

Index of Notation

(θ, χ)	resolvent, 217
$A_t^R(\chi)$, 290
$A_f^S(\chi)$, 292
$A_f(\chi)$, 172
$D(\mathfrak{f})$	modulnormfunction, 289
$E[\mathfrak{f}]$	points of order \mathfrak{f} on E , 215
F_N	modular function field of level N , 70
$G(F_N/\mathbb{Q}_\Gamma)$	Galois group of F_N/\mathbb{Q}_Γ , 72
$G(z \mid \mathfrak{L})$, 30
$G_m(\mathfrak{L})$	Eisenstein series, 9
G_s	points of order \mathfrak{p}^s on E , 215
$I_r(X, j)$	modular polynomial of order r , 65
$K_{\mathfrak{f}}$	ray class field modulo \mathfrak{f} , 106
$K_{\mathfrak{t}, \mathfrak{f}}$	ray class field modulo \mathfrak{f} of $\mathfrak{D}_{\mathfrak{t}}$, 108
$L(s, \chi)$	L -function, 289
R_L	regulator of L , 293
$T(z)$	$\mathcal{P}(\delta + z) - \mathcal{P}(\delta)$, 221
U_2, U_3, U_6	subgroups defined by γ_2 and γ_3 , 72
W	roots of unity in K , 175
W	uniformising parameter at zero, 18
$[\gamma]Q(\xi)$	action of γ on $Q(\xi)$, 214
$[\omega_1, \omega_2]$	$\mathbb{Z}\omega_1 + \mathbb{Z}\omega_2$, 1
$[\underline{\alpha}]$	lattice generated by $\underline{\alpha}$, 94
$[f \mid_k M](\omega)$	action of $M \in \Gamma$ on modular forms, 48
\mathbb{A}	algebra in $\mathbb{M}_0[G_m]$, 216
$\mathbb{C}_{\mathfrak{L}}$	elliptic functions for \mathfrak{L} , 8
\mathbb{C}_Γ	modular functions for Γ , 54

$\Delta(\mathfrak{L})$	discriminant of \mathfrak{L} , 10
Γ	modular group, 42
$\Gamma(N)$	principal congruence group of level N , 45
$\Gamma^0(r), \Gamma_0(r)$	$\Gamma\left(\begin{smallmatrix} r & 0 \\ 0 & 1 \end{smallmatrix}\right), \Gamma\left(\begin{smallmatrix} 1 & 0 \\ 0 & r \end{smallmatrix}\right)$, 46
Γ_R	$\Gamma \cap R^{-1}\Gamma R$, 46
\mathbb{H}	upper half plane, 42
\mathbb{M}_P	algebra, 216
Ω	Hilbert class field of K , 107
Ω_t	ring class field modulo t , 107
\mathbb{P}_r	primitive matrices of determinant r , 46
$\mathbb{P}_{L/K}$	prime ideals of K splitting completely in L , 101
$\Phi_{\mathfrak{a}}(\mathfrak{k})$, 171
$\Phi_r(X, j)$	main-polynomial of φ_R , 66
\mathbb{Q}^c	algebraic closure of \mathbb{Q} , 215
\mathbb{Q}_Γ	$\mathbb{Q}(j)$, 64
\mathbb{Q}_{Γ_R}	$\mathbb{Q}(j, j_R)$, 64
$\epsilon(M)$	root of unity in the eta transformation formula, 39
$\epsilon(\mathfrak{k})$	unit, 304
$\epsilon(\mathfrak{k}, \mathfrak{h})$	unit, 306
$\epsilon(\tilde{\chi}, \mathfrak{k})$	unit, 309
$\epsilon_{f_{\tilde{\chi}}}(\mathfrak{k})$	unit, 309
$\eta(\omega)$	eta function, 35
η_1, η_2	quasi periods, 5
$\eta_m(\omega)$	eta quotient, 74
$\eta_{p,q}(\omega)$	double eta quotient, 74
\mathfrak{A}	associated order of $\tilde{\mathfrak{D}}_P$ in \mathbb{A} , 218
\mathfrak{A}^t	fractional ideals of \mathfrak{D}_1 prime to \mathfrak{t} , 85
$\mathfrak{A}_{N/M}$	associated order of N/M , 213
\mathfrak{H}_1^t	principal ideals of \mathfrak{D}_1 prime to t , 90
\mathfrak{H}_t	subgroup of principal ideals in \mathfrak{I}_t , 87
\mathfrak{H}_t^f	principal ideals of $\mathfrak{I}_{t,f}$, 91
\mathfrak{I}_t	proper ideals of \mathfrak{D}_t , 84
$\mathfrak{I}_t^{(0)}$	regular ideals, 85
$\mathfrak{I}_{t,f}$, 88
\mathfrak{K}_f	ray class group modulo f , 88
$\mathfrak{D}_K, \mathfrak{D}_t, \mathfrak{D}$	max order, suborder, 82

