

Definition III

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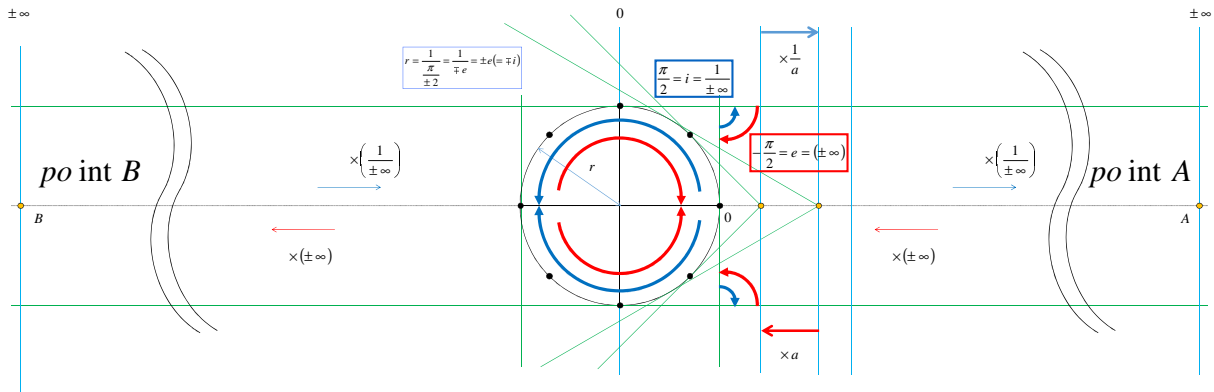
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$$R \times (\pm\infty) = \pm\infty, R + (\pm\infty) = \pm\infty, (-1) \times (\pm\infty) \neq \mp\infty \quad \blacktriangleright \quad (-1) \times (\pm\infty) = \frac{1}{\pm\infty} \quad \therefore (\pm\infty) \cdot i - 1 = 0$$

$$\lim_{n \rightarrow \infty} \left(1 + \frac{1}{(\pm\infty)} \right)^{(\pm\infty)} = e \quad \blacktriangleright \quad \begin{cases} 1+i = e^i \left(\because (1+i)^{\frac{1}{i}} = e \right) \\ i = \log(1+i) \left(\because 1+i = e^i \right) \\ (1+i)^\pi = -1 \left(\because e^{i\pi} = -1 \right) \end{cases} \quad \begin{cases} (1+i\pi)^{\frac{1}{i}} = e^\pi \left(\because (1+ir)^{\frac{1}{i}} = e^r \right) \\ i\pi = -2 \\ e = -i \left(\because e^{-2} = -1, \log i = \frac{1}{2}\pi i = -1 \right) \end{cases}$$

$$\boxed{po \text{ int } A = po \text{ int } B}$$



- ① $\log\left(-\frac{\pi}{2}\right) = \log e = 1$
- ② $\log 1 = \log(-e^2) = 0$
- ③ $\log 0 = \log\left(\frac{1}{\pm\infty}\right) = \log(e^{-1}) = \log(-e) = \log\left(\frac{\pi}{2}\right) = -1$
- ④ $\log(-1) = i\pi = -2$
 $\log(-1) = \log(e^{-2}) = -2 \log e = -2$ } $-2 = \pm\infty$
- ① $\log(-2) = \log(\pm\infty) = \log e = 1$

