} + \hat{r} + \hat{X} + \hat{r} + \hat{r} + \\ \hat{a} + \hat{\beta} + \hat{r} + \hat{\delta} + \hat{\epsilon} + \hat{\xi} + \hat{r} + \hat{\theta} + \hat{\theta} + \hat{t} + \hat{r} + \hat{\lambda} + \hat{\mu} + \\ \hat{v} + \hat{\xi} + \hat{o} + \hat{\pi} + \hat{\rho} + \hat{\sigma} + \hat{r} + \hat{r} + \hat{v} + \hat{\phi} + \hat{\chi} + \hat{\psi} + \hat{\omega} + \\ \hat{\epsilon} + \hat{\vartheta} + \hat{\sigma} + \hat{\varrho} + \hat{\varsigma} + \hat{\varsigma} + \hat{\varphi} + \end{aligned}$$

### Math Roman (\mathrm)

 $\hat{0} + \hat{1} + \hat{2} + \hat{3} + \hat{4} + \hat{5} + \hat{6} + \hat{7} + \hat{8} + \hat{9} + \\ \hat{A} + \hat{B} + \hat{C} + \hat{D} + \hat{E} + \hat{F} + \hat{G} + \hat{H} + \hat{I} + \hat{J} + \hat{K} + \hat{L} + \hat{M} + \\ \hat{N} + \hat{O} + \hat{P} + \hat{Q} + \hat{R} + \hat{S} + \hat{T} + \hat{U} + \hat{V} + \hat{W} + \hat{X} + \hat{Y} + \hat{Z} + \\ \hat{a} + \hat{b} + \hat{c} + \hat{d} + \hat{e} + \hat{f} + \hat{g} + \hat{h} + \hat{i} + \hat{j} + \hat{k} + \hat{I} + \hat{m} + \\ \hat{n} + \hat{o} + \hat{p} + \hat{q} + \hat{r} + \hat{s} + \hat{t} + \hat{u} + \hat{v} + \hat{w} + \hat{x} + \hat{y} + \hat{z} + \\ \hat{A} + \hat{B} + \hat{\Gamma} + \hat{\Delta} + \hat{E} + \hat{Z} + \hat{H} + \hat{\Theta} + \hat{I} + \hat{K} + \hat{\Lambda} + \hat{M} + \\ \hat{N} + \hat{\Xi} + \hat{O} + \hat{\Pi} + \hat{P} + \hat{\Sigma} + \hat{T} + \hat{\Upsilon} + \hat{\Phi} + \hat{X} + \hat{\Psi} + \hat{\Omega} +$ 

#### Math Bold (\mathbf)

 $\hat{0} + \hat{1} + \hat{2} + \hat{3} + \hat{4} + \hat{5} + \hat{6} + \hat{7} + \hat{8} + \hat{9} + \\ \hat{A} + \hat{B} + \hat{C} + \hat{D} + \hat{E} + \hat{F} + \hat{G} + \hat{H} + \hat{I} + \hat{J} + \hat{K} + \hat{L} + \hat{M} + \\ \hat{N} + \hat{O} + \hat{P} + \hat{Q} + \hat{R} + \hat{S} + \hat{T} + \hat{U} + \hat{V} + \hat{W} + \hat{X} + \hat{Y} + \hat{Z} + \\ \hat{a} + \hat{b} + \hat{c} + \hat{d} + \hat{e} + \hat{f} + \hat{g} + \hat{h} + \hat{i} + \hat{j} + \hat{k} + \hat{l} + \hat{m} + \\ \hat{n} + \hat{o} + \hat{p} + \hat{q} + \hat{r} + \hat{s} + \hat{t} + \hat{u} + \hat{v} + \hat{w} + \hat{x} + \hat{y} + \hat{z} + \\ \hat{A} + \hat{B} + \hat{\Gamma} + \hat{\Delta} + \hat{E} + \hat{Z} + \hat{H} + \hat{\Theta} + \hat{I} + \hat{K} + \hat{\lambda} + \hat{M} + \\ \hat{N} + \hat{\Xi} + \hat{O} + \hat{\Pi} + \hat{P} + \hat{\Sigma} + \hat{T} + \hat{T} + \hat{\Phi} + \hat{X} + \hat{\Psi} + \hat{\Omega} +$ 

### Math Calligraphic (\mathcal)

$$\hat{A} + \hat{\mathcal{B}} + \hat{\mathcal{C}} + \hat{\mathcal{D}} + \hat{\mathcal{E}} + \hat{\mathcal{F}} + \hat{\mathcal{G}} + \hat{\mathcal{H}} + \hat{\mathcal{J}} + \hat{\mathcal{J}} + \hat{\mathcal{L}} + \hat{\mathcal{L}} + \hat{\mathcal{M}} + \hat{\mathcal{L}} + \hat{\mathcal{H}} + \hat{\mathcal{L}} + \hat{\mathcal{H}} + \hat{\mathcal{L}} + \hat{\mathcal{L}}$$

## 9.8 Differentials Serif Bold

$$\begin{split} \partial A + \partial B + \partial C + \partial D + \partial E + \partial F + \partial G + \partial H + \partial I + \partial J + \partial K + \partial L + \partial M + \\ \partial N + \partial O + \partial P + \partial Q + \partial R + \partial S + \partial T + \partial U + \partial V + \partial W + \partial X + \partial Y + \partial Z + \\ \partial a + \partial b + \partial c + \partial d + \partial e + \partial f + \partial g + \partial h + \partial i + \partial j + \partial k + \partial I + \partial m + \\ \partial n + \partial o + \partial p + \partial q + \partial r + \partial s + \partial t + \partial u + \partial v + \partial w + \partial x + \partial y + \partial z + \\ \partial A + \partial B + \partial \Gamma + \partial \Delta + \partial E + \partial Z + \partial H + \partial \Theta + \partial I + \partial K + \partial \Lambda + \partial M + \\ \partial N + \partial \Xi + \partial O + \partial \Pi + \partial P + \partial \Sigma + \partial T + \partial \Upsilon + \partial \Phi + \partial X + \partial \Psi + \partial \Omega + \\ \partial \alpha + \partial \beta + \partial \gamma + \partial \delta + \partial \epsilon + \partial \zeta + \partial \eta + \partial \theta + \partial \iota + \partial \kappa + \partial \lambda + \partial \mu + \\ \partial \nu + \partial \xi + \partial o + \partial \pi + \partial \rho + \partial \sigma + \partial \tau + \partial v + \partial \phi + \partial \chi + \partial \psi + \partial \omega + \\ \partial \epsilon + \partial \theta + \partial \sigma + \partial \rho + \partial \zeta + \partial \psi + \partial \psi + \partial \lambda + \partial \mu + \\ \partial \Lambda + \partial B + \partial \Gamma + \partial \Delta + \partial E + \partial Z + \partial H + \partial \Theta + \partial I + \partial K + \partial \Lambda + \partial M + \\ \partial N + \partial \Xi + \partial O + \partial \Pi + \partial P + \partial \Sigma + \partial T + \partial \Upsilon + \partial \Phi + \partial X + \partial \Psi + \partial \Omega + \partial \Lambda + \partial M + \\ \partial \Lambda + \partial B + \partial \Gamma + \partial \Delta + \partial E + \partial Z + \partial H + \partial \Theta + \partial I + \partial K + \partial \Lambda + \partial M + \\ \partial \Lambda + \partial B + \partial \Gamma + \partial \Delta + \partial E + \partial Z + \partial H + \partial \Theta + \partial I + \partial K + \partial \Lambda + \partial M + \\ \partial \Lambda + \partial B + \partial \Gamma + \partial \Delta + \partial E + \partial Z + \partial H + \partial \Theta + \partial I + \partial K + \partial \Lambda + \partial M + \\ \partial \Lambda + \partial A + \partial A$$

## 9.9 Slash Kerning Serif Bold

 $A/2+B/2+C/2+D/2+E/2+F/2+G/2+H/2+I/2+J/2+K/2+L/2+M/2+N/2+D/2+P/2+Q/2+R/2+F/2+G/2+H/2+I/2+J/2+K/2+L/2+M/2+N/2+O/2+P/2+Q/2+R/2+S/2+T/2+U/2+V/2+W/2+X/2+Y/2+Z/2+A/2+b/2+c/2+d/2+e/2+f/2+g/2+h/2+i/2+j/2+k/2+l/2+m/2+n/2+o/2+p/2+q/2+r/2+s/2+t/2+u/2+v/2+w/2+x/2+y/2+z/2+A/2+B/2+F/2+A/2+E/2+Z/2+H/2+O/2+I/2+K/2+A/2+M/2+N/2+E/2+D/2+F/2+Z/2+H/2+O/2+I/2+K/2+A/2+M/2+N/2+E/2+O/2+H/2+P/2+E/2+T/2+T/2+P/2+X/2+\Psi/2+$ 

9.10 Big Operators Serif Bold

$$\sum_{i=1}^{n} x^{n} \prod_{i=1}^{n} x^{n} \prod_{i=1}^{n} x^{n} \int_{i=1}^{n} x^{n} \oint_{i=1}^{n} x^{n}$$

$$\bigotimes_{i=1}^{n} x^{n} \bigoplus_{i=1}^{n} x^{n} \bigcup_{i=1}^{n} x^{n} \bigvee_{i=1}^{n} x^{n} \bigcup_{i=1}^{n} x^{n} \bigcup_{i=1}^{n} x^{n} \bigcap_{i=1}^{n} x^{n} \bigcup_{i=1}^{n} x^{n}$$

9.11 Radicals Serif Bold

$$\sqrt{x+y} \qquad \sqrt{x^2+y^2} \qquad \sqrt{x_i^2+y_j^2} \qquad \sqrt{\left(\frac{\cos x}{2}\right)} \qquad \sqrt{\left(\frac{\sin x}{2}\right)}$$

$$\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{x+y}}}}}$$

9.12 Over- and Underbraces Serif Bold

$$x \longrightarrow x+y \longrightarrow x^2+y^2 \longrightarrow x_i^2+y_j^2 \longrightarrow x \longrightarrow x_i+y \longrightarrow x_i^2+y_j^2$$

9.13 Normal and Wide Accents Serif Bold

$$\dot{x} \ \ddot{x} \ \ddot{x} \ \bar{x} \ \overline{x} \ \overline{x} \ \tilde{x} \$$

 $\hat{x}$   $\check{x}$   $\check{x}$   $\acute{x}$   $\dot{x}$   $\dot{x}$   $\ddot{x}$   $\ddot{x}$ 

9.14 Long Arrows Serif Bold



# 9.15 Left and Right Delimiters Serif Bold

$$-(f) - -[f] - -|f| - -|f| - -\langle f \rangle - -\{f\} -$$

Using \left and \right.

$$-(f) - -[f] - -|f| - -|f| - -\langle f \rangle - -\{f\} -$$

$$-)f(--)f[--/f/--\backslash f \backslash --/f \backslash --\backslash f/-$$

# 9.16 Big-g-g Delimiters Serif Bold

## 9.17 Binary Operators Serif Bold

$x \pm y$	\pm	$x \cap y$	\cap	$x \diamond y$	\diamond	$x \oplus y$	\oplus
$x \mp y$	\mp	$x \cup y$	\cup	$x \triangle y$	\bigtriangleup	$x \ominus y$	\ominus
$x \times y$	\times	$x \uplus y$	\uplus	$x \nabla y$	\bigtriangledown	$x \otimes y$	\otimes
$x \div y$	\div	$x\sqcap y$	\sqcap	$x \triangleleft y$	\triangleleft	$x \oslash y$	$\orall oslash$
x * y	\ast	$x \sqcup y$	\sqcup	$x \triangleright y$	\triangleright	$x \odot y$	\odot
$x \star y$	\star	$x \lor y$	\vee	$x \triangleleft y$	\lhd	$x \bigcirc y$	\bigcirc
$x \circ y$	\circ	$x \wedge y$	\wedge	$x \triangleright y$	\rhd	$x \dagger y$	\dagger
$x \bullet y$	\bullet	$x \setminus y$	\setminus	$x \triangleleft y$	\unlhd	$x \ddagger y$	\ddagger
$x \cdot y$	\cdot	$x \wr y$	\wr	$x \trianglerighteq y$	\unrhd	x§ $y$	\S
x + y	+	x-y	_	$x \coprod y$	\amalg	$x \P v$	\P

#### 9.18 Relations Serif Bold

```
x \le y
          \leq
                                                            x \equiv y
                                                                       \equiv
                                                                                     x \models y
                                                                                               \models
                              x \ge y
                                        \geq
x \prec y
          \prec
                              x \succ y
                                        \succ
                                                            x \sim y
                                                                       \sim
                                                                                     x \perp y
                                                                                               \perp
x \leq y
          \preceq
                              x \succeq y
                                        \succeq
                                                            x \simeq y
                                                                       \simeq
                                                                                     x \mid y
                                                                                               \mid
                                                                       \asymp
                                                                                               \parallel
x \ll y
          \11
                              x \gg y
                                                            x \times y
                                                                                     x \parallel y
                                        \gg
          \subset
x \subset y
                              x\supset y
                                        \supset
                                                            x \approx y
                                                                       \approx
                                                                                     x\bowtie y
                                                                                               \bowtie
x \subseteq y
          \subseteq
                              x \supseteq y
                                        \supseteq
                                                            x \cong y
                                                                       \cong
                                                                                     x \bowtie y
                                                                                               \Join
                                                            x \neq y
                                                                                               \smile
x \sqsubset y
          \sqsubset
                              x \supset y
                                        \sqsupset
                                                                       \neq
                                                                                     x \smile y
x \sqsubseteq y
          \sqsubseteq
                              x \supseteq y
                                        \sqsupseteq
                                                            x \doteq y
                                                                       \doteq
                                                                                               \frown
                                                                                     x - y
          \in
                                        \ni
                                                                       \propto
x \in y
                              x \ni y
                                                            x \propto y
                                                                                     x = y
          \vdash
                              x \dashv y
                                        \dashv
                                                                                               >
x \vdash y
                                                            x < y
                                                                       <
                                                                                     x > y
x:y
```

#### 9.19 Punctuation Serif Bold

```
x,y , x;y ; x:y \colon x.y \ldotp x\cdot y \cdotp
```

### 9.20 Arrows Serif Bold

$x \leftarrow y$	\leftarrow	$x \longleftarrow y$	$\label{longleftarrow}$	$x \uparrow y$	\uparrow
$x \leftarrow y$	\Leftarrow	$x \leftarrow y$	\Longleftarrow	$x \uparrow y$	\Uparrow
$x \rightarrow y$	\rightarrow	$x \longrightarrow y$	$\label{longright} \$	$x \downarrow y$	\downarrow
$x \Rightarrow y$	\Rightarrow	$x \Longrightarrow y$	$ackslash  ext{Longrightarrow}$	$x \downarrow y$	\Downarrow
$x \longleftrightarrow y$	\leftrightarrow	$x \longleftrightarrow y$	\longleftrightarrow	$x \uparrow y$	\updownarrow
$x \Leftrightarrow y$	\Leftrightarrow	$x \Longleftrightarrow y$	\Longleftrightarrow	$x \updownarrow y$	\Updownarrow
$x \mapsto y$	\mapsto	$x \longmapsto y$	\longmapsto	$x \nearrow y$	\nearrow
$x \leftarrow y$	\hookleftarrow	$x \hookrightarrow y$	\hookrightarrow	$x \setminus y$	\searrow
$x \leftarrow y$	\leftharpoonup	$x \rightarrow y$	\rightharpoonup	$x \not y$	\swarrow
$x \leftarrow y$	\leftharpoondown	$x \rightarrow y$	\rightharpoondown	$x \setminus y$	\nwarrow
$x \rightleftharpoons y$	\rightleftharpoons	$x \leadsto y$	\leadsto		

## 9.21 Miscellaneous Symbols Serif Bold

```
x \cdot y
                                \cdots
                                                 x:y
                                                         \vdots
                                                                                      \ddots
x \dots y
          \ldots
                      x \cdots y
хХу
          \aleph
                      x/y
                                \prime
                                                 x \forall y
                                                         \forall
                                                                            x \infty y
                                                                                      \infty
хħу
          \hbar
                      x \emptyset y
                                \emptyset
                                                 x\exists y
                                                         \exists
                                                                            x\Box y
                                                                                      \mathbb{Z}
          \imath
                      x\nabla y
                                \nabla
                                                 x \neg y
                                                                            x \Diamond y
                                                                                      \Diamond
хıу
                                                         \neg
          \jmath
                                \surd
                                                         \flat
                                                                                      \triangle
                      x\sqrt{y}
                                                 xby
                                                                            x\Delta y
хју
          \ell
                      xTy
                                \top
                                                 x \nmid y
                                                         \natural
                                                                            x - y
                                                                                      \clubsuit
x\ell y
хру
          \wp
                      x \perp y
                                \bot
                                                 x \sharp y
                                                         \sharp
                                                                            x \diamondsuit y
                                                                                      \diamondsuit
          \Re
                      x||y
                                1/
                                                         \backslash
                                                                            x \nabla y
                                                                                      \heartsuit
x\Re y
                                                 x \setminus y
                                \angle
x\Im y
          \Im
                      x \angle y
                                                 x \partial y
                                                         \partial
                                                                            x \spadesuit y
                                                                                      \spadesuit
х℧у
          \mho
                                                 x|y
                                                                            x!y
                      x.y
```

