$$\text{EX}: \quad \frac{z}{e^z - 1} \text{ um } 0: \quad \overline{z} < R$$

$$dv/2\pi i = d\not v$$

$$\overset{o}{\mathbb{C}}{}^{\leq R} \underset{\omega}{\triangle} \mathbb{C}$$

$$\mathbb{C} \supset \hbar \xrightarrow[\text{diff}_{\mathbb{C}}]{\daleth} \mathbb{C}$$

$$P = \overset{o}{\mathbb{C}}{}^{\leq r} \Subset \hbar$$

$$\overbrace{{}^{w}\mathcal{S} \underset{\mathbb{T}}{|} \daleth} = {}^{w}\mathcal{S} \underset{\mathbb{T}}{|} \daleth = \int_{dz/2\pi i}^{\mathbb{T}} {}^{w}\mathcal{S}_z \, {}^{z}\daleth = \int_{dz/2\pi i}^{\mathbb{T}} \frac{1}{z-w} \, {}^{z}\daleth$$

$$\bigwedge_{w}^{\overset{o}{\mathbb{C}}{}^{\leq r}} {}^{w}\daleth \underset{\text{CIF}}{=} \int_{d\not v}^{\mathbb{C}_r^{o}} \frac{{}^{v}\daleth}{v-w} = \overbrace{{}^{w}\mathcal{S} \underset{\mathbb{T}}{|} \daleth}$$

$${}^{w}\mathcal{S}_v = \frac{1}{v-w}$$

$$\overset{o}{\mathbb{C}}{}^{\leq R} \underset{\omega}{\triangle} \mathbb{C} \ni \daleth \longrightarrow \underset{\cancel{\times}^{-}}{{}^{o}\daleth} \in \mathbb{C} \triangledown_{\mathbb{N}}$$

$$\daleth \in {}^{\hbar}\underset{\omega}{\triangle}\mathbb{C}: \quad \text{disc } P = \overset{o}{\mathbb{C}}{}^{\leq R} \Subset \hbar: \quad 0 < R \leqslant +\infty$$

$$\Longrightarrow \mathbb{C} \supset \hbar \xrightarrow[\text{diff}_{\mathbb{C}}]{\daleth} \mathbb{C}$$

$$P = \overset{o}{\mathbb{C}}{}^{\leq r} \Subset \hbar$$

$$\bigwedge_{w}^{\overset{o}{\mathbb{C}}{}^{\leq r}} {}^{w}\daleth = \int_{d\not v}^{\mathbb{C}_r^{o}} \frac{{}^{v}\daleth}{v-w}$$

$$\bigwedge_{\lceil w-o \rceil < r} \frac{1}{\varkappa!}\,\partial_1^{\varkappa}\,{}^{w}\daleth = \frac{1}{\varkappa}\,\frac{\partial}{\partial w}^{\varkappa}\,{}^{w}\daleth = \int_{d\not{v}}^{\mathbb{C}_r^o} \frac{{}^{v}\daleth}{v^{\varkappa \pm 1} w}$$

$$\daleth \in {}^{\hbar}\triangle_{\omega}\mathbb{C}: \quad \operatorname{disc} P = {}^{o}\overset{<}{\mathbb{C}}^{R} \Subset \hbar: \quad 0 < R \leqslant +\infty$$

$$ {}^{w}\daleth \xleftarrow[{}^{o}\overset{<}{\mathbb{C}}^{R}]{\text{cpt}} \sum_{\varkappa}^{\mathbb{N}} w^{\underline{\varkappa}}\, o\, {}^{o}_{\not\varkappa^{-}}\daleth$$

$$0 < q < 1$$

$$N \in \mathbb{N} \Rightarrow \sum_{\varkappa \notin N} q^{\varkappa} = \sum_{\varkappa}^{\mathbb{N}} q^{\varkappa} - \sum_{\varkappa}^{N} q^{\varkappa} = \frac{1}{1-q} - \frac{1-\overset{k}{q}}{1-q} = \frac{\overset{k}{q}}{1-q}$$

$$\text{cpt } K \subset {}^{o}\overset{<}{\mathbb{C}}^{R} \Rightarrow u = {}^{K}\overset{\bullet}{\lceil w-o \rceil} < R \Rightarrow \bigvee_{u < r < R}$$

