$$ {}^{\hbar}\underset{\omega}{\triangle}\mathbb{C}^{\times} $$

$$ \hbar = \frac{z \in \mathbb{C}}{\Re z > 1} $$

$$ \zeta(z) \rightsquigarrow \prod_{p \in \mathbb{P}} \overbrace{1 - p^{-z}}^{-1} \in {}^{\hbar}\underset{\omega}{\triangle}\mathbb{C} $$

$$ \hbar = \frac{z \in \mathbb{C}}{\Re z > 1} \text{ normal conv} $$

$$ \zeta(z) \rightsquigarrow \sum_{1 \leqslant n} n^{-z} \in {}^{\hbar}\underset{\omega}{\triangle}\mathbb{C} $$

$$ n = \prod_{p \in \mathbb{P}} p^{n_p} $$

$$ \text{fast alle } n_p = 0 $$

$$ \text{geom series} $$

$$ \begin{array}{ccc} \mathbb{Q} & \xrightarrow{p} & \mathbb{R} \\ \cup & & \cup \\ \mathbb{Z} & \longrightarrow & \mathbb{Z} \end{array} $$

$$ {}^{s}_{p}\mathbb{Q}^{-1} = 1 - p^{-s} $$

$$ {}^{s}_{8}\mathbb{Q} = \prod_{p} {}^{s}_{p}\mathbb{Q} = \prod_{p} \frac{1}{1 - 1/p^{s}} = \sum_{n \geqslant 1} \frac{1}{n^{s}} = \underset{-s}{\overset{\times}{\mathbb{N}}} $$

$$ {}^{s}_{\infty}\mathbb{Q} = \frac{\Gamma_{s/2}}{\pi^{s/2}} = \frac{\Gamma_{s/2}}{\Gamma^{s}_{1/2}} = \int_{du/u}^{\overset{>}{\mathbb{R}}} {}^{-\pi u}\mathfrak{e}\, u^{s/2} = \underset{s/2}{\overset{>}{\mathbb{R}}} $$

$$ {}^{s}\mathbb{Q} = {}^{s}_{\infty}\mathbb{Q} \prod_{p} {}^{s}_{p}\mathbb{Q} = {}^{s}_{8}\mathbb{Q}\, {}^{s}_{\infty}\mathbb{Q} $$

$$ {}^{1/2+s}\mathbb{Q} = {}^{1/2-s}\mathbb{Q} $$

$\mathbb{Z} \ulcorner \mathbb{Z}p$ finite field $|\mathbb{Z} \ulcorner \mathbb{Z}p| = p$

$$ {}^{s}\mathbb{Q} = \int_{du/u}^{\mathbb{R}^+} \frac{{}^{u}\mathbb{Z} - 1}{2} u^{s/2} $$

$$ \frac{{}^{u}\mathbb{Z} - 1}{2} = \sum_{n \geqslant 1} {}^{-\pi u}{}_{n}\mathfrak{e}^{n} $$

$$ \int_{du/u}^{\gtrless\mathbb{R}} \frac{{}^{u}\mathbb{Z} - 1}{2} u^{s/2} = \int_{du/u}^{\gtrless\mathbb{R}} \sum_{n \geqslant 1} {}^{-\pi n^2 u}\mathfrak{e}\, u^{s/2} = \sum_{n \geqslant 1} \int_{du/u}^{\gtrless\mathbb{R}} {}^{-\pi n^2 u}\mathfrak{e}\, u^{s/2} $$

$$ \underset{v = \pi n^2 u}{=} \sum_{n \geqslant 1} \frac{1}{\pi^{s/2} n^s} \int_{dv/v}^{\gtrless\mathbb{R}} {}^{-v}\mathfrak{e}\, v^{s/2} = \frac{1}{\pi^{s/2}} \int_{dv/v}^{\gtrless\mathbb{R}} {}^{-v}\mathfrak{e}\, v^{s/2} \sum_{n \geqslant 1} \frac{1}{n^s} = \frac{\Gamma_{s/2}}{\pi^{s/2}} \sum_{n \geqslant 1} \frac{1}{n^s} $$

$$ \overbrace{c\tau + d}^{-1} \underbrace{a\tau + b} \urcorner = \overbrace{c\tau + d}^{k} {}^{\tau}\urcorner : \quad \begin{array}{c|c} a & b \\ \hline c & d \end{array} \in {}^{2}\mathbb{Z}_2^{\complement} $$

$$ {}^{2}\overline{\mathbb{Q}}_2^{\complement} \ltimes {}^{2}\mathbb{Q}_2^{\complement} \urcorner {}^{2}\overline{\mathbb{Q}}_2^{\complement} \underset{\omega}{\overset{2}{\triangle}} \mathbb{C} $$