# 9.22 Variable-Sized Operators Serif Bold

```
x \sum y
         \sum
                              \bigcap
                                              x \odot y
                                                        \bigodot
x \prod y
                               \bigcup
                                                        \bigotimes
         \prod
                      x \mid y
                                              x \otimes y
                      x \bigsqcup y
         \coprod
                              \bigsqcup
                                              x \oplus y
                                                        \bigoplus
                      x \bigvee y
x \mid y
         \int
                              \bigvee
                                              x+y
                                                        \biguplus
         \oint
                              \bigwedge
x \phi y
                      x \wedge y
```

## 9.23 Log-Like Operators Serif Bold

```
x arccos y
             x \cos y
                         x \csc y
                                    x \exp y
                                                xkery
                                                             x \lim \sup y
                                                                            x \min y
                                                                                       x sinh y
                         x \deg y
                                    x \gcd y
                                                x \log y
                                                              x \ln y
                                                                            x Pry
x arcsin y
             x \cosh y
                                                                                       x \sup y
x arctany
             x \cot y
                         x \det y
                                    x hom y
                                                x \lim y
                                                              x \log y
                                                                            x \sec y
                                                                                       xtany
x argy
             x cothy
                         xdimy
                                    xinfy
                                                x \lim \inf y
                                                             x \max y
                                                                            x \sin y
                                                                                       xtanhy
```

### 9.24 Delimiters Serif Bold

```
x(y)
                    x)y
                            )
                                          x \uparrow y
                                                  \uparrow
                                                                        x \uparrow y
                                                                                \Uparrow
x[y]
       x]y
                            ]
                                          x \downarrow y
                                                   \downarrow
                                                                        x \downarrow y
                                                                                 \Downarrow
x{y}
       \{
                            \}
                                          x \uparrow y
                                                  \updownarrow
                                                                       x \updownarrow y
                                                                                 \Updownarrow
                    x}y
x|y
       \lfloor
                    x|y
                            \rfloor
                                         x[y]
                                                   \lceil
                                                                        x]y
                                                                                 \rceil
                                                                                 \backslash
       \langle
                    x\rangle y
                            \rangle
                                         x/y
                                                                        x \setminus y
x\langle y
x|y
                    x||y
```

# 9.25 Large Delimiters Serif Bold

```
 \ \rmoustache \int \lmoustache \) \rgroup \
 \arrowvert \| \Arrowvert \| \bracevert \]
```

### 9.26 Math Mode Accents Serif Bold

```
\hat{a} \hat{a} \dot{a} \acute{a} \bar{a} \bar{a} \dot{a} \dot{a} \ddot{a} \breve{a} \ddot{a} \check{a} \ddot{a} \grave{a} \ddot{a} \vec{a} \ddot{a} \ddot{a} \ddot{a} \tilde{a}
```

#### 9.27 Miscellaneous Constructions Serif Bold

```
abc
       \widetilde{abc}
                               abc
                                      \widehat{abc}
abc
       \overleftarrow{abc}
                               abc
                                      \overrightarrow{abc}
abc
       \overline{abc}
                                      \underline{abc}
                               abc
                                      \underbrace{abc}
abc
       \overbrace{abc}
                                abc
√abc
                               \"abc
                                      \sqrt[n]{abc}
       \sqrt{abc}
                               abc
f
       f,
                                      \frac{abc}{xyz}
                               \overline{xyz}
```

#### 9.28 AMS Delimiters Serif Bold

 $x^Ty$  \ullcorner  $x^Ty$  \urlcorner  $x_Ly$  \llcorner  $x_Ly$  \llcorner

#### 9.29 AMS Arrows Serif Bold

```
x \longrightarrow y
           \dashrightarrow
                                            x ←-- y
                                                       \dashleftarrow
           \leftleftarrows
                                            x \leftrightarrows y
                                                       \leftrightarrows
x = y
           \Lleftarrow
x \in y
                                            x \leftarrow y
                                                       \twoheadleftarrow
           \leftarrowtail
                                                       \looparrowleft
x \leftarrow y
                                            x \notin y
                                                       \curvearrowleft
           \leftrightharpoons
x \leftrightharpoons y
                                           x \cap y
           \circlearrowleft
                                           x \uparrow y
x \circlearrowleft y
x \uparrow \uparrow y
           \upuparrows
                                                       \upharpoonleft
                                            x \mid y
           \downharpoonleft
                                                       \multimap
x \mid y
                                            x \rightarrow y
           \leftrightsquigarrow x \rightrightarrows y
                                                       \rightrightarrows
x \leftrightarrow y
           \rightleftarrows
                                                       \rightrightarrows
x \rightleftharpoons y
                                            x \rightrightarrows y
           \rightleftarrows
                                                       \twoheadrightarrow
x \rightleftharpoons y
                                            x \rightarrow y
x \mapsto y
           \rightarrowtail
                                            x \rightarrow y
                                                       \looparrowright
           \rightleftharpoons
                                                       \curvearrowright
x \rightleftharpoons y
                                            x \cap y
                                           x \upharpoonright y
x \circ y
           \circlearrowright
                                                       \Rsh
                                                       \upharpoonright
x \!\downarrow \!\downarrow y
           \downdownarrows
                                            x \mid y
           \downharpoonright
                                                       \rightsquigarrow
x \mid y
                                            x \leadsto y
```

# 9.30 AMS Negated Arrows Serif Bold

```
x \leftrightarrow y \nleftarrow x \nrightarrow y \nrightarrow x \nleftrightarrow y \nRightarrow x \nleftrightarrow y \nleftrightarrow x \nleftrightarrow y \nLeftrightarrow
```

#### 9.31 AMS Greek Serif Bold

 $x \in y$  \digamma  $x \times y$  \varkappa

#### 9.32 AMS Hebrew Serif Bold

# 9.33 AMS Miscellaneous Serif Bold

хћу	\hbar	хћу	\hslash
$x \triangle y$	$\vartriangle$	$x \nabla y$	$\$ triangledown
$x\Box y$	\square	$x \Diamond y$	\lozenge
x(S) $y$	\circledS	x∠y	\angle
x∡y	\measuredangle	x∄y	$\nexists$
х℧у	\mho	$x \pm y$	$ackslash  extsf{Finv}^u$
xĐ $y$	$\backslash \mathtt{Game}^u$	xk $y$	$ackslash Bbbk^u$
x y	\backprime	xØy	$\$ varnothing
$x \blacktriangle y$	\blacktriangle	$x \nabla y$	\blacktriangledown
<b>x■y</b>	\blacksquare	<i>x</i> <b>♦</b> <i>y</i>	\blacklozenge
$x \star y$	\bigstar	<i>x</i> ∢ <i>y</i>	\sphericalangle
xC $y$	\complement	хðу	\eth
x/y	$ackslash  exttt{diagup}^u$	$x \setminus y$	$ackslash  ext{diagdown}^u$

<sup>&</sup>quot; Not defined in amssymb.sty, define using the \newsymbol command.

# 9.34 AMS Binary Operators Serif Bold

$x \dotplus y$	\dotplus	$x \setminus y$	\smallsetminus
$x \cap y$	\Cap	$x \uplus y$	\Cup
$x \overline{\wedge} y$	\barwedge	$x \vee y$	\veebar
$x  \overline{\wedge}  y$	\doublebarwedge	$x \boxminus y$	\boxminus
$x \boxtimes y$	\boxtimes	$x \square y$	\boxdot
$x \boxplus y$	\boxplus	x * y	\divideontimes
$x \ltimes y$	\ltimes	$x \rtimes y$	\rtimes
$x \lambda y$	\leftthreetimes	$x \wedge y$	\rightthreetimes
$x \curlywedge y$	\curlywedge	$x \land y$	\curlyvee
$x \ominus y$	\circleddash	$x \otimes y$	\circledast
$x \odot y$	\circledcirc	$x \cdot y$	\centerdot
$x \intercal y$	\intercal		

## 9.35 AMS Relations Serif Bold

- $x \leq y$  \leqslant
- $x \lesssim y$  \lesssim
- $x \cong y$  \approxeq
- $x \ll y \setminus 111$
- $x \leq y$  \lesseqgtr
- $x \doteq y \quad \forall x \in Y$
- x = y \fallingdotseq
- $x \simeq y$  \backsimeq
- $x \in y$  \Subset
- $x \preccurlyeq y$  \preccurlyeq
- $x \lesssim y$  \precsim
- $x \triangleleft y$  \vartriangleleft
- $x \models y$  \vDash
- $x \smile y$  \smallsmile
- x = y \bumpeq
- $x \ge y$  \geqq
- $x \geqslant y$  \eqslantgtr
- $x \geq y$  \gtrapprox
- $x \gg y \setminus ggg$
- $x \geq y$  \gtreqless
- x = y \eqcirc
- $x \triangleq y$  \triangleq
- $x \approx y$  \thickapprox
- $x \ni y$  \Supset
- $x \succcurlyeq y$  \succcurlyeq
- $x \succsim y$  \succsim
- $x \triangleright y$  \vartriangleright
- $x \Vdash y$  \Vdash
- $x \parallel y$  \shortparallel
- $x \pitchfork y$  \pitchfork
- $x \triangleleft y$  \blacktriangleleft
- $x \ni y$  \backepsilon
- x : y \because

# 9.36 AMS Negated Relations Serif Bold

$x \not< y$	\nless	$x \not \leq y$	\nleq
$x \not \leq y$	$\nleqslant$	$x \not \leq y$	\nleqq
$x \leq y$	\lneq	$x \not\subseteq y$	\lneqq
$x \leq y$	\lvertneqq	$x \lesssim y$	\lnsim
$x \lessapprox y$	$\label{lnapprox}$	$x \not\prec y$	\nprec
$x \not \leq y$	\npreceq	$x \not \supset y$	\precnsim
$x \ngeq y$	\precnapprox	$x \not\sim y$	$\n$
xiy	\nshortmid	$x \nmid y$	\nmid
$x \not\vdash y$	$\nvdash$	$x \not\vDash y$	\nvDash
$x \not = y$	$\ntriangleleft$	<i>x</i> ⊉ <i>y</i>	$\ntrianglelefteq$
$x \not\subseteq y$	\nsubseteq	$x \subsetneq y$	\subsetneq
$x \not\subseteq y$	\varsubsetneq	$x \subsetneq y$	\subsetneqq
$x \not\subseteq y$	$\varsubsetneqq$	$x \not\geq y$	\ngtr
$x \not\geq y$	\ngeq	$x \not \geq y$	$\ngeqslant$
$x \not \geq y$	\ngeqq	$x \geqslant y$	\gneq
$x \ngeq y$	\gneqq	$x \geqq y$	\gvertneqq
$x \gtrsim y$	$\gnsim$	$x \ngeq y$	\gnapprox
$x \not\succ y$	\nsucc		\nsucceq
$x \not \sqsubseteq y$	$\nsucceqq$	$x \not\subset y$	\succnsim
$x \not\geq y$	$\scalebox{succnapprox}$	$x \not\cong y$	\ncong
хиу	$\nshortparallel$	$x \not\parallel y$	nparallel
$x \not\vDash y$	$\nvDash$	$x \not\Vdash y$	\nVDash
$x \not\triangleright y$	$\ntriangleright$		\ntrianglerighteq
$x \not\supseteq y$		$x \not\supseteq y$	$\nsupseteqq$
	$\supsetneq$	$x \not\supseteq y$	$\varsupsetneq$
$x \supseteq y$	\supsetneqq	$x \not\supseteq y$	$\varsupsetneqq$

# 10 Sans serif

## 10.1 Overview Sans serif

Default: ααbβGΓΡΠαβ mathnormal: ααbβGΓΡΠ mathrm: αααbβGΓΡΠ mathup: αααbβGΓΡΠ mathit: ααbβGΓΡΠ mathbf: ααbβGΓΡΠ mathbf: ααbβGΓΡΠ

Default:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathnormal:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathrm:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathup:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathit:  $\alpha\alpha b\beta G\Gamma P\Pi$ 

mathbf: **ααbβGΓΡΠ** mathbfit: **ααbβGΓΡΠ** 

Default:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathnormal:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathrm:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathup:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathit:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathbf:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathbf:  $\alpha\alpha b\beta G\Gamma P\Pi$ 

## 10.2 Formulas Sans serif

 $\alpha,\,\beta,\,\gamma,\,\delta,\,\epsilon,\,\zeta,\,\eta,\,\theta,\,\iota,\,\kappa,\,\lambda,\,\mu,\,\nu,\,\xi,\,o,\,\pi,\,\rho,\,\sigma,\,\zeta,\,\tau,\,\upsilon,\,\phi,\,\chi,\,\psi,\,\omega,\,\digamma,\,A,\,B,\,\Gamma,\,\Delta,\,E,\,Z,\,H,\,\Theta,\,I,\,K,\,\Lambda,\,M,\,N,\,\Xi,\,O,\,\Pi,\,P,\,\Sigma,\,T,\,Y,\,\Phi,\,X,\,\Psi,\,\Omega,\,F,$ 

 $\alpha,\,\beta,\,\gamma,\,\delta,\,\epsilon,\,\zeta,\,\eta,\,\theta,\,\iota,\,\kappa,\,\lambda,\,\mu,\,\nu,\,\xi,\,o,\,\pi,\,\rho,\,\sigma,\,\varsigma,\,\tau,\,\upsilon,\,\phi,\,\chi,\,\psi,\,\omega,\,\varsigma,\,A,\,B,\,\Gamma,\,\Delta,\,E,\,Z,\,H,\,\Theta,\,I,\,K,\,\Lambda,\,M,\,N,\,\Xi,\,O,\,\Pi,\,P,\,\Sigma,\,T,\,Y,\,\Phi,\,X,\,\Psi,\,\Omega,\,F,$ 

 $\alpha$ ,  $\beta$ ,  $\gamma$ ,  $\delta$ ,  $\epsilon$ ,  $\zeta$ ,  $\eta$ ,  $\theta$ ,  $\iota$ ,  $\kappa$ ,  $\lambda$ ,  $\mu$ ,  $\nu$ ,  $\xi$ ,  $\sigma$ ,  $\pi$ ,  $\rho$ ,  $\sigma$ ,  $\zeta$ ,  $\tau$ ,  $\upsilon$ ,  $\phi$ ,  $\chi$ ,  $\psi$ ,  $\omega$ ,  $\varphi$ , A, B,  $\Gamma$ ,  $\Delta$ , E, Z, H,  $\Theta$ , I, K,  $\Lambda$ , M, N,  $\Xi$ , O,  $\Pi$ , P,  $\Sigma$ , T, Y,  $\Phi$ , X,  $\Psi$ ,  $\Omega$ , F,

 $\pmb{\alpha}a > 0$  ,  $\pmb{\beta}b + (3 \times 27)$  ,  $\pmb{\Gamma}G = 7 < 8$  ,  $\pmb{\lambda}$ 

 $\alpha a > 0$ ,  $\beta b + (3 \times 27)$ ,  $\Gamma G = 7 < 8$ ,  $\lambda$ 

 $s \pm 3y + y - 1 = 4 \times 7$ 

$$\sum_{i=0}^{N} x^{i}$$

$$\int_{-\infty}^{\infty} x f(x) \, \mathbf{d}x = \left(\frac{27}{2}\right)$$

 $s \pm 3\gamma + y - 1 \times 7$ 

$$\sum_{i=0}^{n} x^{i}$$

$$\int_{-\infty}^{\infty} x f(x) dx = \left(\frac{27}{2}\right)$$

 $s \pm 3y + y - 1 \times 7$ 

$$\sum_{i=0}^{N} x^{i}$$

$$\int_{-\infty}^{\infty} x f(x) \, \mathbf{d}x = \left(\frac{27}{2}\right)$$

$$s\pm 3\gamma + y - 1\times 7$$

$$\sum_{i=0}^{N} x^{i}$$

$$\int_{-\infty}^{\infty} x f(x) dx = \left(\frac{27}{2}\right)$$

## 10.3 Math Alphabets Sans serif

Default

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z, A, B, Γ, Δ, E, Z, H, Θ, I, K, Λ, M, N, Ξ, Ο, Π, P, Σ, T, Y, Φ, X, Ψ, Ω, α, β, γ, δ, ε, ζ, η, θ, ι, κ, λ, μ, ν, ξ, ο, π, ρ, σ, τ, υ, φ, χ, ψ, ω, ε,  $\vartheta$ , ω, ρ, ς,  $\varphi$ ,

Math Normal (\mathnormal)

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z, A, B, Γ, Δ, E, Z, H, Θ, I, K, Λ, M, N, Ξ, Ο, Π, P, Σ, T, Y, Φ, X, Ψ, Ω, α, β, γ, δ, ε, ζ, η, θ, ι, κ, λ, μ, ν, ξ, ο, π, ρ, σ, τ, υ, φ, χ, ψ, ω, ε, θ, ω, ρ, ς, φ,

