$$|\daleth| = \frac{\sum_{k} \int_{\mu}^{\hbar} \daleth^{k}}{\daleth^{k} \in {}^{\hbar}\triangle^{0}_{0}\mathbb{R}_{+} : \quad \daleth \leqslant \sum_{0 \leqslant k} \daleth^{k}} \in \mathbb{R}_{+}$$

•

$$|0| = 0$$

$$\bigwedge_{0 \leqslant a} |\daleth a| = |\daleth| a$$

$$0 \leqslant \daleth \leqslant \acute{\daleth} \leqslant \infty \Longrightarrow |\daleth| \leqslant |\acute{\daleth}|$$

$$\daleth \in {}^{\hbar}\triangle^{0}_{0}\mathbb{R}_{+} \Longrightarrow |\daleth| = \int_{\mu}^{\hbar} \daleth$$

$$\leqslant : \quad \daleth^{0} = \daleth$$

$$\bigwedge_{1 \leqslant k} \daleth^{k} = 0 \Longrightarrow |\daleth| \leqslant \sum_{0 \leqslant k} \int_{\mu}^{\hbar} \daleth^{k} = \int_{\mu}^{\hbar} \daleth$$

$$\geqslant : \quad \daleth \leqslant \sum_{0 \leqslant k} \daleth^{k} \Longrightarrow \text{stet } \daleth_{\ell} = \daleth \curlywedge \sum_{k}^{\ell} \daleth^{k} \nearrow \daleth \curlyvee \sum_{0 \leqslant k} \daleth^{k} = \daleth$$

$$\text{cpt Trg } (\daleth) \subset \hbar \underset{\text{Dini}}{\Longrightarrow} \daleth_{\ell} \nearrow \daleth \Longrightarrow$$

$$\sum_{0 \leqslant k} \int_{\mu}^{\hbar} \daleth^{k} \geqslant \sum_{k}^{\ell} \int_{\mu}^{\hbar} \daleth^{k} \geqslant \int_{\mu}^{\hbar} \daleth_{\ell} \nearrow \int_{\mu}^{\hbar} \daleth \Longrightarrow \int_{\mu}^{\hbar} \daleth \leqslant \sum_{0 \leqslant k} \int_{\mu}^{\hbar} \daleth^{k} \Longrightarrow \int_{\mu}^{\hbar} \daleth \leqslant |\daleth|$$

$$\daleth \leqslant \sum_{1 \leqslant j} \daleth_{j} \Longrightarrow |\daleth| \leqslant \sum_{1 \leqslant j} |\daleth_{j}|$$

$$|\daleth + \acute{\daleth}| \leqslant |\daleth| + |\acute{\daleth}|$$

$$\sum_j |\daleth_j| \underset{\mathrm{OE}}{<} \infty \Rightarrow \bigwedge_j |\daleth_j| < \infty \Rightarrow \bigwedge_{\varepsilon > 0} \bigvee \begin{cases} \daleth_j^k \in \hbar \overset{0}{\underset{0}{\triangle}} \mathbb{R}_+ \\ \daleth_j \leqslant \sum_k \daleth_j^k \end{cases}$$

$$\sum_k \int_\mu^\hbar \daleth_j^k \leqslant |\daleth_j| + \frac{\varepsilon}{2^j} \Rightarrow \daleth \leqslant \sum_j \daleth_j \leqslant \sum_j \sum_k \daleth_j^k \text{ single sums}$$

$$\Rightarrow |\daleth| \leqslant \sum_j \sum_k \int_\mu^\hbar \daleth_j^k \leqslant \sum_j \left( |\daleth_j| + \frac{\varepsilon}{2^j} \right) = \varepsilon + \sum_j |\daleth_j| \underset{\varepsilon \text{ bel}}{\Rightarrow} |\daleth| \leqslant \sum_j |\daleth_j|$$

$$\begin{cases} \hbar \overset{1}{\underset{m}{\triangle}} \mathbb{R}_+ \ni \daleth_k \nearrow \daleth : \hbar \to \mathbb{R}_+ \\ M = \curlyvee_k \int_\mu^\hbar \daleth_k < \infty \end{cases} \Rightarrow \begin{cases} \daleth \in \hbar \overset{1}{\underset{m}{\triangle}} \mathbb{R}_+ \\ \int_\mu^\hbar \daleth_k \nearrow \int_\mu^\hbar \daleth \end{cases}$$

$$\text{LEM} \Rightarrow \bigwedge_{0 \leqslant k} |\daleth - \daleth_k| \leqslant \sum_{j \geqslant k} |\daleth_{j+1} - \daleth_j| = \sum_{j \geqslant k} \int_\mu^\hbar |\daleth_{j+1} - \daleth_j| = \sum_{j \geqslant k} \overbrace{\int_\mu^\hbar \daleth_{j+1} - \int_\mu^\hbar \daleth_j}$$

$$\backsim \sum_{k \leqslant j \leqslant \ell} \overbrace{\int_\mu^\hbar \daleth_{j+1} - \int_\mu^\hbar \daleth_j} = \int_\mu^\hbar \daleth_{\ell+1} - \int_\mu^\hbar \daleth_k \leqslant M - \int_\mu^\hbar \daleth_k \rightsquigarrow 0$$

$$\bigvee \begin{cases} \gimel_k \in \hbar \overset{0}{\underset{0}{\triangle}} \mathbb{R} \\ |\daleth_k - \gimel_k| \rightsquigarrow 0 \end{cases} \Rightarrow |\daleth - \gimel_k| \leqslant |\daleth - \daleth_k| + |\daleth_k - \gimel_k| \rightsquigarrow 0 \Rightarrow \daleth \in \hbar \overset{1}{\underset{m}{\triangle}} \mathbb{R}$$

$$\overline{\int_\mu^\hbar \daleth - \int_\mu^\hbar \daleth_k} = \overline{\int_\mu^\hbar (\daleth - \daleth_k)} \leqslant \int_\mu^\hbar |\daleth - \daleth_k| = |\daleth - \daleth_k| \rightsquigarrow 0 \Rightarrow \int_\mu^\hbar \beth \backsim \int_\mu^\hbar \daleth_k$$