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**H**



**I**

**J**

$J(\chi_1, \chi_2)$ Jacobi sum associated with two characters, *82*
$j(E)$ $j$-invariant of elliptic curve $E$, *467*
$J_k(\chi_1, \ldots, \chi_k)$ Jacobi sum, *79*

**K**

$K$ usually a number field, x, $x$
$\mathcal{K}$ a general $\mathfrak{p}$-adic field, x, $x$, *235*
$K_n(F)$ higher $K$-groups, 244
$K_\mathfrak{p}$ completion of $K$ at the prime ideal $\mathfrak{p}$, x, $x$, *195*
$K(T, 2)$ same as $S_T(K)$, *551*

**L**

$L$ usually a number field, x, $x$
$\Lambda(\chi, s)$ completed $L$-function for $\chi$, 172
$\Lambda(E, s)$ completed $L$-function of an elliptic curve, *521*
$\Lambda(n)$ von Mangoldt's function, 159
$\lambda(N)$ Carmichael's function of $N$, *93*
$L(a, s)$ Dirichlet series associated with $a$, 151
$\mathcal{L}$ a general $\mathfrak{p}$-adic field, x, $x$
$L(\chi, s)$ $L$-series of character $\chi$, 162
$\operatorname{lcm}(a, b)$, LCM least common multiple, viii, *viii*
$L(E_D, s)$ $L$-function of elliptic curve $E$ twisted by $D$, *590*
$\left(\frac{a}{p}\right)$, $\left(\frac{m}{n}\right)$, $\left(\frac{a}{b}\right)$ Legendre, Jacobi, or Kronecker symbol, *33*
$\left(\frac{a}{\mathfrak{b}}\right)_m$ $m$th power reciprocity symbol, *166*
$\mathcal{L}(f)$ Laplace transform of $f$, 108
$\mathcal{L}_F(E)$ space of $F$-linear maps from $E$ to $E$, *118*
$\operatorname{Log}\Gamma_p(x)$ Diamond's log gamma function for $x \in \mathcal{Z}_p$, 330
$\operatorname{Log}\Gamma_p(\chi, x)$ Morita's log gamma function for $x \in \mathbb{Z}_p$, 337
$\operatorname{Log}\Gamma(s)$ complex log gamma function at $s$, 81
$L^H$ fixed field of $L$ by $H$, *104*
$\operatorname{Li}_2$ dilogarithm function, *278*, 404
$\operatorname{Li}_k$ polylogarithm function, *278*
$\operatorname{Li}(x)$ logarithm integral, 257
$[L : K]$ the degree of $L$ over $K$, or the index of $K$ in $L$, *107*
$L_n$ usually the Lucas sequence, *421*
$\log_\mathfrak{p}(x)$ $\mathfrak{p}$-adic logarithm, *211*
$L_p(\chi, s)$ $p$-adic $L$-function of character $\chi$, 301

**M**

$\mathcal{M}(f)$ Mellin transform of $f$, 107
$\mu(n)$ Möbius function of $n$, 153
$\mu_n$ group of roots of unity of order $n$, *18*
$\boldsymbol{\mu}_n = \boldsymbol{\mu}_n(K)$ subgroup of $n$th roots of unity in $K$, *112*
$\mu_\mathfrak{p}$ group of $(\mathcal{N}\mathfrak{p} - 1)$st roots of unity in $K_\mathfrak{p}$, *228*

**N**

| | |
|---|---|
| $\lfloor x \rceil$ | nearest integer to $x$, ix, *ix* |
| $\mathcal{N}\mathfrak{p}$ | the absolute norm of a prime ideal $\mathfrak{p}$, *191* |
| $\begin{bmatrix} n \\ x \end{bmatrix}$ | $1 \cdot 2 \cdots n/(x(x+1)\cdots(x+n))$, *281* |

**O**

| | |
|---|---|
| $\mathcal{O}$ | identity element of an elliptic curve, *473* |
| $\Omega(n)$ | number of prime divisors of $n$ with multiplicity, 156 |
| $\omega$ | Teichmüller character, 391 |
| $\omega(n)$ | number of distinct prime divisors of $n$, 156 |
| $\omega_{\mathfrak{P}}(x)$ | $(q-1)$st root of 1 congruent to $x$ mod $\mathfrak{P}$, *152* |
| $\omega_v(a)$ | extension of Teichmüller character to $\mathbb{Q}_p^*$, 281 |
| $\omega(x)$ | Teichmüller character of $x$, *227, 228* |
| $\langle x \rangle$ | $x/\omega(x) \in U_1$, *229* |
| $\mathrm{ord}_P$ | order of the point $P$, 443 |

**P**

| | |
|---|---|
| $\Phi f(x,y)$ | $(f(x) - f(y))/(x-y)$, 277 |
| $\phi(n)$ | Euler's $\phi$ function, *141* |
| $\Pi$ | a uniformizer of a prime ideal in an extension, *432* |
| $\pi$ | either a uniformizer of a prime ideal, or $3.14\ldots$, *432* |
| PID | principal ideal domain, *106*, *129* |
| $\prod^{(p)}$ | product over integers prime to $p$, 302 |
| $\psi_b$ | $x \mapsto \zeta_p^{\mathrm{Tr}_{\mathbb{F}_q/\mathbb{F}_p}(bx)}$, *75* |
| $\psi_p(x)$ | $\mathrm{Log}\Gamma_p'(x)$, Diamond's $p$-adic $\psi$ function, 331 |
| $\psi(x)$ | logarithmic derivative of $\Gamma(x)$, 76 |
| $\wp(z)$ | Weierstrass $\wp$ function, *482* |

**Q**

| | |
|---|---|
| $\mathbb{Q}_p$ | completion of $\mathbb{Q}$ at $p$, the field of $p$-adic numbers, *195* |

**R**

| | |
|---|---|
| $r_1$ | number of real embeddings of a number field, *107* |
| $r_2$ | half the number of nonreal embeddings of a number field, *107* |
| $R(A,B)$ | resultant of polynomials $A$ and $B$, *143* |
| $\mathrm{rad}(N)$ | radical of the integer or polynomial $N$, 483 |
| $R(E)$ | regulator of the elliptic curve $E$, *522*, *601* |
| $\Re(s)$ | real part of $s$, ix, *ix* |
| $r_k(n)$ | number of representations of $n$ as a sum of $k$ squares, *317* |
| $r_Q(n)$ | number of representations of $n$ by $Q$, 215 |

**S**



**T**



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**W**



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