Math Italic (\mathit)

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z, A, B, Γ, Δ, E, Z, H, Θ, I, K, Λ, M, N, Ξ, Ο, Π, P, Σ, Τ, Y, Φ, X, Ψ, Ω, α, β, γ, δ, ε, ζ, η, θ, ι, κ, λ, μ, ν, ξ, ο, π, ρ, σ, τ, υ, φ, χ, ψ, ω, ε,  $\vartheta$ , ω, ρ, ς,  $\varphi$ ,

Math Roman (\mathrm)

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 
A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, 
a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z, 
A, B,  $\Gamma$ ,  $\Delta$ , E, Z, H,  $\Theta$ , I, K,  $\Lambda$ , M, N,  $\Xi$ , O,  $\Pi$ , P,  $\Sigma$ , T,  $\Upsilon$ ,  $\Phi$ , X,  $\Psi$ ,  $\Omega$ ,  $\alpha$ ,  $\beta$ ,  $\gamma$ ,  $\delta$ ,  $\epsilon$ ,  $\zeta$ ,  $\eta$ ,  $\theta$ ,  $\iota$ ,  $\kappa$ ,  $\lambda$ ,  $\mu$ ,  $\nu$ ,  $\xi$ , o,  $\pi$ ,  $\rho$ ,  $\sigma$ ,  $\tau$ ,  $\upsilon$ ,  $\phi$ ,  $\chi$ ,  $\psi$ ,  $\omega$ ,  $\varepsilon$ ,  $\vartheta$ ,  $\varpi$ ,  $\varrho$ ,  $\varsigma$ ,  $\varphi$ ,

0, 1, 2, 3, 4, 5, 6, 7, 8, 9,

A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z,

a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z,

A, B,  $\Gamma$ ,  $\Delta$ , E, Z, H,  $\Theta$ , I, K,  $\Lambda$ , M, N,  $\Xi$ , O,  $\Pi$ , P,  $\Sigma$ , T, Y,  $\Phi$ , X,  $\Psi$ ,  $\Omega$ ,

 $\alpha, \beta, \gamma, \delta, \varepsilon, \zeta, \eta, \theta, \iota, \kappa, \lambda, \mu, \nu, \xi, o, \pi, \rho, \sigma, \tau, \nu, \phi, \chi, \psi, \omega, \varepsilon, \vartheta, \omega, \rho, \zeta, \varphi,$ 

#### Caligraphic (\mathcal)

$$\mathcal{A}$$
,  $\mathcal{B}$ ,  $\mathcal{C}$ ,  $\mathcal{D}$ ,  $\mathcal{E}$ ,  $\mathcal{F}$ ,  $\mathcal{G}$ ,  $\mathcal{H}$ ,  $\mathcal{J}$ ,  $\mathcal{J}$ ,  $\mathcal{H}$ ,  $\mathcal{M}$ ,  $\mathcal{N}$ ,  $\mathcal{O}$ ,  $\mathcal{P}$ ,  $\mathcal{Q}$ ,  $\mathcal{R}$ ,  $\mathcal{F}$ ,  $\mathcal{T}$ ,  $\mathcal{U}$ ,  $\mathcal{V}$ ,  $\mathcal{W}$ ,  $\mathcal{X}$ ,  $\mathcal{Y}$ ,  $\mathcal{Z}$ , Script (\mathscr)

$$\mathcal{A}$$
 ,  $\mathcal{B}$  ,  $\mathcal{C}$  ,  $\mathcal{D}$  ,  $\mathcal{E}$  ,  $\mathcal{F}$  ,  $\mathcal{G}$  ,  $\mathcal{H}$  ,  $\mathcal{J}$  ,  $\mathcal{J}$  ,  $\mathcal{K}$  ,  $\mathcal{L}$  ,  $\mathcal{M}$  ,  $\mathcal{N}$  ,  $\mathcal{O}$  ,  $\mathcal{P}$  ,  $\mathcal{Q}$  ,  $\mathcal{R}$  ,  $\mathcal{F}$  ,  $\mathcal{T}$  ,  $\mathcal{U}$  ,  $\mathcal{V}$  ,  $\mathcal{W}$  ,  $\mathcal{X}$  ,  $\mathcal{Y}$  ,  $\mathcal{Z}$ 

Fraktur (\mathfrak)

$$\mathfrak{A}, \mathfrak{B}, \mathfrak{C}, \mathfrak{D}, \mathfrak{E}, \mathfrak{F}, \mathfrak{G}, \mathfrak{H}, \mathfrak{I}, \mathfrak{I}, \mathfrak{K}, \mathfrak{L}, \mathfrak{M}, \mathfrak{N}, \mathfrak{D}, \mathfrak{P}, \mathfrak{Q}, \mathfrak{R}, \mathfrak{G}, \mathfrak{T}, \mathfrak{U}, \mathfrak{V}, \mathfrak{W}, \mathfrak{X}, \mathfrak{Y}, \mathfrak{Z}, \mathfrak{A}, \mathfrak{G}, \mathfrak{C}, \mathfrak{I}, \mathfrak{G}, \mathfrak{H}, \mathfrak{G}, \mathfrak{I}, \mathfrak{H}, \mathfrak{I}, \mathfrak{H}, \mathfrak{H}, \mathfrak{H}, \mathfrak{n}, \mathfrak{n}, \mathfrak{o}, \mathfrak{p}, \mathfrak{q}, \mathfrak{r}, \mathfrak{s}, \mathfrak{t}, \mathfrak{u}, \mathfrak{v}, \mathfrak{w}, \mathfrak{x}, \mathfrak{y}, \mathfrak{z}, \mathfrak{g}, \mathfrak{g}$$

Blackboard Bold (\mathbb)

$$\mathbb{A}, \mathbb{B}, \mathbb{C}, \mathbb{D}, \mathbb{E}, \mathbb{F}, \mathbb{G}, \mathbb{H}, \mathbb{I}, \mathbb{J}, \mathbb{K}, \mathbb{L}, \mathbb{M}, \mathbb{N}, \mathbb{O}, \mathbb{P}, \mathbb{Q}, \mathbb{R}, \mathbb{S}, \mathbb{T}, \mathbb{U}, \mathbb{V}, \mathbb{W}, \mathbb{X}, \mathbb{Y}, \mathbb{Z}, \mathbb{Z}, \mathbb{C}$$

### 10.4 Character Sidebearings Sans serif

Default

$$\begin{aligned} |A| + |B| + |C| + |D| + |E| + |F| + |G| + |H| + |I| + |J| + |K| + |L| + |M| + \\ |N| + |O| + |P| + |Q| + |R| + |S| + |T| + |U| + |V| + |W| + |X| + |Y| + |Z| + \\ |a| + |b| + |c| + |d| + |e| + |f| + |g| + |h| + |i| + |j| + |k| + |l| + |m| + \\ |n| + |o| + |p| + |q| + |r| + |s| + |t| + |u| + |v| + |w| + |x| + |y| + |z| + \\ |A| + |B| + |T| + |A| + |E| + |Z| + |H| + |\Theta| + |I| + |K| + |A| + |M| + \\ |N| + |\Xi| + |O| + |\Pi| + |P| + |\Sigma| + |T| + |Y| + |\Phi| + |X| + |\Psi| + |\Omega| + \\ |a| + |\beta| + |\gamma| + |\delta| + |\epsilon| + |\zeta| + |\eta| + |\theta| + |\iota| + |\kappa| + |\lambda| + |\mu| + \\ |v| + |\xi| + |o| + |\pi| + |\rho| + |\sigma| + |\tau| + |\psi| + |\psi| + |\omega| + \\ |\epsilon| + |\theta| + |\omega| + |\rho| + |\zeta| + |\varphi| + \end{aligned}$$

$$\begin{aligned} |A| + |B| + |C| + |D| + |E| + |F| + |G| + |H| + |I| + |J| + |K| + |L| + |M| + \\ |N| + |O| + |P| + |Q| + |R| + |S| + |T| + |U| + |V| + |W| + |X| + |Y| + |Z| + \\ |a| + |b| + |c| + |d| + |e| + |f| + |g| + |h| + |i| + |j| + |k| + |I| + |m| + \\ |n| + |o| + |p| + |q| + |r| + |s| + |t| + |u| + |v| + |w| + |x| + |y| + |z| + \\ |A| + |B| + |\Gamma| + |\Delta| + |E| + |Z| + |H| + |\Theta| + |I| + |K| + |A| + |M| + \\ |N| + |\Xi| + |O| + |\Pi| + |P| + |\Sigma| + |T| + |\Upsilon| + |\Phi| + |X| + |\Psi| + |\Omega| + \end{aligned}$$

$$\begin{aligned} |A| + |B| + |C| + |D| + |E| + |F| + |G| + |H| + |I| + |I| + |K| + |L| + |M| + \\ |N| + |O| + |P| + |Q| + |R| + |S| + |T| + |U| + |V| + |W| + |X| + |Y| + |Z| + \\ |a| + |b| + |c| + |d| + |e| + |f| + |g| + |h| + |i| + |j| + |k| + |l| + |m| + \\ |n| + |o| + |p| + |q| + |r| + |s| + |t| + |u| + |v| + |w| + |x| + |y| + |z| + \\ |A| + |B| + |T| + |\Delta| + |E| + |Z| + |H| + |\Theta| + |I| + |K| + |A| + |M| + \\ |N| + |E| + |O| + |\Pi| + |P| + |\Sigma| + |T| + |Y| + |\Phi| + |X| + |\Psi| + |\Omega| + \\ \end{aligned}$$

Math Calligraphic (\mathcal)

$$|\mathcal{A}| + |\mathcal{B}| + |\mathcal{C}| + |\mathcal{D}| + |\mathcal{E}| + |\mathcal{F}| + |\mathcal{G}| + |\mathcal{H}| + |\mathcal{I}| + |\mathcal{I}| + |\mathcal{H}| + |$$

### 10.5 Superscript Positioning Sans serif

Default

$$A^{2} + B^{2} + C^{2} + D^{2} + E^{2} + F^{2} + G^{2} + H^{2} + I^{2} + J^{2} + K^{2} + L^{2} + M^{2} + N^{2} + O^{2} + P^{2} + Q^{2} + R^{2} + S^{2} + T^{2} + U^{2} + V^{2} + W^{2} + X^{2} + Y^{2} + Z^{2} + Q^{2} + D^{2} + C^{2} + D^{2} + C^{2} + D^{2} + D^{2$$

$$\begin{split} A^2 + B^2 + C^2 + D^2 + E^2 + F^2 + G^2 + H^2 + I^2 + J^2 + K^2 + L^2 + M^2 + \\ N^2 + O^2 + P^2 + Q^2 + R^2 + S^2 + T^2 + U^2 + V^2 + W^2 + X^2 + Y^2 + Z^2 + \\ a^2 + b^2 + c^2 + d^2 + e^2 + f^2 + g^2 + h^2 + i^2 + j^2 + k^2 + I^2 + m^2 + \\ n^2 + o^2 + p^2 + q^2 + r^2 + s^2 + t^2 + u^2 + v^2 + w^2 + x^2 + y^2 + z^2 + \\ A^2 + B^2 + \Gamma^2 + \Delta^2 + E^2 + Z^2 + H^2 + \Theta^2 + I^2 + K^2 + \Lambda^2 + M^2 + \\ N^2 + \Xi^2 + O^2 + \Pi^2 + P^2 + \Sigma^2 + T^2 + \Upsilon^2 + \Phi^2 + X^2 + \Psi^2 + \Omega^2 + \Omega^2$$

$$A^{2} + B^{2} + C^{2} + D^{2} + E^{2} + F^{2} + G^{2} + H^{2} + I^{2} + J^{2} + K^{2} + L^{2} + M^{2} + N^{2} + O^{2} + P^{2} + Q^{2} + R^{2} + S^{2} + T^{2} + U^{2} + V^{2} + W^{2} + X^{2} + Y^{2} + Z^{2} + O^{2} + D^{2} + C^{2} + D^{2} + D^{2$$

Math Calligraphic (\mathcal)

$$\mathcal{A}^2 + \mathcal{B}^2 + \mathcal{C}^2 + \mathcal{D}^2 + \mathcal{E}^2 + \mathcal{F}^2 + \mathcal{G}^2 + \mathcal{H}^2 + \mathcal{J}^2 + \mathcal{J}^2 + \mathcal{H}^2 + \mathcal$$

## 10.6 Subscript Positioning Sans serif

Default

$$\begin{aligned} &A_{i} + B_{i} + C_{i} + D_{i} + E_{i} + F_{i} + G_{i} + H_{i} + I_{i} + J_{i} + K_{i} + L_{i} + M_{i} + N_{i} + O_{i} + P_{i} + Q_{i} + R_{i} + S_{i} + T_{i} + U_{i} + V_{i} + W_{i} + X_{i} + Y_{i} + Z_{i} + A_{i} + D_{i} + C_{i} + d_{i} + e_{i} + f_{i} + g_{i} + h_{i} + i_{i} + j_{i} + k_{i} + l_{i} + m_{i} + N_{i} + O_{i} + p_{i} + q_{i} + r_{i} + S_{i} + t_{i} + u_{i} + v_{i} + w_{i} + x_{i} + y_{i} + z_{i} + A_{i} + B_{i} + \Gamma_{i} + \Delta_{i} + E_{i} + Z_{i} + H_{i} + O_{i} + I_{i} + K_{i} + \Lambda_{i} + M_{i} + N_{i} + \Xi_{i} + O_{i} + \Pi_{i} + P_{i} + \Sigma_{i} + T_{i} + Y_{i} + \Phi_{i} + X_{i} + \Psi_{i} + \Omega_{i} + A_{i} + P_{i} + P$$

$$\begin{split} A_i + B_i + C_i + D_i + E_i + F_i + G_i + H_i + I_i + J_i + K_i + L_i + M_i + \\ N_i + O_i + P_i + Q_i + R_i + S_i + T_i + U_i + V_i + W_i + X_i + Y_i + Z_i + \\ a_i + b_i + c_i + d_i + e_i + f_i + g_i + h_i + i_i + j_i + k_i + l_i + m_i + \\ n_i + o_i + p_i + q_i + r_i + s_i + t_i + u_i + v_i + w_i + x_i + y_i + z_i + \\ A_i + B_i + \Gamma_i + \Delta_i + E_i + Z_i + H_i + \Theta_i + I_i + K_i + \Lambda_i + M_i + \\ N_i + \Xi_i + O_i + \Pi_i + P_i + \Sigma_i + T_i + \Upsilon_i + \Phi_i + X_i + \Psi_i + \Omega_i + \\ \end{split}$$

$$\begin{aligned} A_{i} + B_{i} + C_{i} + D_{i} + E_{i} + F_{i} + G_{i} + H_{i} + I_{i} + J_{i} + K_{i} + L_{i} + M_{i} + \\ N_{i} + O_{i} + P_{i} + Q_{i} + R_{i} + S_{i} + T_{i} + U_{i} + V_{i} + W_{i} + X_{i} + Y_{i} + Z_{i} + \\ a_{i} + b_{i} + c_{i} + d_{i} + e_{i} + f_{i} + g_{i} + h_{i} + i_{i} + j_{i} + k_{i} + l_{i} + m_{i} + \\ n_{i} + o_{i} + p_{i} + q_{i} + r_{i} + s_{i} + t_{i} + u_{i} + v_{i} + w_{i} + x_{i} + y_{i} + z_{i} + \\ A_{i} + B_{i} + \Gamma_{i} + \Delta_{i} + E_{i} + Z_{i} + H_{i} + \Theta_{i} + I_{i} + K_{i} + \Lambda_{i} + M_{i} + \\ N_{i} + \Xi_{i} + O_{i} + \Pi_{i} + P_{i} + \Sigma_{i} + T_{i} + Y_{i} + \Phi_{i} + X_{i} + \Psi_{i} + \Omega_{i} + \end{aligned}$$

Math Calligraphic (\mathcal)

$$\mathcal{A}_i + \mathcal{B}_i + \mathcal{C}_i + \mathcal{D}_i + \mathcal{E}_i + \mathcal{F}_i + \mathcal{G}_i + \mathcal{H}_i + \mathcal{J}_i + \mathcal{J}_i + \mathcal{H}_i + \mathcal$$