$\mathfrak{D}_P, \tilde{\mathfrak{D}}_P$	orders in \mathbb{M}_P , 218
\mathfrak{K}_t	ring ideal class group of \mathfrak{D} , 87
$\mathfrak{K}_{t,f}$	ray class group modulo \mathfrak{f} of \mathfrak{D}_t , 88
\mathfrak{S}_f	ray modulo \mathfrak{f} , 106
$\mathfrak{S}_{t,f}$	ray modulo \mathfrak{f} of \mathfrak{D}_t , 88
$\mathcal{U}_{t,f}$, 88
\mathcal{U}_t	, 88
γ_2, γ_3	, 50, 144
$\sigma(\mathfrak{a})$	Frobenius automorphism, 104
$\sigma(z)$	Weierstrass sigma function, 3
$\sigma^*(z)$	normalised Weierstrass σ function, 5
$\mathcal{P}(\delta) := \mathcal{P}(\delta \mid \begin{smallmatrix} \alpha \\ 1 \end{smallmatrix})$, 192
$\sqrt[12]{\Delta}$, 50
$\tau^{(e)}(z \mid \begin{smallmatrix} \omega_1 \\ \omega_2 \end{smallmatrix})$	Weber's τ Function, 52
$\tau_{\mathfrak{a}}(\mathfrak{k})$, 142
$\underline{\alpha}$	basis of a lattice, 94
$\varphi(z \mid \mathfrak{L})$	Klein's normalisation of the σ function, 27
$\varphi(z \mid \begin{smallmatrix} \omega_1 \\ \omega_2 \end{smallmatrix})$	Klein's normalisation of the σ function, 53, 133
$\varphi_R(\omega)$	$r \cdot \frac{12 \Delta(R(\frac{\omega}{1}))}{\Delta(\frac{\omega}{1})}$, 50
$\wp(z)$	Weierstrass \wp function, 4
$\zeta(z)$	elliptic zeta function, 4
$\zeta^*(z)$	normalised elliptic ζ function, 5
$\zeta_K(s)$	zeta function of K , 100
$f \circ A := f^{\lambda_A}$	action of A on f , 72
$f(Q)$	$f(\xi)$ with $Q = Q(\xi)$, 214
f, f_1, f_2	Schläfli's functions, 148
$f^A(\omega)$	action of A on f in the reciprocity law, 123
$f_{R'}$	conjugate function to f , 64
$f_{\underline{x}}(\omega)$	division value of f , 53
g_2, g_3	coefficient of the Weierstrass equation, 9
$g_n(\omega)$	eta quotient, 75
$g_{p,q}(\omega)$	double eta quotient, 52, 75, 159, 165
$h_P(X)$, 216
$h_{\gamma}(z \mid \mathfrak{L})$, 27
h_t	ring class number, 90
j	modular invariant of an elliptic curve, 26
$j(\mathfrak{a})$	modular invariant of an ideal, 111

$j(\mathfrak{k})$	modular invariant of an ideal class, 138
$j(\omega)$	modular invariant of $\omega \in \mathbb{H}$, 41
$j_R(\omega)$	$j(R(\omega))$, 50
$l(u, v)$	exponent in the transformation formula of the σ^* function, 5
$l_{\mathcal{L}}(u, v)$	exponent in the transformation formula of the σ^* function, 27
$o(\cdot)$	order of (\cdot) , 104, 173, 214
$o(\xi, \mathfrak{a}_t)$	order of ξ with respect to \mathfrak{a}_t , 118
$p(z \mid \begin{smallmatrix} \omega_1 \\ \omega_2 \end{smallmatrix})$	normalisation of the \wp function, 53, 133
$v_p(x), v_{\mathfrak{p}}(x)$, 261
$w_{\mathfrak{f}}$	number of roots $\xi \in K$ with $\xi \equiv 1 \pmod{\mathfrak{f}}$, 194, 292
$w_{\mathfrak{f}}$	number of roots $\xi \in K$ with $\xi \equiv 1 \pmod{\mathfrak{f}}$, 172
$w_t(\mathfrak{a})$	number of roots of unity $\xi \in \mathfrak{D}_t$ with $\xi \equiv 1 \pmod{\mathfrak{a}}$, 90
z^*	, 5

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- Addition theorem of the ζ function, 11
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- ideal, proper, 86
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