

Definition IV

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$$\therefore (\pm \infty) \cdot i - 1 = 0$$



$$1+i = e^i \left(\because (1+i)^{\frac{1}{i}} = e \right)$$

$$i = \log(1+i) \left(\because 1+i = e^i \right)$$

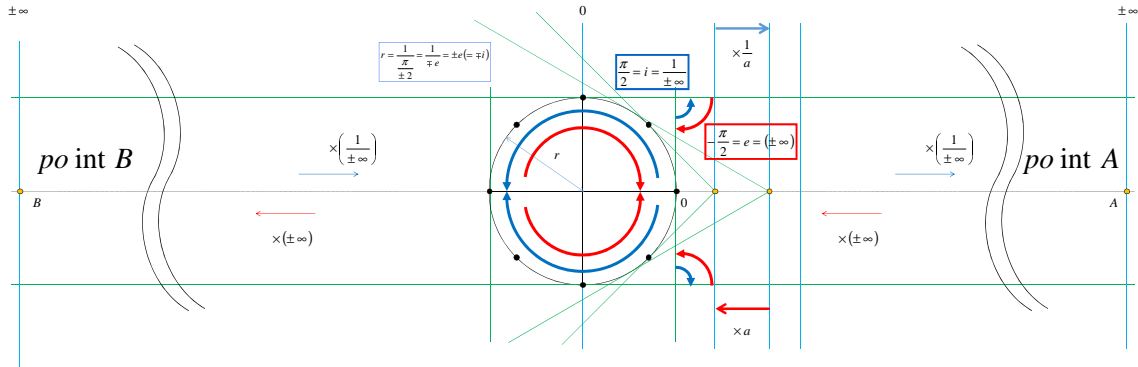
$$(1+i)^\pi = -1 \left(\because e^{i\pi} = -1 \right)$$

$$(1+i\pi)^{\frac{1}{i}} = e^\pi \left(\because (1+i\pi)^{\frac{1}{i}} = e^r \right)$$

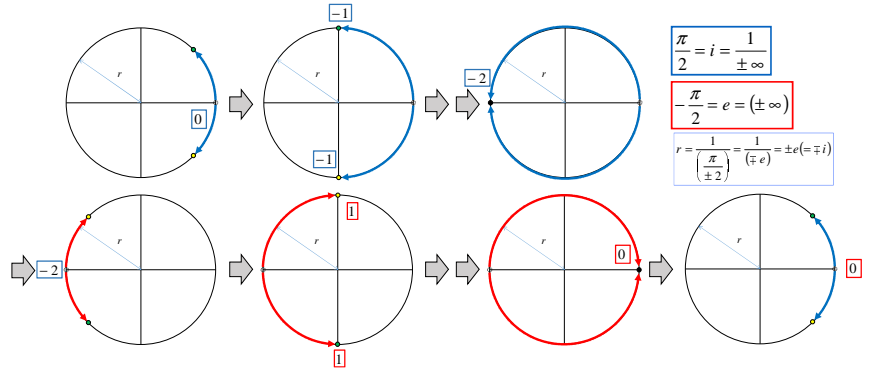
$$i\pi = -2$$

$$e = -i \left(\because e^{-2} = -1, \log i = \frac{1}{2}\pi i = -1 \right)$$

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



- 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 $\log(-2) = \log(\pm\infty) = \log e = 1$



$$e = -2(= \pm\infty) = -\frac{\pi}{2}$$

$$i = +2\left(= \frac{1}{\pm\infty}\right) = \frac{\pi}{2}$$

$$\therefore 2 = \frac{1}{-2} \rightarrow 4 = -1$$

$$\left(\because e^2 = i^2 = -1\right)$$