# 10.7 Accent Positioning Sans serif

Default

Math Italic (\mathit)

$$\begin{split} \hat{0} + \hat{1} + \hat{2} + \hat{3} + \hat{4} + \hat{5} + \hat{6} + \hat{7} + \hat{8} + \hat{9} + \\ \hat{A} + \hat{B} + \hat{C} + \hat{D} + \hat{E} + \hat{F} + \hat{G} + \hat{H} + \hat{I} + \hat{J} + \hat{K} + \hat{L} + \hat{M} + \\ \hat{N} + \hat{O} + \hat{P} + \hat{Q} + \hat{R} + \hat{S} + \hat{T} + \hat{U} + \hat{V} + \hat{W} + \hat{X} + \hat{Y} + \hat{Z} + \\ \hat{a} + \hat{b} + \hat{c} + \hat{d} + \hat{e} + \hat{f} + \hat{g} + \hat{h} + \hat{i} + \hat{j} + \hat{k} + \hat{l} + \hat{m} + \hat{\ell} + \hat{\wp} + \hat{i} + \hat{J} + \hat{i} \\ \hat{n} + \hat{o} + \hat{p} + \hat{q} + \hat{r} + \hat{s} + \hat{t} + \hat{u} + \hat{v} + \hat{w} + \hat{x} + \hat{y} + \hat{z} + \\ \hat{A} + \hat{B} + \hat{\Gamma} + \hat{\Delta} + \hat{E} + \hat{Z} + \hat{H} + \hat{\Theta} + \hat{I} + \hat{K} + \hat{\Lambda} + \hat{M} + \\ \hat{N} + \hat{\Xi} + \hat{O} + \hat{\Pi} + \hat{P} + \hat{\Sigma} + \hat{T} + \hat{Y} + \hat{\Phi} + \hat{x} + \hat{\Psi} + \hat{\Omega} + \\ \hat{\alpha} + \hat{\beta} + \hat{\gamma} + \hat{\delta} + \hat{\epsilon} + \hat{\xi} + \hat{\zeta} + \hat{\eta} + \hat{\theta} + \hat{i} + \hat{\kappa} + \hat{\lambda} + \hat{\mu} + \\ \hat{v} + \hat{\xi} + \hat{o} + \hat{\pi} + \hat{\rho} + \hat{\sigma} + \hat{\tau} + \hat{v} + \hat{\phi} + \hat{\chi} + \hat{\Psi} + \hat{\omega} + \\ \hat{\epsilon} + \hat{\vartheta} + \hat{\omega} + \hat{\rho} + \hat{\varsigma} + \hat{\varsigma} + \hat{\varphi} + \end{split}$$

Math Roman (\mathrm)

$$\begin{split} \hat{0} + \hat{1} + \hat{2} + \hat{3} + \hat{4} + \hat{5} + \hat{6} + \hat{7} + \hat{8} + \hat{9} + \\ \hat{A} + \hat{B} + \hat{C} + \hat{D} + \hat{E} + \hat{F} + \hat{G} + \hat{H} + \hat{I} + \hat{J} + \hat{K} + \hat{L} + \hat{M} + \\ \hat{N} + \hat{O} + \hat{P} + \hat{Q} + \hat{R} + \hat{S} + \hat{T} + \hat{U} + \hat{V} + \hat{W} + \hat{X} + \hat{Y} + \hat{Z} + \\ \hat{a} + \hat{b} + \hat{c} + \hat{d} + \hat{e} + \hat{f} + \hat{g} + \hat{h} + \hat{i} + \hat{j} + \hat{k} + \hat{I} + \hat{m} + \\ \hat{n} + \hat{o} + \hat{p} + \hat{q} + \hat{r} + \hat{s} + \hat{t} + \hat{u} + \hat{v} + \hat{w} + \hat{x} + \hat{y} + \hat{z} + \\ \hat{A} + \hat{B} + \hat{\Gamma} + \hat{\Delta} + \hat{E} + \hat{Z} + \hat{H} + \hat{\Theta} + \hat{I} + \hat{K} + \hat{\Lambda} + \hat{M} + \\ \hat{N} + \hat{\Xi} + \hat{O} + \hat{\Pi} + \hat{P} + \hat{\Sigma} + \hat{T} + \hat{T} + \hat{\Phi} + \hat{X} + \hat{\Psi} + \hat{\Omega} + \end{split}$$

Math Bold (\mathbf)

$$\begin{split} \hat{0} + \hat{1} + \hat{2} + \hat{3} + \hat{4} + \hat{5} + \hat{6} + \hat{7} + \hat{8} + \hat{9} + \\ \hat{A} + \hat{B} + \hat{C} + \hat{D} + \hat{E} + \hat{F} + \hat{G} + \hat{H} + \hat{I} + \hat{J} + \hat{K} + \hat{L} + \hat{M} + \\ \hat{N} + \hat{O} + \hat{P} + \hat{Q} + \hat{R} + \hat{S} + \hat{T} + \hat{U} + \hat{V} + \hat{W} + \hat{X} + \hat{Y} + \hat{Z} + \\ \hat{a} + \hat{b} + \hat{c} + \hat{d} + \hat{e} + \hat{f} + \hat{g} + \hat{h} + \hat{i} + \hat{J} + \hat{k} + \hat{l} + \hat{m} + \\ \hat{n} + \hat{O} + \hat{P} + \hat{Q} + \hat{r} + \hat{s} + \hat{t} + \hat{u} + \hat{v} + \hat{w} + \hat{x} + \hat{y} + \hat{z} + \\ \hat{A} + \hat{B} + \hat{\Gamma} + \hat{\Delta} + \hat{E} + \hat{Z} + \hat{H} + \hat{O} + \hat{I} + \hat{K} + \hat{\Lambda} + \hat{M} + \\ \hat{N} + \hat{\Xi} + \hat{O} + \hat{\Pi} + \hat{P} + \hat{\Sigma} + \hat{T} + \hat{Y} + \hat{\Phi} + \hat{X} + \hat{\Psi} + \hat{\Omega} + \end{split}$$

Math Calligraphic (\mathcal)

$$\hat{\mathcal{A}} + \hat{\mathcal{B}} + \hat{\mathcal{C}} + \hat{\mathcal{D}} + \hat{\mathcal{E}} + \hat{\mathcal{F}} + \hat{\mathcal{G}} + \hat{\mathcal{H}} + \hat{\mathcal{J}} + \hat{\mathcal{J}} + \hat{\mathcal{L}} + \hat{\mathcal{L}} + \hat{\mathcal{M}} + \hat{\mathcal{N}} + \hat{\mathcal{O}} + \hat{\mathcal{P}} + \hat{\mathcal{D}} + \hat{\mathcal{R}} + \hat{\mathcal{L}} + \hat{\mathcal{R}} + \hat{\mathcal{L}} + \hat{\mathcal{M}} + \hat{\mathcal{L}} + \hat{\mathcal{$$

#### 10.8 Differentials Sans serif

```
dA + dB + dC + dD + dE + dF + dG + dH + dI + dJ + dK + dL + dM +
dN + dO + dP + dQ + dR + dS + dT + dU + dV + dW + dX + dY + dZ +
da + db + dc + dd + de + df + dg + dh + di + dj + dk + dl + dm +
dn + do + dp + dq + dr + ds + dt + du + dv + dw + dx + dy + dz +
dA + dB + d\Gamma + d\Delta + dE + dZ + dH + d\Theta + dI + dK + d\Lambda + dM +
dN + d\Xi + dO + d\Pi + dP + d\Sigma + dT + dY + d\Phi + dX + d\Psi + d\Omega + d\Omega
dv + d\xi + do + d\pi + d\rho + d\sigma + d\tau + d\nu + d\phi + d\chi + d\psi + d\omega + d\phi
d\varepsilon + d\vartheta + d\omega + d\rho + d\varsigma + d\varphi +
dA+dB+d\Gamma+d\Delta+dE+dZ+dH+d\Theta+dI+dK+d\Lambda+dM+
dN + d\Xi + dO + d\Pi + dP + d\Sigma + dT + d\Upsilon + d\Phi + dX + d\Psi + d\Omega + d\Omega
\partial A + \partial B + \partial C + \partial D + \partial E + \partial F + \partial G + \partial H + \partial I + \partial J + \partial K + \partial L + \partial M + \partial C 
\partial N + \partial O + \partial P + \partial Q + \partial R + \partial S + \partial T + \partial U + \partial V + \partial W + \partial X + \partial Y + \partial Z + \partial C 
\partial a + \partial b + \partial c + \partial d + \partial e + \partial f + \partial q + \partial h + \partial i + \partial j + \partial k + \partial l + \partial m + \partial c + \partial c + \partial d + \partial e 
\partial n + \partial o + \partial p + \partial q + \partial r + \partial s + \partial t + \partial u + \partial v + \partial w + \partial x + \partial y + \partial z 
\partial A + \partial B + \partial \Gamma + \partial \Delta + \partial E + \partial Z + \partial H + \partial \Theta + \partial I + \partial K + \partial \Lambda + \partial M + \partial A 
\partial N + \partial \Xi + \partial O + \partial \Pi + \partial P + \partial \Sigma + \partial T + \partial Y + \partial \Phi + \partial X + \partial \Psi + \partial \Omega 
\partial \alpha + \partial \beta + \partial \gamma + \partial \delta + \partial \epsilon + \partial \zeta + \partial \eta + \partial \theta + \partial \iota + \partial \kappa + \partial \lambda + \partial \mu + \partial \alpha + \partial \beta + \partial \gamma 
\partial \mathbf{v} + \partial \boldsymbol{\xi} + \partial \mathbf{o} + \partial \boldsymbol{\pi} + \partial \boldsymbol{\rho} + \partial \boldsymbol{\sigma} + \partial \boldsymbol{\tau} + \partial \mathbf{u} + \partial \boldsymbol{\phi} + \partial \mathbf{x} + \partial \boldsymbol{\psi} + \partial \boldsymbol{\omega} + \partial \boldsymbol{\phi}
\partial \varepsilon + \partial \vartheta + \partial \varpi + \partial \rho + \partial \varsigma + \partial \varphi +
\partial A + \partial B + \partial \Gamma + \partial \Delta + \partial E + \partial Z + \partial H + \partial \Theta + \partial I + \partial K + \partial \Lambda + \partial M + \partial A 
     \partial N + \partial \Xi + \partial O + \partial \Pi + \partial P + \partial \Sigma + \partial T + \partial \Upsilon + \partial \Phi + \partial X + \partial \Psi + \partial \Omega + \partial \Psi + \partial \Psi
```

## 10.9 Slash Kerning Sans serif

```
 \frac{1}{A} + \frac{1}{B} + \frac{1}{C} + \frac{1}{D} + \frac{1}{E} + \frac{1}{F} + \frac{1}{G} + \frac{1}{H} + \frac{1}{I} + \frac{1
```

A/2 + B/2 + C/2 + D/2 + E/2 + F/2 + G/2 + H/2 + I/2 + J/2 + K/2 + L/2 + M/2 + N/2 + O/2 + P/2 + Q/2 + R/2 + S/2 + T/2 + U/2 + V/2 + W/2 + X/2 + Y/2 + Z/2 + a/2 + b/2 + c/2 + d/2 + e/2 + f/2 + g/2 + h/2 + i/2 + j/2 + k/2 + L/2 + m/2 + n/2 + o/2 + p/2 + g/2 + r/2 + s/2 + t/2 + u/2 + v/2 + w/2 + x/2 + y/2 + z/2 + A/2 + B/2 + F/2 + A/2 + E/2 + Z/2 + H/2 + O/2 + I/2 + K/2 + A/2 + M/2 + N/2 + E/2 + Z/2 + T/2 + Y/2 + O/2 + X/2 + W/2 + A/2 + W/2 + A/2 + D/2 + C/2 + C/2 + T/2 + Y/2 + O/2 + X/2 + W/2 + D/2 + C/2 + C/2

### 10.10 Big Operators Sans serif

$$\sum_{i=1}^{n} x^{n} \prod_{i=1}^{n} x^{n} \prod_{i=1}^{n} x^{n} \int_{i=1}^{n} x^{n} \oint_{i=1}^{n} x^{n}$$

$$\bigotimes_{i=1}^{n} x^{n} \bigoplus_{i=1}^{n} x^{n} \bigwedge_{i=1}^{n} x^{n} \bigvee_{i=1}^{n} x^{n} \bigcup_{i=1}^{n} x^{n} \bigcup_{i=1}^{n} x^{n} \prod_{i=1}^{n} x^{n}$$

#### 10.11 Radicals Sans serif

$$\sqrt{x+y} \qquad \sqrt{x^2+y^2} \qquad \sqrt{x_i^2+y_j^2} \qquad \sqrt{\left(\frac{\cos x}{2}\right)} \qquad \sqrt{\left(\frac{\sin x}{2}\right)}$$

$$\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{x+y}}}}}}$$

#### 10.12 Over- and Underbraces Sans serif

$$\overbrace{x}$$
  $\overbrace{x+y}$   $\overbrace{x^2+y^2}$   $\overbrace{x_i^2+y_j^2}$   $\underbrace{x}$   $\underbrace{x+y}$   $\underbrace{x_i+y_j}$   $\underbrace{x_i^2+y_j^2}$ 

## 10.13 Normal and Wide Accents Sans serif

$$\dot{x} \quad \ddot{x} \quad \overline{x} \quad \overline{x} \quad \overline{x} \quad \tilde{x} \quad$$

# 10.14 Long Arrows Sans serif

 $\longleftarrow \longrightarrow \longleftrightarrow \longleftarrow \longrightarrow \longleftrightarrow \Longleftrightarrow \Longleftrightarrow \Longrightarrow \Longleftrightarrow$ 

# 10.15 Left and Right Delimiters Sans serif

$$-(f)--[f]--|f]--\lceil f\rceil--\langle f\rangle--\{f\}-$$

Using \left and \right.

$$-(f) - -[f] - -|f| - -|f| - -\langle f \rangle - -\{f\} -$$

$$-)f(--|f| - -/f/ - -\langle f \rangle - -\langle f \rangle - -\langle f \rangle -$$

## 10.16 Big-g-g Delimiters Sans serif

## 10.17 Binary Operators Sans serif

#### 10.18 Relations Sans serif

```
\equiv
x \le y
          \leq
                              x \ge y
                                        \geq
                                                            x \equiv y
                                                                                   x \models y
                                                                                              \models
X < Y
          \prec
                              X > Y
                                        \succ
                                                            X \sim Y
                                                                      \sim
                                                                                    X \perp y
                                                                                              \perp
                              x \geq y
                                        \succeq
                                                                      \simeq
                                                                                    x \mid y
                                                                                              \mid
X \leq y
          \preceq
                                                            x \simeq y
X \ll y
          \11
                              X \gg y
                                                                      \asymp
                                                                                    x \parallel y
                                                                                              \parallel
                                        \gg
                                                            X \times Y
          \subset
                                                                      \approx
                                                                                              \bowtie
X \subset Y
                              X\supset Y
                                        \supset
                                                            x \approx y
                                                                                    X \bowtie Y
                                                                      \cong
X \subseteq Y
          \subseteq
                              x \supseteq y
                                        \supseteq
                                                            x \cong y
                                                                                    x \bowtie y
                                                                                              \Join
X \sqsubset Y
          \sqsubset
                              X \supset Y
                                        \sqsupset
                                                            x \neq y
                                                                      \neq
                                                                                    x \smile y
                                                                                              \smile
          \sqsubseteq
                                        \sqsupseteq
                                                            x \doteq y
                                                                      \doteq
                                                                                              \frown
X \sqsubseteq y
                             x \supseteq y
                                                                                    x \frown y
X \in \mathcal{Y}
          \in
                              X \ni Y
                                        \ni
                                                                      \propto
                                                                                   x = y
                                                            X \propto Y
          \vdash
                              X \dashv Y
                                        \dashv
                                                                                    X > V
X \vdash Y
                                                            x < y
                                                                      <
X: y
```

#### 10.19 Punctuation Sans serif

```
x,y, x;y; x:y \colon x.y \ldotp x\cdot y \cdotp
```

#### 10.20 Arrows Sans serif

$x \leftarrow y$	\leftarrow	$x \leftarrow\!$	$\label{longleftarrow}$	$x \uparrow y$	\uparrow
$x \leftarrow y$	\Leftarrow	$x \longleftarrow y$	\Longleftarrow	$x \uparrow y$	\Uparrow
$X \rightarrow Y$	\rightarrow	$x \longrightarrow y$	$\label{longright} \$	$x \downarrow y$	\downarrow
$x \Rightarrow y$	\Rightarrow	$x \Longrightarrow y$	$ackslash  ext{Longrightarrow}$	$x \downarrow y$	\Downarrow
$x \leftrightarrow y$	$\$ leftrightarrow	$x \longleftrightarrow y$	$\label{longleftrightarrow}$	x	\updownarrow
$x \Leftrightarrow y$	$ackslash  ext{Leftrightarrow}$	$x \Longleftrightarrow y$	$\Longleftrightarrow$	<i>x</i>	\Updownarrow
$x \mapsto y$	\mapsto	$x \longmapsto y$	$\label{longmapsto} \$	x	\nearrow
$x \leftarrow y$	$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	$x \hookrightarrow y$	$\h$ ookrightarrow	x ∖ y	\searrow
<i>x</i>	$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	$x \rightarrow y$	$\$ rightharpoonup	x ∠ y	\swarrow
$X \leftarrow Y$	$\$ leftharpoondown	$X \rightarrow Y$	$\$ rightharpoondown	x	\nwarrow
$x \rightleftharpoons y$	$\$ rightleftharpoons	x ⊶ y	\leadsto		