$$\lceil w-o \rceil \leqslant u \Rightarrow \overline{{}^{w}\daleth - \sum_{\varkappa}^{N} w^{\underline{\varkappa}} o\, {}^{o}_{\not\varkappa^{-}}\daleth} \leqslant \frac{\overset{k}{u/r}}{1-u/r}\, {}^{\mathbb{C}_r^o}\overset{\bullet}{\lceil\daleth\rceil}$$

$$\lceil v-o \rceil = r \Rightarrow \frac{1}{v-w} = \overbrace{1 - \frac{w-o}{v-o}}^{-1} \frac{1}{v-o} = \sum_{0 \leqslant \varkappa} \frac{w^{\underline{\varkappa}} o}{v^{1 \pm \varkappa} o}$$

$$\Rightarrow \overline{\frac{1}{v-w} - \sum_{\varkappa}^{N} \frac{w^{\underline{\varkappa}} o}{v^{1 \pm \varkappa} o}} = \overline{\sum_{\varkappa \notin N} \frac{w^{\underline{\varkappa}} o}{v^{1 \pm \varkappa} o}} \leqslant \sum_{\varkappa \notin N} \frac{\lceil w-o \rceil^{\varkappa}}{\lfloor v-o \rfloor_{1+\varkappa}} \leqslant \sum_{\varkappa \notin N} \frac{u^{\varkappa}}{r_{1+\varkappa}} = \frac{1}{r} \sum_{\varkappa \notin N} \frac{u}{r}^{\varkappa} = \frac{1}{r}\frac{\overset{k}{u/r}}{1-u/r}$$

$$\overline{{}^{w}\daleth - \sum_{\varkappa}^{N} w^{\underline{\varkappa}} o\, {}^{o}_{\not\varkappa^{-}}\daleth} = \overline{\int_{d\not{v}}^{\mathbb{C}_r^o} \frac{{}^{v}\daleth}{v-w} - \sum_{\varkappa}^{N} w^{\underline{\varkappa}} o \int_{d\not{v}}^{\mathbb{C}_r^o} \frac{{}^{v}\daleth}{v^{1 \pm \varkappa} o}}$$

$$= \overline{\int_{d\not{v}}^{\mathbb{C}_r^o} {}^{v}\daleth \left(\frac{1}{v-w} - \sum_{\varkappa}^{N} \frac{w^{\underline{\varkappa}} o}{v^{1 \pm \varkappa} o} \right)} \leqslant r \frac{1}{r} \frac{\overset{k}{u/r}}{1-u/r}\, {}^{\mathbb{C}_r^o}\overset{\bullet}{\lceil\daleth\rceil} = \text{ RHS}$$

$$\Rightarrow {}^{K}\overset{\bullet}{\overline{{}^{w}\daleth - \sum_{\varkappa}^{N} w^{\underline{\varkappa}} o\, {}^{o}_{\not\varkappa^{-}}\daleth}} \leqslant \frac{\overset{k}{u/r}}{1-u/r}\, {}^{\mathbb{C}_r^o}\overset{\bullet}{\lceil\daleth\rceil} \underset{N \to \infty}{\rightsquigarrow} 0$$

$$r^{\varkappa}\,\overline{{}^{o}\mathsf{ʅ}}_{\not\varkappa^{-}} \leqslant {}^{\underline{\mathbb{C}}_r^{o}}\dot{\overline{\mathsf{ʅ}}}$$

$$\text{LHS} = r^{\varkappa}\,\overline{\int_{d\not v}^{\underline{\mathbb{C}}_r^{o}} \frac{{}^{v}\mathsf{ʅ}}{v^{1\,\underline{\pm}\,\varkappa}o}} \leqslant r^{\varkappa}\int_{d\not v}^{\underline{\mathbb{C}}_r^{o}} \frac{\overline{{}^{v}\mathsf{ʅ}}}{\overline{v-o}^{\,\varkappa+1}} = r^{-1}\int_{d\not v}^{\underline{\mathbb{C}}_r^{o}} \overline{{}^{v}\mathsf{ʅ}} \leqslant \text{RHS}$$