LIST OF NOTATIONS

The meanings of letters and symbols will usually be clear from the context. In general, small Latin letters denote rational numbers, small Greek letters denote real or p-adic numbers, and capital Greek letters denote g-adic or g*-adic numbers. By Γ, P, P_p, P_g, and P_{g^*} we mean the fields of rational, real, and p-adic numbers, and the rings of g-adic, and g*-adic numbers, respectively. The symbols

$$|\alpha|, \ |\alpha_0|_p, \ |A|_g, \text{ and } |A^*|_{g^*}$$

stand for the absolute value of the real number α, the p-adic value of the p-adic number α_0, the g-adic value of the g-adic number A, and the g*-adic value of the g*-adic number A^*, respectively.

Here $|\alpha_0|_p$ is normed by the formula

$$|p|_p = \frac{1}{p} .$$

The integer $g \geq 2$ always has the prime factorisation

$$g = p_1^{e_1} \cdots p_r^{e_r} ,$$

where $p_1, \ldots, p_r$ are distinct primes, and $e_1, \ldots, e_r$ are positive integers. If, for $j = 1, 2, \ldots, r$, the g-adic number A has the p_j-adic component α_j, we write

$$A \longleftrightarrow (\alpha_1, \ldots, \alpha_r),$$

and then

$$|A|_g = \max\left(|\alpha_1|_{p_1}^{\frac{\log g}{e_1 \log p_1}}, \ldots, |\alpha_r|_{p_r}^{\frac{\log g}{e_r \log p_r}} \right) .$$

Thus, in particular,

$$|g|_g = \frac{1}{g} .$$

A g*-adic number A^* has, in addition to the p_j-adic components α_j, also a real component α . We write

$$A^* \longleftrightarrow (\alpha, \alpha_1, \ldots, \alpha_r) = (\alpha, A) \text{ where } A \longleftrightarrow (\alpha_1, \ldots, \alpha_r).$$

Then

$$|A^*|_{g^*} = \max\left(|\alpha|, |A|_g \right).$$

For rational integers a, b, $m \neq 0$ the congruence $a \equiv b \pmod{m}$ means, as usual, that a - b is divisible by m. Instead of $a \equiv 0 \pmod{m}$ we write $m \mid a$. The symbol (a, b, . . . , f) means the greatest common divisor of the rational integers a, b, . . . , f, except on certain occasions when the same symbol is used to denote an ordered set of numbers. If α is a real number, $[\alpha]$ always denotes the integral part of α, i. e. the integer a for which $a \leq \alpha < a + 1$.