#### 10.21 Miscellaneous Symbols Sans serif

```
\cdots
                                       x:y
                                                            x <sup>∵</sup>. y
x . . . y
       \ldots
                 x \cdots y
                                             \vdots
                                                                    \ddots
xℵy
        \aleph
                 χ⁄y
                          \prime
                                       x∀y
                                             \forall
                                                            x∞y
                                                                    \infty
        \hbar
xħy
                 хØу
                         \emptyset
                                       х∃у
                                             \exists
                                                                    \mathbb{Z}
                                                            X\square y
        \imath
                         \nabla
                                                                    \Diamond
                 x\nabla y
                                       X \neg y
                                             \neg
                                                            x◊y
Xıy
        \jmath
                         \surd
                                       xby
                                             \flat
                                                                    \triangle
ХЈУ
                 x√y
                                                            X\triangle V
xℓy
       \ell
                 x \top y
                         \top
                                       хկу
                                             \natural
                                                            х♣у
                                                                    \clubsuit
                                                                    \diamondsuit
хюу
        \wp
                 x \perp y
                         \bot
                                       x‡y
                                             \sharp
                                                            x≎y
xRey
       \Re
                 x||y
                         1/
                                       x\y
                                             \backslash
                                                            х♡у
                                                                    \heartsuit
                                              \partial
                                                                    \spadesuit
xImy
       \Im
                 x∠y
                          \angle
                                       х∂у
                                                            х♠у
х℧у
        \mho
                                              x!y
                                                                    !
                                       x|y
                 X.y
```

# 10.22 Variable-Sized Operators Sans serif

```
\sum
                             \bigcap
                                            X \odot y
                                                     \bigodot
                     X()y
x \prod y
         \prod
                     χl
                             \bigcup
                                            x \otimes y
                                                     \bigotimes
         \coprod
                                            x \oplus y
                                                     \bigoplus
                    x \mid y
                             \bigsqcup
                             \bigvee
                                            x + y
                                                     \biguplus
x \mid y
         \int
                     x \setminus y
                     x \wedge y
x ∮ y
         \oint
                             \bigwedge
```

# 10.23 Log-Like Operators Sans serif

```
X COS V
                           X CSC V
                                       x \exp y
                                                   x ker y
                                                                  x lim sup y
                                                                                  x \min y
                                                                                             x sinh y
x arcsin y
              x \cosh y \quad x \deg y
                                      x gcd y
                                                   x lg y
                                                                  x \ln y
                                                                                  x Pr y
                                                                                             x sup y
                                       x hom y
                                                   x lim y
                                                                  x log y
x arctan y
              x cot y
                           x det y
                                                                                  x sec y
                                                                                             x tan y
              x coth y
                          x \operatorname{dim} y \quad x \operatorname{inf} y
                                                   x lim inf y
                                                                  x \max y
                                                                                             x \tanh y
x arg y
                                                                                  x sin y
```

# 10.24 Delimiters Sans serif

```
x(y
      (
                    x)y
                          )
                                        x \uparrow y
                                                 \uparrow
                                                                     x \uparrow y
                                                                              \Uparrow
x[y
      xy
                          ]
                                        x \downarrow y
                                                 \downarrow
                                                                     x \downarrow y
                                                                              \Downarrow
                                                \updownarrow
      \{
                                        \Updownarrow
x{y
                    x}y
                          \}
                                                                     x \updownarrow y
      \lfloor
                          \rfloor
                                                 \lceil
                                                                              \rceil
x \mid y
                   x|y
                                       xΓy
                                                                     x y
      \langle
                          \rangle
                                       x/y
                                                                     X \setminus y
                                                                              \backslash
X\langle y
                    x\rangle y
x|y
                    x||y
                           \backslash I
```

## 10.25 Large Delimiters Sans serif

#### 10.26 Math Mode Accents Sans serif

```
\hat{a} \hat{a} \hat{a} \cdot{a} \bar{a} \bar{a} \hat{a} \dot{a} \tilde{a} \breve{a} \tilde{a} \check{a} \hat{a} \grave{a} \bar{a} \vec{a} \tilde{a} \ddot{a} \tilde{a} \tilde{a}
```

#### 10.27 Miscellaneous Constructions Sans serif

```
abc
       \widetilde{abc}
                              abc
                                     \widehat{abc}
àbc
       \overleftarrow{abc}
                              abc
                                     \overrightarrow{abc}
abc
       \overline{abc}
                              abc
                                     \underline{abc}
abc
       \overbrace{abc}
                              abc
                                     \underbrace{abc}
                               ∜abc
√abc
      \sqrt{abc}
                                     \sqrt[n]{abc}
                              <u>abc</u>
xvz
f′
       f,
                                     \frac{abc}{xyz}
```

#### 10.28 AMS Delimiters Sans serif

 $x^{T}y$  \ulcorner  $x^{T}y$  \urcorner  $x_{L}y$  \llcorner  $x_{L}y$  \llcorner

#### 10.29 AMS Arrows Sans serif

```
\dashrightarrow
                                        x ←-- y
                                                  \dashleftarrow
X \longrightarrow V
          \leftleftarrows
x \sqsubseteq y
                                        x \subseteq y
                                                  \leftrightarrows
x \in y
          \Lleftarrow
                                        \twoheadleftarrow
X \leftarrow Y
          \leftarrowtail
                                        \looparrowleft
x \leftrightharpoons y
          \leftrightharpoons
                                                  \curvearrowleft
                                        X \cap Y
          \circlearrowleft
                                                  \Lsh
хоу
                                        хἡу
          \upuparrows
                                                  \upharpoonleft
x \uparrow \uparrow y
                                        x 1 y
x \downarrow y
          \downharpoonleft
                                        x \rightarrow y
                                                  \multimap
x ↔ y
          \leftrightsquigarrow X \rightrightarrows Y
                                                  \rightrightarrows
                                                  \rightrightarrows
x \rightleftarrows y
          \rightleftarrows
                                        x \rightrightarrows y
x \rightleftharpoons y
          \rightleftarrows
                                                  \twoheadrightarrow
                                        X \rightarrow Y
          \rightarrowtail
                                        X \rightarrow Y
                                                  \looparrowright
X \rightarrow Y
          \rightleftharpoons
                                                  \curvearrowright
x \rightleftharpoons y
                                        X \cap Y
хоу
          \circlearrowright
                                        ХЬЛ
                                                  \Rsh
x \downarrow \downarrow y
          \downdownarrows
                                        x \mid y
                                                  \upharpoonright
          \downharpoonright
                                                  \rightsquigarrow
x \mid y
                                        x ⊶ y
```

# 10.30 AMS Negated Arrows Sans serif

```
x \leftrightarrow y \nleftarrow x \nrightarrow y \nrightarrow x \nleftrightarrow y \nRightarrow x \nleftrightarrow y \nleftrightarrow x \nleftrightarrow y \nleftrightarrow
```

#### 10.31 AMS Greek Sans serif

```
xfy \digamma xxy \varkappa
```

### 10.32 AMS Hebrew Sans serif

# 10.33 AMS Miscellaneous Sans serif

xħy	\hbar	хћу	\hslash
$X \triangle y$	$\$ vartriangle	x⊽y	$\$ triangledown
$x\Box y$	\square	x◊y	\lozenge
хSу	\circledS	x∠y	\angle
x∡y	\measuredangle	x∄y	\nexists
х℧у	\mho	х∃у	$ackslash  ext{Finv}^u$
хӘу	$\backslash \mathtt{Game}^u$	x k y	$ackslash Bbbk^u$
<i>x</i> \ <i>y</i>	\backprime	хØу	$\$ varnothing
x▲y	\blacktriangle	x▼y	\blacktriangledown
x∎y	\blacksquare	x∳y	\blacklozenge
x★y	\bigstar	x∢y	\sphericalangle
xC $y$	\complement	хðу	\eth
x/y	$ackslash  exttt{diagup}^u$	$x \setminus y$	$\diagdown^u$

<sup>&</sup>lt;sup>u</sup> Not defined in amssymb.sty, define using the \newsymbol command.

# 10.34 AMS Binary Operators Sans serif

x + y	\dotplus	$X \setminus Y$	$\slash$ smallsetminus
$x \cap y$	\Cap	$x \cup y$	\Cup
<i>x</i> <u>⊼</u> <i>y</i>	\barwedge	<i>x</i> ⊻ <i>y</i>	\veebar
$x \overline{\wedge} y$	\doublebarwedge	$x \boxminus y$	\boxminus
$X \boxtimes Y$	\boxtimes	$x \odot y$	\boxdot
$x \boxplus y$	\boxplus	<i>x</i> ∗ <i>y</i>	\divideontimes
$x \ltimes y$	\ltimes	$x \rtimes y$	\rtimes
$x \setminus y$	\leftthreetimes	$x \wedge y$	\rightthreetimes
$X \downarrow Y$	\curlywedge	X Y y	\curlyvee
$x \ominus y$	\circleddash	$X \otimes y$	\circledast
$x \odot y$	\circledcirc	<i>x</i> • <i>y</i>	\centerdot
<i>x</i> <b>T</b> <i>y</i>	\intercal		

## 10.35 AMS Relations Sans serif

- $x \le y$  \leqslant
- $x \lesssim y$  \lesssim
- $x \approx y$  \approxeq
- $x \ll y \setminus 111$
- $x \leq y$  \lesseggtr
- $x \doteq y \setminus doteqdot$
- x = y \fallingdotseq
- $x \simeq y$  \backsimeq
- $x \in y \setminus Subset$
- $x \leq y$  \preccurlyeq
- $x \lesssim y$  \precsim
- $x \triangleleft y$  \vartriangleleft
- $x \models y \quad \forall Dash$
- $x \smile y$  \smallsmile
- x = y \bumpeq
- $x \ge y \setminus \text{geqq}$
- $x \geqslant y$  \eqslantgtr
- $x \gtrsim y$  \gtrapprox
- $x \gg y \setminus ggg$
- $x \geq y$  \gtreqless
- $x = y \setminus \text{eqcirc}$
- $x \triangleq y$  \triangleq
- $x \approx y$  \thickapprox
- $x \ni y \setminus \text{Supset}$
- $x \succcurlyeq y$  \succcurlyeq
- $x \gtrsim y$  \succsim
- $x \triangleright y$  \vartriangleright
- $x \Vdash y$  \Vdash
- $X \parallel Y$  \shortparallel
- $x \pitchfork y$  \pitchfork
- $x \triangleleft y$  \blacktriangleleft
- $x \ni y$  \backepsilon
- x∵y \because

# 10.36 AMS Negated Relations Sans serif

	\-7		\-7
x≮y	\nless	x≰y	\nleq
	\nleqslant		
$x \leq y$	$\label{lneq}$	<i>x</i> ≨ <i>y</i>	\lneqq
<i>x</i> ≨ <i>y</i>	$lem:lemma_lemma$	<i>x</i> ≲ <i>y</i>	$\label{lnsim}$
x ≨ y	$\label{lnapprox}$	$x \not\prec y$	\nprec
$x \not \leq y$	\npreceq	<i>x</i> ⋨ <i>y</i>	\precnsim
x ≨ y	\precnapprox	<i>x</i> ≁ <i>y</i>	$\n$
хíу	\nshortmid	x∤y	\nmid
x⊬y	\nvdash	x ⊭ y	\nvDash
<i>x</i> ⋪ <i>y</i>	$\ntriangleleft$	<i>x</i> ⊈ <i>y</i>	$\ntrianglelefteq$
<i>x</i> ⊈ <i>y</i>	\nsubseteq	<i>x</i> ⊊ <i>y</i>	\subsetneq
$x \subsetneq y$	\varsubsetneq	x ⊊ y	\subsetneqq
<i>x</i> ≨ <i>y</i>	$\varsubsetneqq$	x≯y	\ngtr
<i>x</i> ≱ <i>y</i>	\ngeq	x≱y	$\ngeqslant$
x ≹ y	\ngeqq	$x \ge y$	\gneq
$x \ngeq y$	\gneqq	$x \geq y$	\gvertneqq
$x \gtrsim y$	$\gnsim$	x ≩ y	\gnapprox
$x \not\succ y$	\nsucc	<i>x</i> ≱ <i>y</i>	\nsucceq
<i>x</i>	\nsucceqq	x	\succnsim
x ‰ y	\succnapprox	$x \not\cong y$	\ncong
хиу	\nshortparallel	<i>x</i> ∦ <i>y</i>	nparallel
x ⊭ y	\nvDash	x⊮y	\nVDash
x ≯ y	$\ntriangleright$	x ≱ y	\ntrianglerighteq
<i>x</i> ⊉ <i>y</i>	\nsupseteq	x ⊉ y	\nsupseteqq
x ⊋ y	\supsetneq	$x \supseteq y$	
x⊋y	\supsetneqq	x⊋y	
<i>+</i> '	1 11	+ /	1 11

# 11 Sans serif bold

## 11.1 Overview Sans serif bold

Default:  $\alpha\alpha b\beta G\Gamma P\Pi \alpha\beta$  mathnormal:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathrm:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathup:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathit:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathbf:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathbft:  $\alpha\alpha b\beta G\Gamma P\Pi$ 

Default:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathnormal:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathrm:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathup:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathit:  $\alpha\alpha b\beta G\Gamma P\Pi$ 

mathbf: **ααbβGΓΡΠ** mathbfit: **ααbβGΓΡΠ** 

Default:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathnormal:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathrm:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathup:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathit:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathbf:  $\alpha\alpha b\beta G\Gamma P\Pi$  mathbf:  $\alpha\alpha b\beta G\Gamma P\Pi$ 

## 11.2 Formulas Sans serif bold

 $\alpha,\,\beta,\,\gamma,\,\delta,\,\epsilon,\,\zeta,\,\eta,\,\theta,\,\iota,\,\kappa,\,\lambda,\,\mu,\,\nu,\,\xi,\,o,\,\pi,\,\rho,\,\sigma,\,\zeta,\,\tau,\,\upsilon,\,\phi,\,\chi,\,\psi,\,\omega,\,\varsigma,\,A,\,B,\,\Gamma,\,\Delta,\,E,\,Z,\,H,\,\theta,\,I,\,K,\,\Lambda,\,M,\,N,\,\Xi,\,O,\,\Pi,\,P,\,\Sigma,\,T,\,Y,\,\Phi,\,X,\,\Psi,\,\Omega,\,F,$ 

 $\alpha,\,\beta,\,\gamma,\,\delta,\,\epsilon,\,\zeta,\,\eta,\,\theta,\,\iota,\,\kappa,\,\lambda,\,\mu,\,\nu,\,\xi,\,o,\,\pi,\,\rho,\,\sigma,\,\varsigma,\,\tau,\,\upsilon,\,\phi,\,\chi,\,\psi,\,\omega,\,\digamma,\,A,\,B,\,\Gamma,\,\Delta,\,E,\,Z,\,H,\,\Theta,\,I,\,K,\,\Lambda,\,M,\,N,\,\Xi,\,O,\,\Pi,\,P,\,\Sigma,\,T,\,Y,\,\Phi,\,X,\,\Psi,\,\Omega,\,F,$ 

 $\alpha$ ,  $\beta$ ,  $\gamma$ ,  $\delta$ ,  $\epsilon$ ,  $\zeta$ ,  $\eta$ ,  $\theta$ ,  $\iota$ ,  $\kappa$ ,  $\lambda$ ,  $\mu$ ,  $\nu$ ,  $\xi$ , o,  $\pi$ ,  $\rho$ ,  $\sigma$ ,  $\zeta$ ,  $\tau$ ,  $\upsilon$ ,  $\phi$ ,  $\chi$ ,  $\psi$ ,  $\omega$ ,  $\epsilon$ , A, B,  $\Gamma$ ,  $\Delta$ , E, Z, H,  $\Theta$ , I, K,  $\Lambda$ , M, N,  $\Xi$ , O,  $\Pi$ , P,  $\Sigma$ , T, Y,  $\Phi$ , X,  $\Psi$ ,  $\Omega$ , F,

 $\alpha a > 0$ ,  $\beta b + (3 \times 27)$ ,  $\Gamma G = 7 < 8$ ,  $\lambda$ 

 $\alpha a > 0$ ,  $\beta b + (3 \times 27)$ ,  $\Gamma G = 7 < 8$ ,  $\lambda$ 

 $s \pm 3y + y - 1 = 4 \times 7$ 

$$\sum_{i=0}^{N} x^{i}$$

$$\int_{-\infty}^{\infty} x f(x) dx = \left(\frac{27}{2}\right)$$

 $s \pm 3\gamma + y - 1 \times 7$ 

$$\sum_{i=0}^{\infty} x^{i}$$

$$\int_{-\infty}^{\infty} x f(x) dx = \left(\frac{27}{2}\right)$$

 $s \pm 3y + y - 1 \times 7$ 

$$\sum_{i=0}^{N} x^{i}$$

$$\int_{-\infty}^{\infty} x f(x) \, \mathbf{d}x = \left(\frac{27}{2}\right)$$

$$s \pm 3\gamma + y - 1 \times 7$$

$$\sum_{i=0}^{N} x^{i}$$

$$\int_{-\infty}^{\infty} x f(x) dx = \left(\frac{27}{2}\right)$$

## 11.3 Math Alphabets Sans serif bold

#### **Default**

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z, A, B, Γ, Δ, E, Z, H, Θ, I, K, Λ, M, N, Ξ, Ο, Π, P, Σ, T, Y, Φ, X, Ψ, Ω, α, β, γ, δ, ε, ζ, η, θ, ι, κ, λ, μ, ν, ξ, ο, π, ρ, σ, τ, υ, φ, χ, ψ, ω, ε, θ, ω, ρ, ζ, φ,

#### Math Normal (\mathnormal)

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z, A, B, Γ, Δ, E, Z, H, Θ, I, K, Λ, M, N, Ξ, Ο, Π, P, Σ, T, Y, Φ, X, Ψ, Ω, α, β, γ, δ, ε, ζ, η, θ, ι, κ, λ, μ, ν, ξ, ο, π, ρ, σ, τ, υ, φ, χ, ψ, ω, ε, θ, ω, ρ, ς, φ,

## Math Italic (\mathit)

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z, A, B, Γ, Δ, E, Z, H, Θ, I, K, Λ, M, N, Ξ, Ο, Π, P, Σ, T, Y, Φ, X, Ψ, Ω, α, β, γ, δ, ε, ζ, η, θ, ι, κ, λ, μ, ν, ξ, ο, π, ρ, σ, τ, υ, φ, χ, ψ, ω, ε, θ, ω, ρ, ς, φ,

#### Math Roman (\mathrm)

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z, A, B, Γ, Δ, E, Z, H, Θ, I, K, Λ, M, N, Ξ, O, Π, P, Σ, T, Υ, Φ, X, Ψ, Ω,  $\alpha, \beta, \gamma, \delta, \epsilon, \zeta, \eta, \theta, \iota, \kappa, \lambda, \mu, \nu, \xi, o, \pi, \rho, \sigma, \tau, v, \phi, \chi, \psi, \omega, \epsilon, \vartheta, \varpi, \varrho, \varsigma, \varphi,$ 

0, 1, 2, 3, 4, 5, 6, 7, 8, 9,

A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z,

a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z,

 $A, B, \Gamma, \Delta, E, Z, H, \Theta, I, K, \Lambda, M, N, \Xi, O, \Pi, P, \Sigma, T, Y, \Phi, X, \Psi, \Omega$ 

 $\alpha, \beta, \gamma, \delta, \varepsilon, \zeta, \eta, \theta, \iota, \kappa, \lambda, \mu, \nu, \xi, o, \pi, \rho, \sigma, \tau, \upsilon, \phi, \chi, \psi, \omega, \varepsilon, \vartheta, \omega, \rho, \varsigma, \varphi,$ 

### Caligraphic (\mathcal)

 $\mathcal{A},\mathcal{B},\mathcal{C},\mathfrak{D},\mathcal{E},\mathcal{F},\mathcal{G},\mathcal{H},\mathcal{I},\mathcal{I},\mathcal{X},\mathcal{L},\mathcal{M},\mathcal{N},\mathcal{O},\mathcal{P},\mathcal{Q},\mathcal{R},\mathcal{S},\mathcal{T},\mathcal{U},\mathcal{V},\mathcal{W},\mathcal{X},\mathcal{Y},\mathcal{Z},$ 

### Script (\mathscr)

$$\mathcal{A}, \mathcal{B}, \mathcal{C}, \mathcal{D}, \mathcal{E}, \mathcal{F}, \mathcal{G}, \mathcal{H}, \mathcal{I}, \mathcal{I}, \mathcal{K}, \mathcal{L}, \mathcal{M}, \mathcal{N}, \mathcal{O}, \mathcal{P}, \mathcal{Q}, \mathcal{R}, \mathcal{F}, \mathcal{T}, \mathcal{U}, \mathcal{V}, \mathcal{W}, \mathcal{X}, \mathcal{Y}, \mathcal{Z}, \mathcal{Z}$$

#### Fraktur (\mathfrak)

 $\mathfrak{A}, \mathfrak{B}, \mathfrak{C}, \mathfrak{D}, \mathfrak{E}, \mathfrak{F}, \mathfrak{G}, \mathfrak{H}, \mathfrak{I}, \mathfrak{I}, \mathfrak{K}, \mathfrak{L}, \mathfrak{M}, \mathfrak{N}, \mathfrak{D}, \mathfrak{P}, \mathfrak{Q}, \mathfrak{R}, \mathfrak{G}, \mathfrak{T}, \mathfrak{U}, \mathfrak{V}, \mathfrak{W}, \mathfrak{X}, \mathfrak{Y}, \mathfrak{Z}, \mathfrak{a}, \mathfrak{b}, \mathfrak{c}, \mathfrak{d}, \mathfrak{e}, \mathfrak{f}, \mathfrak{g}, \mathfrak{h}, \mathfrak{i}, \mathfrak{j}, \mathfrak{k}, \mathfrak{l}, \mathfrak{m}, \mathfrak{n}, \mathfrak{o}, \mathfrak{p}, \mathfrak{q}, \mathfrak{r}, \mathfrak{s}, \mathfrak{t}, \mathfrak{u}, \mathfrak{v}, \mathfrak{w}, \mathfrak{x}, \mathfrak{y}, \mathfrak{z}, \mathfrak{g}$ 

#### Blackboard Bold (\mathbb)

A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z,

### 11.4 Character Sidebearings Sans serif bold

#### Default

$$\begin{aligned} |A| + |B| + |C| + |D| + |E| + |F| + |G| + |H| + |I| + |J| + |K| + |L| + |M| + \\ |N| + |O| + |P| + |Q| + |R| + |S| + |T| + |U| + |V| + |W| + |X| + |Y| + |Z| + \\ |a| + |b| + |c| + |d| + |e| + |f| + |g| + |h| + |i| + |j| + |k| + |l| + |m| + \\ |n| + |o| + |p| + |q| + |r| + |s| + |t| + |u| + |v| + |w| + |x| + |y| + |z| + \\ |A| + |B| + |T| + |A| + |E| + |Z| + |H| + |O| + |I| + |K| + |A| + |M| + \\ |N| + |E| + |O| + |\Pi| + |P| + |E| + |T| + |Y| + |O| + |X| + |\Psi| + |\Omega| + \\ |a| + |\beta| + |y| + |\delta| + |E| + |\zeta| + |\eta| + |O| + |I| + |K| + |A| + |\mu| + \\ |v| + |\xi| + |O| + |\pi| + |\rho| + |\sigma| + |\tau| + |v| + |\phi| + |\chi| + |\psi| + |\omega| + \\ |\varepsilon| + |\partial| + |\omega| + |\rho| + |\zeta| + |\phi| + \end{aligned}$$

$$\begin{aligned} |A| + |B| + |C| + |D| + |E| + |F| + |G| + |H| + |I| + |J| + |K| + |L| + |M| + \\ |N| + |O| + |P| + |Q| + |R| + |S| + |T| + |U| + |V| + |W| + |X| + |Y| + |Z| + \\ |a| + |b| + |c| + |d| + |e| + |f| + |g| + |h| + |i| + |j| + |k| + |I| + |m| + \\ |n| + |o| + |p| + |q| + |r| + |s| + |t| + |u| + |v| + |w| + |x| + |y| + |z| + \\ |A| + |B| + |\Gamma| + |\Delta| + |E| + |Z| + |H| + |\Theta| + |I| + |K| + |A| + |M| + \\ |N| + |E| + |O| + |\Pi| + |P| + |\Sigma| + |T| + |\Upsilon| + |\Phi| + |X| + |\Psi| + |\Omega| + \end{aligned}$$

$$\begin{aligned} |A| + |B| + |C| + |D| + |E| + |F| + |G| + |H| + |I| + |I| + |K| + |L| + |M| + \\ |N| + |O| + |P| + |Q| + |R| + |S| + |T| + |U| + |V| + |W| + |X| + |Y| + |Z| + \\ |a| + |b| + |c| + |d| + |e| + |f| + |g| + |h| + |i| + |j| + |k| + |l| + |m| + \\ |n| + |o| + |p| + |q| + |r| + |s| + |t| + |u| + |v| + |w| + |x| + |y| + |z| + \\ |A| + |B| + |T| + |\Delta| + |E| + |Z| + |H| + |\Theta| + |I| + |K| + |A| + |M| + \\ |N| + |E| + |O| + |\Pi| + |P| + |\Sigma| + |T| + |Y| + |\Phi| + |X| + |\Psi| + |\Omega| + \\ \end{aligned}$$

#### Math Calligraphic (\mathcal)

$$\begin{aligned} |\mathcal{A}| + |\mathcal{B}| + |\mathcal{C}| + |\mathcal{D}| + |\mathcal{E}| + |\mathcal{F}| + |\mathcal{G}| + |\mathcal{H}| + |\mathcal{I}| + |\mathcal{I}| + |\mathcal{I}| + |\mathcal{H}| +$$

### 11.5 Superscript Positioning Sans serif bold

#### Default

$$\begin{array}{l} A^2+B^2+C^2+D^2+E^2+F^2+G^2+H^2+I^2+J^2+K^2+L^2+M^2+\\ N^2+O^2+P^2+Q^2+R^2+S^2+T^2+U^2+V^2+W^2+X^2+Y^2+Z^2+\\ a^2+b^2+c^2+d^2+e^2+f^2+g^2+h^2+i^2+j^2+k^2+I^2+m^2+\\ n^2+o^2+p^2+q^2+r^2+s^2+t^2+u^2+v^2+w^2+x^2+y^2+z^2+\\ A^2+B^2+\Gamma^2+\Delta^2+E^2+Z^2+H^2+\Theta^2+I^2+K^2+\Lambda^2+M^2+\\ N^2+\Xi^2+O^2+\Pi^2+P^2+\Sigma^2+T^2+Y^2+\Phi^2+X^2+\Psi^2+\Omega^2+\\ a^2+\beta^2+\gamma^2+\delta^2+\epsilon^2+\zeta^2+\eta^2+\theta^2+\iota^2+\kappa^2+\lambda^2+\mu^2+\\ v^2+\xi^2+o^2+\pi^2+\rho^2+\sigma^2+\tau^2+v^2+\phi^2+\chi^2+\psi^2+\omega^2+\\ \epsilon^2+\vartheta^2+\omega^2+\rho^2+\zeta^2+\varphi^2+\end{array}$$

$$\begin{split} A^2 + B^2 + C^2 + D^2 + E^2 + F^2 + G^2 + H^2 + I^2 + J^2 + K^2 + L^2 + M^2 + \\ N^2 + O^2 + P^2 + Q^2 + R^2 + S^2 + T^2 + U^2 + V^2 + W^2 + X^2 + Y^2 + Z^2 + \\ a^2 + b^2 + c^2 + d^2 + e^2 + f^2 + g^2 + h^2 + i^2 + j^2 + k^2 + I^2 + m^2 + \\ n^2 + o^2 + p^2 + q^2 + r^2 + s^2 + t^2 + u^2 + v^2 + w^2 + x^2 + y^2 + z^2 + \\ A^2 + B^2 + \Gamma^2 + \Delta^2 + E^2 + Z^2 + H^2 + \Theta^2 + I^2 + K^2 + \Lambda^2 + M^2 + \\ N^2 + \Xi^2 + O^2 + \Pi^2 + P^2 + \Sigma^2 + T^2 + \Upsilon^2 + \Phi^2 + X^2 + \Psi^2 + \Omega^2 + \Omega^2$$

$$A^{2} + B^{2} + C^{2} + D^{2} + E^{2} + F^{2} + G^{2} + H^{2} + I^{2} + J^{2} + K^{2} + L^{2} + M^{2} + N^{2} + O^{2} + P^{2} + Q^{2} + R^{2} + S^{2} + T^{2} + U^{2} + V^{2} + W^{2} + X^{2} + Y^{2} + Z^{2} + a^{2} + b^{2} + c^{2} + d^{2} + e^{2} + f^{2} + g^{2} + h^{2} + i^{2} + j^{2} + k^{2} + l^{2} + m^{2} + n^{2} + o^{2} + p^{2} + q^{2} + r^{2} + s^{2} + t^{2} + u^{2} + v^{2} + w^{2} + x^{2} + y^{2} + z^{2} + A^{2} + B^{2} + \Gamma^{2} + \Delta^{2} + E^{2} + Z^{2} + H^{2} + \Theta^{2} + I^{2} + K^{2} + \Lambda^{2} + M^{2} + N^{2} + \Xi^{2} + O^{2} + \Pi^{2} + P^{2} + \Sigma^{2} + T^{2} + Y^{2} + \Phi^{2} + X^{2} + \Psi^{2} + \Omega^{2} + \Omega^{2$$

Math Calligraphic (\mathcal)

$$\mathcal{A}^{2} + \mathcal{B}^{2} + \mathcal{C}^{2} + \mathcal{D}^{2} + \mathcal{E}^{2} + \mathcal{F}^{2} + \mathcal{L}^{2} + \mathcal{M}^{2} + \mathcal{N}^{2} + \mathcal{O}^{2} + \mathcal{P}^{2} + \mathcal{P}^{2}$$

## 11.6 Subscript Positioning Sans serif bold

**Default** 

$$\begin{aligned} A_{i} + B_{i} + C_{i} + D_{i} + E_{i} + F_{i} + G_{i} + H_{i} + I_{i} + J_{i} + K_{i} + L_{i} + M_{i} + \\ N_{i} + O_{i} + P_{i} + Q_{i} + R_{i} + S_{i} + T_{i} + U_{i} + V_{i} + W_{i} + X_{i} + Y_{i} + Z_{i} + \\ a_{i} + b_{i} + c_{i} + d_{i} + e_{i} + f_{i} + g_{i} + h_{i} + i_{i} + j_{i} + k_{i} + l_{i} + m_{i} + \\ n_{i} + o_{i} + p_{i} + q_{i} + r_{i} + s_{i} + t_{i} + u_{i} + v_{i} + w_{i} + x_{i} + y_{i} + z_{i} + \\ A_{i} + B_{i} + \Gamma_{i} + \Delta_{i} + E_{i} + Z_{i} + H_{i} + \Theta_{i} + I_{i} + K_{i} + \Lambda_{i} + M_{i} + \\ N_{i} + \Xi_{i} + O_{i} + \Pi_{i} + P_{i} + \Sigma_{i} + T_{i} + Y_{i} + \Phi_{i} + X_{i} + \Psi_{i} + \Omega_{i} + \\ \alpha_{i} + \beta_{i} + \gamma_{i} + \delta_{i} + \varepsilon_{i} + \zeta_{i} + \eta_{i} + \theta_{i} + \iota_{i} + \kappa_{i} + \lambda_{i} + \mu_{i} + \\ v_{i} + \xi_{i} + o_{i} + \pi_{i} + \rho_{i} + \sigma_{i} + \tau_{i} + \upsilon_{i} + \psi_{i} + \omega_{i} + \\ \varepsilon_{i} + \vartheta_{i} + \omega_{i} + \rho_{i} + \zeta_{i} + \varphi_{i} + \end{aligned}$$

$$\begin{split} A_{i} + B_{i} + C_{i} + D_{i} + E_{i} + F_{i} + G_{i} + H_{i} + I_{i} + J_{i} + K_{i} + L_{i} + M_{i} + \\ N_{i} + O_{i} + P_{i} + Q_{i} + R_{i} + S_{i} + T_{i} + U_{i} + V_{i} + W_{i} + X_{i} + Y_{i} + Z_{i} + \\ a_{i} + b_{i} + c_{i} + d_{i} + e_{i} + f_{i} + g_{i} + h_{i} + i_{i} + j_{i} + k_{i} + l_{i} + m_{i} + \\ n_{i} + o_{i} + p_{i} + q_{i} + r_{i} + s_{i} + t_{i} + u_{i} + v_{i} + w_{i} + x_{i} + y_{i} + z_{i} + \\ A_{i} + B_{i} + \Gamma_{i} + \Delta_{i} + E_{i} + Z_{i} + H_{i} + \Theta_{i} + I_{i} + K_{i} + \Lambda_{i} + M_{i} + \\ N_{i} + \Xi_{i} + O_{i} + \Pi_{i} + P_{i} + \Sigma_{i} + T_{i} + \Upsilon_{i} + \Phi_{i} + X_{i} + \Psi_{i} + \Omega_{i} + \\ \end{split}$$

$$A_{i} + B_{i} + C_{i} + D_{i} + E_{i} + F_{i} + G_{i} + H_{i} + I_{i} + J_{i} + K_{i} + L_{i} + M_{i} + N_{i} + O_{i} + P_{i} + Q_{i} + R_{i} + S_{i} + T_{i} + U_{i} + V_{i} + W_{i} + X_{i} + Y_{i} + Z_{i} + A_{i} + B_{i} + C_{i} + A_{i} + E_{i} + F_{i} + G_{i} + H_{i} + H_{i$$

## Math Calligraphic (\mathcal)

$$\mathcal{A}_i + \mathcal{B}_i + \mathcal{C}_i + \mathcal{D}_i + \mathcal{E}_i + \mathcal{F}_i + \mathcal{G}_i + \mathcal{H}_i + \mathcal{J}_i + \mathcal{J}_i + \mathcal{H}_i + \mathcal$$

## 11.7 Accent Positioning Sans serif bold

#### **Default**

$$\hat{0} + \hat{1} + \hat{2} + \hat{3} + \hat{4} + \hat{5} + \hat{6} + \hat{7} + \hat{8} + \hat{9} + \\ \hat{A} + \hat{B} + \hat{C} + \hat{D} + \hat{E} + \hat{F} + \hat{G} + \hat{H} + \hat{I} + \hat{J} + \hat{K} + \hat{L} + \hat{M} + \\ \hat{N} + \hat{O} + \hat{P} + \hat{Q} + \hat{R} + \hat{S} + \hat{T} + \hat{U} + \hat{V} + \hat{W} + \hat{X} + \hat{Y} + \hat{Z} + \\ \hat{a} + \hat{b} + \hat{c} + \hat{d} + \hat{e} + \hat{f} + \hat{g} + \hat{h} + \hat{i} + \hat{j} + \hat{k} + \hat{l} + \hat{m} + \\ \hat{n} + \hat{O} + \hat{P} + \hat{q} + \hat{r} + \hat{S} + \hat{t} + \hat{u} + \hat{v} + \hat{w} + \hat{x} + \hat{y} + \hat{Z} + \\ \hat{A} + \hat{B} + \hat{\Gamma} + \hat{\Delta} + \hat{E} + \hat{Z} + \hat{H} + \hat{O} + \hat{I} + \hat{K} + \hat{\Lambda} + \hat{M} + \\ \hat{N} + \hat{\Xi} + \hat{O} + \hat{\Pi} + \hat{P} + \hat{\Sigma} + \hat{T} + \hat{Y} + \hat{O} + \hat{X} + \hat{\Psi} + \hat{\Omega} + \\ \hat{\alpha} + \hat{\beta} + \hat{\gamma} + \hat{\delta} + \hat{\epsilon} + \hat{\zeta} + \hat{\eta} + \hat{O} + \hat{i} + \hat{\kappa} + \hat{\lambda} + \hat{\mu} + \\ \hat{v} + \hat{\xi} + \hat{O} + \hat{\pi} + \hat{P} + \hat{O} + \hat{\tau} + \hat{v} + \hat{\phi} + \hat{\chi} + \hat{\Psi} + \hat{\omega} + \\ \hat{\epsilon} + \hat{\vartheta} + \hat{\sigma} + \hat{\sigma} + \hat{c} + \hat{c} + \hat{\sigma} + \end{aligned}$$

### Math Italic (\mathit)

$$\hat{0} + \hat{1} + \hat{2} + \hat{3} + \hat{4} + \hat{5} + \hat{6} + \hat{7} + \hat{8} + \hat{9} + \\ \hat{A} + \hat{B} + \hat{C} + \hat{D} + \hat{E} + \hat{F} + \hat{G} + \hat{H} + \hat{I} + \hat{J} + \hat{K} + \hat{L} + \hat{M} + \\ \hat{N} + \hat{O} + \hat{P} + \hat{Q} + \hat{R} + \hat{S} + \hat{T} + \hat{U} + \hat{V} + \hat{W} + \hat{X} + \hat{Y} + \hat{Z} + \\ \hat{a} + \hat{b} + \hat{c} + \hat{d} + \hat{e} + \hat{f} + \hat{g} + \hat{h} + \hat{I} + \hat{J} + \hat{k} + \hat{I} + \hat{m} + \hat{\ell} + \hat{\wp} + \hat{I} + \hat{J} + \hat{I} \\ \hat{n} + \hat{O} + \hat{p} + \hat{q} + \hat{r} + \hat{S} + \hat{t} + \hat{u} + \hat{V} + \hat{w} + \hat{x} + \hat{y} + \hat{Z} + \\ \hat{A} + \hat{B} + \hat{\Gamma} + \hat{\Delta} + \hat{E} + \hat{Z} + \hat{H} + \hat{O} + \hat{I} + \hat{K} + \hat{\Lambda} + \hat{M} + \\ \hat{N} + \hat{\Xi} + \hat{O} + \hat{\Pi} + \hat{P} + \hat{\Sigma} + \hat{T} + \hat{Y} + \hat{\Phi} + \hat{X} + \hat{\Psi} + \hat{\Omega} + \\ \hat{\alpha} + \hat{\beta} + \hat{\gamma} + \hat{\delta} + \hat{\epsilon} + \hat{\zeta} + \hat{\eta} + \hat{\theta} + \hat{I} + \hat{K} + \hat{\lambda} + \hat{\mu} + \\ \hat{v} + \hat{\xi} + \hat{O} + \hat{\pi} + \hat{\rho} + \hat{O} + \hat{\tau} + \hat{U} + \hat{\phi} + \hat{\chi} + \hat{\Psi} + \hat{\omega} + \\ \hat{\epsilon} + \hat{\vartheta} + \hat{\sigma} + \hat{\rho} + \hat{\varsigma} + \hat{\varsigma} + \hat{\varphi} +$$

### Math Roman (\mathrm)

$$\hat{0} + \hat{1} + \hat{2} + \hat{3} + \hat{4} + \hat{5} + \hat{6} + \hat{7} + \hat{8} + \hat{9} + \\ \hat{A} + \hat{B} + \hat{C} + \hat{D} + \hat{E} + \hat{F} + \hat{G} + \hat{H} + \hat{I} + \hat{J} + \hat{K} + \hat{L} + \hat{M} + \\ \hat{N} + \hat{O} + \hat{P} + \hat{Q} + \hat{R} + \hat{S} + \hat{T} + \hat{U} + \hat{V} + \hat{W} + \hat{X} + \hat{Y} + \hat{Z} + \\ \hat{a} + \hat{b} + \hat{c} + \hat{d} + \hat{e} + \hat{f} + \hat{g} + \hat{h} + \hat{i} + \hat{j} + \hat{k} + \hat{I} + \hat{m} + \\ \hat{n} + \hat{o} + \hat{p} + \hat{q} + \hat{r} + \hat{s} + \hat{t} + \hat{u} + \hat{v} + \hat{w} + \hat{x} + \hat{y} + \hat{z} + \\ \hat{A} + \hat{B} + \hat{\Gamma} + \hat{\Delta} + \hat{E} + \hat{Z} + \hat{H} + \hat{\Theta} + \hat{I} + \hat{K} + \hat{\Lambda} + \hat{M} + \\ \hat{N} + \hat{\Xi} + \hat{O} + \hat{\Pi} + \hat{P} + \hat{\Sigma} + \hat{T} + \hat{\Upsilon} + \hat{\Phi} + \hat{X} + \hat{\Psi} + \hat{\Omega} +$$

### Math Bold (\mathbf)

$$\hat{0} + \hat{1} + \hat{2} + \hat{3} + \hat{4} + \hat{5} + \hat{6} + \hat{7} + \hat{8} + \hat{9} + \\ \hat{A} + \hat{B} + \hat{C} + \hat{D} + \hat{E} + \hat{F} + \hat{G} + \hat{H} + \hat{I} + \hat{J} + \hat{K} + \hat{L} + \hat{M} + \\ \hat{N} + \hat{O} + \hat{P} + \hat{Q} + \hat{R} + \hat{S} + \hat{T} + \hat{U} + \hat{V} + \hat{W} + \hat{X} + \hat{Y} + \hat{Z} + \\ \hat{a} + \hat{b} + \hat{c} + \hat{d} + \hat{e} + \hat{f} + \hat{g} + \hat{h} + \hat{I} + \hat{J} + \hat{k} + \hat{I} + \hat{m} + \\ \hat{n} + \hat{o} + \hat{p} + \hat{q} + \hat{r} + \hat{s} + \hat{t} + \hat{u} + \hat{v} + \hat{w} + \hat{x} + \hat{y} + \hat{z} + \\ \hat{A} + \hat{B} + \hat{\Gamma} + \hat{\Delta} + \hat{E} + \hat{Z} + \hat{H} + \hat{O} + \hat{I} + \hat{K} + \hat{\Lambda} + \hat{M} + \\ \hat{N} + \hat{\Xi} + \hat{O} + \hat{\Pi} + \hat{P} + \hat{\Sigma} + \hat{T} + \hat{Y} + \hat{\Phi} + \hat{X} + \hat{\Psi} + \hat{\Omega} + \end{aligned}$$

## Math Calligraphic (\mathcal)

$$\hat{\mathcal{A}} + \hat{\mathcal{B}} + \hat{\mathcal{C}} + \hat{\mathcal{D}} + \hat{\mathcal{E}} + \hat{\mathcal{F}} + \hat{\mathcal{G}} + \hat{\mathcal{H}} + \hat{\mathcal{J}} + \hat{\mathcal{J}} + \hat{\mathcal{J}} + \hat{\mathcal{L}} + \hat{\mathcal{M}} + \hat{\mathcal{J}} + \hat{\mathcal{D}} + \hat{\mathcal{$$

#### 11.8 Differentials Sans serif bold

```
dA + dB + dC + dD + dE + dF + dG + dH + dI + dJ + dK + dL + dM +
dN + dO + dP + dQ + dR + dS + dT + dU + dV + dW + dX + dY + dZ +
da + db + dc + dd + de + df + dg + dh + di + dj + dk + dl + dm +
dn + do + dp + dq + dr + ds + dt + du + dv + dw + dx + dy + dz +
dA + dB + d\Gamma + d\Delta + dE + dZ + dH + d\Theta + dI + dK + d\Lambda + dM +
dN + d\Xi + dO + d\Pi + dP + d\Sigma + dT + dY + d\Phi + dX + d\Psi + d\Omega +
dv + d\xi + do + d\pi + d\rho + d\sigma + d\tau + d\nu + d\phi + d\chi + d\psi + d\omega +
d\varepsilon + d\vartheta + d\omega + d\rho + d\varsigma + d\varphi +
dA + dB + d\Gamma + d\Delta + dE + dZ + dH + d\Theta + dI + dK + d\Lambda + dM +
dN + d\Xi + dO + d\Pi + dP + d\Sigma + dT + d\Upsilon + d\Phi + dX + d\Psi + d\Omega +
        \partial A + \partial B + \partial C + \partial D + \partial E + \partial F + \partial G + \partial H + \partial I + \partial J + \partial K + \partial L + \partial M + \partial C 
        \partial N + \partial O + \partial P + \partial Q + \partial R + \partial S + \partial T + \partial U + \partial V + \partial W + \partial X + \partial Y + \partial Z + \partial C 
        \partial a + \partial b + \partial c + \partial d + \partial e + \partial f + \partial g + \partial h + \partial i + \partial j + \partial k + \partial l + \partial m + \partial h 
        \partial n + \partial o + \partial p + \partial q + \partial r + \partial s + \partial t + \partial u + \partial v + \partial w + \partial x + \partial y + \partial z 
        \partial A + \partial B + \partial \Gamma + \partial \Delta + \partial E + \partial Z + \partial H + \partial \Theta + \partial I + \partial K + \partial \Lambda + \partial M + \partial A 
        \partial N + \partial \Xi + \partial O + \partial \Pi + \partial P + \partial \Sigma + \partial T + \partial Y + \partial \Phi + \partial X + \partial \Psi + \partial \Omega + \partial \Psi + \partial \Psi
```

 $\partial \alpha + \partial \beta + \partial \gamma + \partial \delta + \partial \varepsilon + \partial \zeta + \partial \eta + \partial \theta + \partial \iota + \partial \kappa + \partial \lambda + \partial \mu + \partial \nu + \partial \xi + \partial \sigma + \partial \pi + \partial \rho + \partial \sigma + \partial \tau + \partial \nu + \partial \phi + \partial \chi + \partial \psi + \partial \omega + \partial \phi + \partial \phi$ 

$$\begin{split} \partial \mathbf{A} + \partial \mathbf{B} + \partial \mathbf{\Gamma} + \partial \Delta + \partial \mathbf{E} + \partial \mathbf{Z} + \partial \mathbf{H} + \partial \mathbf{\Theta} + \partial \mathbf{I} + \partial \mathbf{K} + \partial \Lambda + \partial \mathbf{M} + \\ \partial \mathbf{N} + \partial \mathbf{\Xi} + \partial \mathbf{O} + \partial \mathbf{\Pi} + \partial \mathbf{P} + \partial \mathbf{\Sigma} + \partial \mathbf{T} + \partial \mathbf{\Upsilon} + \partial \mathbf{\Phi} + \partial \mathbf{X} + \partial \mathbf{\Psi} + \partial \mathbf{\Omega} + \partial \mathbf{\Psi} + \partial \mathbf{W} + \partial \mathbf$$

## 11.9 Slash Kerning Sans serif bold

 $\partial \varepsilon + \partial \vartheta + \partial \omega + \partial \rho + \partial \zeta + \partial \varphi +$ 

```
 1/A + 1/B + 1/C + 1/D + 1/E + 1/F + 1/G + 1/H + 1/I + 1/I + 1/K + 1/L + 1/M + 1/N + 1/O + 1/P + 1/Q + 1/R + 1/S + 1/T + 1/U + 1/V + 1/W + 1/X + 1/Y + 1/Z + 1/a + 1/b + 1/c + 1/d + 1/e + 1/f + 1/g + 1/h + 1/i + 1/j + 1/k + 1/l + 1/m + 1/n + 1/o + 1/p + 1/q + 1/r + 1/s + 1/t + 1/u + 1/v + 1/w + 1/x + 1/y + 1/z + 1/A + 1/B + 1/\Gamma + 1/A + 1/E + 1/Z + 1/H + 1/O + 1/I + 1/K + 1/\Lambda + 1/M + 1/N + 1/E + 1/O + 1/\Pi + 1/P + 1/\Sigma + 1/T + 1/Y + 1/O + 1/X + 1/\Psi + 1/O + 1/A + 1/B + 1/Y + 1/S + 1/S + 1/S + 1/S + 1/S + 1/O + 1/M + 1/F + 1/F
```

 $A/2+B/2+C/2+D/2+E/2+F/2+G/2+H/2+I/2+J/2+K/2+L/2+M/2+N/2+D/2+P/2+Q/2+R/2+S/2+T/2+U/2+V/2+W/2+X/2+Y/2+Z/2+A/2+D/2+C/2+d/2+e/2+f/2+g/2+h/2+i/2+j/2+k/2+I/2+m/2+a/2+b/2+c/2+d/2+e/2+f/2+g/2+h/2+i/2+j/2+k/2+I/2+m/2+n/2+o/2+p/2+q/2+r/2+s/2+t/2+u/2+v/2+w/2+x/2+y/2+z/2+A/2+B/2+F/2+A/2+E/2+Z/2+H/2+O/2+I/2+K/2+A/2+M/2+N/2+E/2+D/2+F/2+Z/2+H/2+O/2+I/2+K/2+A/2+M/2+N/2+E/2+O/2+H/2+D/2+T/2+Y/2+D/2+X/2+\Psi$ 

## 11.10 Big Operators Sans serif bold

$$\sum_{i=1}^{n} x^{n} \prod_{i=1}^{n} x^{n} \prod_{i=1}^{n} x^{n} \int_{i=1}^{n} x^{n} \oint_{i=1}^{n} x^{n}$$

$$\bigotimes_{i=1}^{n} x^{n} \bigoplus_{i=1}^{n} x^{n} \bigwedge_{i=1}^{n} x^{n} \bigvee_{i=1}^{n} x^{n} \bigoplus_{i=1}^{n} x^{n} \bigcup_{i=1}^{n} x^{n} \prod_{i=1}^{n} x^{n}$$

## 11.11 Radicals Sans serif bold

$$\sqrt{x+y} \qquad \sqrt{x^2+y^2} \qquad \sqrt{x_i^2+y_j^2} \qquad \sqrt{\left(\frac{\cos x}{2}\right)} \qquad \sqrt{\left(\frac{\sin x}{2}\right)}$$

$$\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{x+y}}}}}$$

11.12 Over- and Underbraces Sans serif bold

$$x \quad x+y \quad x^2+y^2 \quad x_i^2+y_j^2 \quad x \quad x+y \quad x_i+y_j \quad x_i^2+y_j^2$$

11.13 Normal and Wide Accents Sans serif bold

$$\dot{x}$$
  $\ddot{x}$   $\ddot{x}$ 

# 11.14 Long Arrows Sans serif bold

$$\leftarrow \rightarrow \leftrightarrow \leftarrow \rightarrow \leftarrow \leftarrow \Rightarrow \Leftrightarrow \Longleftrightarrow$$

# 11.15 Left and Right Delimiters Sans serif bold

$$-(f) - -[f] - -|f| - -|f| - -\langle f \rangle - -\{f\} -$$

Using \left and \right.

$$-(f) - -[f] - -[f] - -[f] - -(f) - -\{f\} -$$
  
- $)f(-)f[--/f/--f] - -/f/--f/-$ 

## 11.16 Big-g-g Delimiters Sans serif bold

## 11.17 Binary Operators Sans serif bold

$x \pm y$	\pm	$x \cap y$	\cap	x ⋄ y	\diamond	$x \oplus y$	\oplus
$x \mp y$	\mp	$x \cup y$	\cup	$X \triangle y$	\bigtriangleup	$x \ominus y$	$\operatorname{\backslash} \mathtt{ominus}$
$\mathbf{x} \times \mathbf{y}$	\times	<b>x</b> ⊎ <b>y</b>	\uplus	$x \nabla y$	\bigtriangledown	$x \otimes y$	\otimes
x ÷ y	\div	$x \sqcap y$	\sqcap	x ⊲ y	$\triangleleft$	$X \oslash Y$	\oslash
x * y	\ast	$x \sqcup y$	\sqcup	x ⊳ y	$\triangleright$	<b>x</b> ⊙ <b>y</b>	\odot
$x \star y$	\star	$x \vee y$	\vee	$x \triangleleft y$	\lhd	$x \bigcirc y$	\bigcirc
$x \circ y$	\circ	$x \wedge y$	\wedge	<b>x</b> ⊳ <b>y</b>	\rhd	x † y	\dagger
$x \bullet y$	\bullet	x \ y	\setminus	$x \triangleleft y$	\unlhd	x ‡ y	\ddagger
$x \cdot y$	\cdot	x≀y	\wr	<b>x</b> ⊵ <b>y</b>	\unrhd	x§y	\S
x + y	+	x – y	_	x∐y	\amalg	x¶y	\P

## 11.18 Relations Sans serif bold

```
x \leq y
                            x \ge y
                                                         x \equiv y \setminus \text{equiv}
                                                                                          \models
         \leq
                                      \geq
                                                                               x \models y
x < y
          \prec
                            x > y
                                      \succ
                                                         x \sim y
                                                                  \sim
                                                                               X \perp y
                                                                                          \perp
x \leq y
          \preceq
                            x \geq y
                                      \succeq
                                                         x \simeq y
                                                                  \simeq
                                                                               x \mid y
                                                                                          \mid
x \ll y
         \11
                                                                                          \parallel
                            x \gg y
                                      \gg
                                                         \mathbf{x} \times \mathbf{y}
                                                                  \asymp
                                                                               x \parallel y
X \subset Y
          \subset
                            X\supset Y
                                      \supset
                                                         x \approx y
                                                                  \approx x \bowtie y
                                                                                         \bowtie
x \subseteq y
          \subseteq
                            x ⊇ y
                                      \supseteq
                                                         x \cong y
                                                                  \cong
                                                                               x \bowtie y
                                                                                          \Join
          \sqsubset
                                      \sqsupset
                                                         x \neq y
X \sqsubset Y
                            X \supset Y
                                                                  \neq
                                                                               x \sim y
                                                                                          \smile
x \sqsubseteq y
         \sqsubseteq x \supseteq y
                                      \sqsupseteq x \doteq y
                                                                  \doteq
                                                                                          \frown
                                                                               x \smile y
                                                                  \propto x = y
         \in
                                      \ni
x \in y
                            X \ni y
                                                         X \propto y
          \vdash
                            X \dashv y
                                      \dashv
                                                         x < y <
                                                                               x > y
                                                                                          >
x ⊢ y
x:y
```

#### 11.19 Punctuation Sans serif bold

```
x,y , x;y ; x:y \colon x.y \ldotp x\cdot y \cdotp
```

### 11.20 Arrows Sans serif bold

$x \leftarrow y$	\leftarrow	$x \leftarrow y$	\longleftarrow	x↑y	\uparrow
$x \leftarrow y$	\Leftarrow	$x \longleftarrow y$	\Longleftarrow	$x \uparrow y$	\Uparrow
$x \rightarrow y$	\rightarrow	$x \longrightarrow y$	$\label{longright} \$	$x \downarrow y$	\downarrow
$x \Rightarrow y$	\Rightarrow	$x \Longrightarrow y$	\Longrightarrow	$x \downarrow y$	\Downarrow
$x \leftrightarrow y$	$\$ leftrightarrow	$x \longleftrightarrow y$	\longleftrightarrow	x	\updownarrow
$x \Leftrightarrow y$	$ackslash  ext{Leftrightarrow}$	$x \Longleftrightarrow y$	\Longleftrightarrow	x	\Updownarrow
$x \mapsto y$	\mapsto	$x \mapsto y$	\longmapsto	x∕y	\nearrow
$x \leftarrow y$	$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	$x \hookrightarrow y$	\hookrightarrow	x ∖ y	\searrow
x	\leftharpoonup	$x \rightarrow y$	\rightharpoonup	x ∠ y	\swarrow
$x \leftarrow y$	\leftharpoondown	$x \rightarrow y$	\rightharpoondown	хқу	\nwarrow
$x \rightleftharpoons y$	\rightleftharpoons	x ⊶ y	\leadsto		

# 11.21 Miscellaneous Symbols Sans serif bold

x y	\ldots	$x \cdots y$	\cdots	x:y	\vdots	$x \cdot y$	\ddots
хҞу	\aleph	x <sub>'</sub> y	\prime	х∀у	\forall	x∞y	\infty
xhy	\hbar	хØу	\emptyset	х∃у	\exists	x□y	\Box
XIY	$\$ imath	х⊽у	\nabla	$x \neg y$	\neg	x◊y	\Diamond
$x_{J}y$	$\$ jmath	х√у	\surd	xby	\flat	x∆y	\triangle
xℓy	\ell	x⊤y	\top	хկу	$\n$	x♣y	\clubsuit
хюу	/wp	$x \perp y$	\bot	x#y	\sharp	x◊y	\diamondsuit
xRey	\Re	x  y	\1	<i>x</i> \ <i>y</i>	\backslash	х♡у	\heartsuit
xImy	\Im	x∠y	\angle	х∂у	$\operatorname{ar{partial}}$	хфу	\spadesuit
x℧y	$\mbox{mho}$	x.y	•	x y	1	x!y	!

# 11.22 Variable-Sized Operators Sans serif bold

```
x \sum y
        \sum
                          \bigcap
                                        х⊙у
                                                \bigodot
                   x()y
х∏у
        \prod
                          \bigcup
                                        x \otimes y
                                                \bigotimes
                                                \bigoplus
х∐у
        \coprod
                   x \mid y
                          \bigsqcup
                                        x \oplus y
                   x \lor y
                          \bigvee
                                        x (+) y
                                                \biguplus
x [ y
        \int
x∮y
        \oint
                   x \wedge y
                          \bigwedge
```

## 11.23 Log-Like Operators Sans serif bold

```
x arccos y
            x cos y
                        X CSC V
                                  x exp y
                                             x ker y
                                                          x lim sup y
                                                                        x min y
                                                                                  x sinh y
x arcsin y
            x cosh y
                       x deg y
                                  x gcd y
                                             x lg y
                                                          x ln y
                                                                        x Pr y
                                                                                  x sup y
x arctan y
            x cot y
                        x det y
                                  x hom y
                                             x lim y
                                                          x log y
                                                                        x sec y
                                                                                  x tan y
             x coth y
                       x \dim y \quad x \inf y
                                             x lim inf y
x arg y
                                                          x max y
                                                                        x sin y
                                                                                  x tanh y
```

#### 11.24 Delimiters Sans serif bold

```
x(y
                  x)y
                         )
                                             \uparrow
                                     x \uparrow y
                                                                x \uparrow y
                                                                         \Uparrow
x[y
      x]y
                         ]
                                     x \downarrow y
                                             \downarrow
                                                                x \downarrow y
                                                                         \Downarrow
                                     x \updownarrow y
x{y
      \{
                  x}y
                         \}
                                             \updownarrow
                                                                x Û y
                                                                         \Updownarrow
x[y
      \lfloor
                  x]y
                         \rfloor x[y
                                             \lceil
                                                                x]y
                                                                         \rceil
                         \rangle
                                                                         \backslash
x⟨y
      \langle
                  x⟩y
                                    x/y
                                                                x\v
x|y
                  x||y
                         \backslash I
```

## 11.25 Large Delimiters Sans serif bold

```
        \rmoustache
        ∫
        \lmoustache
        )
        \rgroup
        (
        \lgroup

        |
        \arrowvert
        |
        \bracevert
```

#### 11.26 Math Mode Accents Sans serif bold

```
\hat{a} \hat{a} \acute{a} \acute{a} \bar{a} \bar{a} \acute{a} \dot{a} \breve{a} \breve{a} \breve{a} \check{a} \grave{a} \grave{a} \vec{a} \vec{a} \ddot{a} \ddot{a} \tilde{a} \tilde{a}
```

### 11.27 Miscellaneous Constructions Sans serif bold

```
abc
       \widetilde{abc}
                              abc
                                     \widehat{abc}
abc
       \overleftarrow{abc}
                              abć
                                     \overrightarrow{abc}
abc
       \overline{abc}
                              abc
                                     \underline{abc}
abc
       \overbrace{abc}
                               abc
                                     \underbrace{abc}
√abc
                               ∜abc
      \sqrt{abc}
                                     \sqrt[n]{abc}
                              <u>abc</u>
xvz
f
       f,
                                     \frac{abc}{xyz}
```

## 11.28 AMS Delimiters Sans serif bold

 $x^{T}y$  \ulcorner  $x^{T}y$  \urcorner  $x_{L}y$  \llcorner  $x_{L}y$  \llcorner

# 11.29 AMS Arrows Sans serif bold

x y	ackslashdashrightarrow	x ← y	$\d$
x = y	\leftleftarrows	$x \leftrightarrows y$	$\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $
$x \in y$	\Lleftarrow	<i>x</i>	\twoheadleftarrow
$x \leftarrow y$	\leftarrowtail	<i>x</i>	\looparrowleft
$x \leftrightharpoons y$	$\$ leftrightharpoons	$\mathbf{x} \cap \mathbf{y}$	\curvearrowleft
x O y	\circlearrowleft	х¶у	\Lsh
x ↑↑ y	\upuparrows	x 1 y	\upharpoonleft
$x \downarrow y$	\downharpoonleft	<i>x</i> → <i>y</i>	$\mbox{\tt multimap}$
x <i>↔</i> y	\leftrightsquigarrow	$x \rightrightarrows y$	\rightrightarrows
$x \rightleftharpoons y$	$\$ rightleftarrows	$x \rightrightarrows y$	$\$ rightrightarrows
$x \rightleftharpoons y$	$\$ rightleftarrows	$x \rightarrow y$	\twoheadrightarrow
$x \rightarrow y$	\rightarrowtail	$x \rightarrow y$	\looparrowright
$x \rightleftharpoons y$	$\$ rightleftharpoons	$x \cap y$	$\c vearrow right$
хоу	$\circlearrowright$	x → y	\Rsh
$x \downarrow \downarrow y$	\downdownarrows	x	\upharpoonright
$x \mid y$	\downharpoonright	x ⊶ y	\rightsquigarrow

# 11.30 AMS Negated Arrows Sans serif bold

```
x \leftrightarrow y \nleftarrow x \nrightarrow y \nrightarrow x \nleftrightarrow y \nRightarrow x \nleftrightarrow y \nleftrightarrow x \nleftrightarrow y \nLeftrightarrow
```

# 11.31 AMS Greek Sans serif bold

```
xfy \digamma xxy \varkappa
```

# 11.32 AMS Hebrew Sans serif bold

 $x \exists y$  \beth  $x \exists y$  \daleth  $x \exists y$  \gimel

# 11.33 AMS Miscellaneous Sans serif bold

xhv	\hbar	хħу	\hslash
•		,	•
$x \triangle y$	$\$ vartriangle	х⊽у	$\$ triangledown
x□y	\square	х◊у	\lozenge
x(S)y	\circledS	x∠y	\angle
x∡y	\measuredangle	х∄у	\nexists
xฃy	\mho	x∃y	$\backslash \mathtt{Finv}^u$
x∂y	$\backslash \mathtt{Game}^u$	x k y	$ackslash Bbbk^u$
<i>x</i> \ <i>y</i>	\backprime	x∅y	$\vert varnothing$
x▲y	\blacktriangle	х▼у	\blacktriangledown
x∎y	\blacksquare	x♦y	\blacklozenge
x★y	\bigstar	x∢y	\sphericalangle
хСу	\complement	хðу	\eth
x/y	$ackslash  exttt{diagup}^u$	<i>x</i> ∕ <i>y</i>	$ackslash  ext{diagdown}^u$

<sup>&</sup>quot; Not defined in amssymb.sty, define using the \newsymbol command.

# 11.34 AMS Binary Operators Sans serif bold

x + y	\dotplus	$x \setminus y$	$\sl mall setminus$
$x \cap y$	\Cap	$x \cup y$	\Cup
<i>x</i>	\barwedge	x ⊻ y	\veebar
x <del>¯</del> y	\doublebarwedge	$x \boxminus y$	\boxminus
$x \boxtimes y$	\boxtimes	<i>x</i> ⊡ <i>y</i>	\boxdot
$x \boxplus y$	\boxplus	<i>x</i> * <i>y</i>	\divideontimes
$x \ltimes y$	\ltimes	$x \times y$	\rtimes
$x \setminus y$	\leftthreetimes	$x \times y$	\rightthreetimes
$x \perp y$	\curlywedge	$x \land y$	\curlyvee
$x \ominus y$	\circleddash	<i>x</i> ⊗ <i>y</i>	\circledast
<i>x</i> ⊚ <i>y</i>	\circledcirc	$x \cdot y$	\centerdot
x + y	\intercal		

## 11.35 AMS Relations Sans serif bold

- $x \le y$  \leqslant
- $x \lesssim y$  \lesssim
- $x \approx y$  \approxeq
- $x \ll y \setminus 111$
- $x \leq y$  \lesseqgtr
- x = y \doteqdot
- x = y \fallingdotseq
- $x \simeq y$  \backsimeq
- $x \in y$  \Subset
- $x \leq y$  \preccurlyeq
- $x \lesssim y$  \precsim
- $x \triangleleft y$  \vartriangleleft
- $x \models y \quad \forall \text{Dash}$
- $\mathbf{x} \smile \mathbf{y}$  \smallsmile
- x = y \bumpeq
- $x \ge y$  \geqq
- $x \geqslant y$  \eqslantgtr
- $x \gtrsim y$  \gtrapprox
- $x \gg y \setminus ggg$
- $x \geq y$  \gtreqless
- x = y \eqcirc
- $x \triangleq y$  \triangleq
- $x \approx y$  \thickapprox
- $x \ni y$  \Supset
- $x \succcurlyeq y$  \succcurlyeq
- $x \gtrsim y$  \succsim
- $x \triangleright y$  \vartriangleright
- $x \Vdash y$  \Vdash
- x | y \shortparallel
- $x \pitchfork y$  \pitchfork
- $x \triangleleft y$  \blacktriangleleft
- $x \ni y$  \backepsilon
- x ∵ y \because

# 11.36 AMS Negated Relations Sans serif bold

```
x≰y
x \not< y \setminus \text{nless}
                                            \nleq
x \not\leq y \nleqslant
                                  x \not \leq y \setminus \text{nleqq}
x \leq y \setminus lneq
                                x \leq y \setminus \text{lneqq}
x \leq y \lvertneqq
                                x \lesssim y \setminus lnsim
x ≨ y \lnapprox
                                  x \not\prec y \nprec
                                 x \gtrsim y \precnsim
x \not \leq y \npreceq
                                x ≁ y \nsim
x ≈ y \precnapprox
x r y \nshortmid
                                x∤y
                                            \nmid
x \not\vdash y \quad \ \nvdash
                                 x⊭y
                                            \nvDash
x \not = y \ntriangleleft x \not = y \ntrianglelefteq
x \not\subseteq y \nsubseteq
                                           \subsetneq
                                  x ⊊ y
                                  x \subsetneq y \subsetneqq
x \subsetneq y \setminus \text{varsubsetneq}
x \nsubseteq y \varsubsetneqq x \not\geqslant y \ngtr
x \not\geq y \setminus \text{ngeq}
                                 x \not\geq y \ngeqslant
x ≱y \ngeqq
                                x \geq y \setminus gneq
x \geq y \setminus \text{gneqq}
                                x \ge y
                                            \gvertneqq
x \gtrsim y \setminus \text{gnsim}
                                \mathbf{x} \gtrapprox \mathbf{y} \setminus \text{gnapprox}
x \not\succ y \setminus \text{nsucc}
                                x ≱y \nsucceq
x ≱y \nsucceqq
                                 x \gtrsim y \setminus \text{succnsim}
                                  x \not\cong y \setminus \text{ncong}
x ‰ y \succnapprox
         \nshortparallel x \not\parallel y \nparallel
х и у
x ⊭ y \nvDash
                                  x⊮y
                                           \nVDash
x \not\triangleright y \ntriangleright x \not\trianglerighteq y
                                            \ntrianglerighteq
x \not\supseteq y \nsupseteq x \not\supseteq y
                                            \nsupseteqq
x \supseteq y \supsetneq
                                x \supseteq y \varsupsetneq
                               x \supseteq y \varsupsetneqq
x \supseteq y \supsetneqq
```