

Definition V

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

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

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

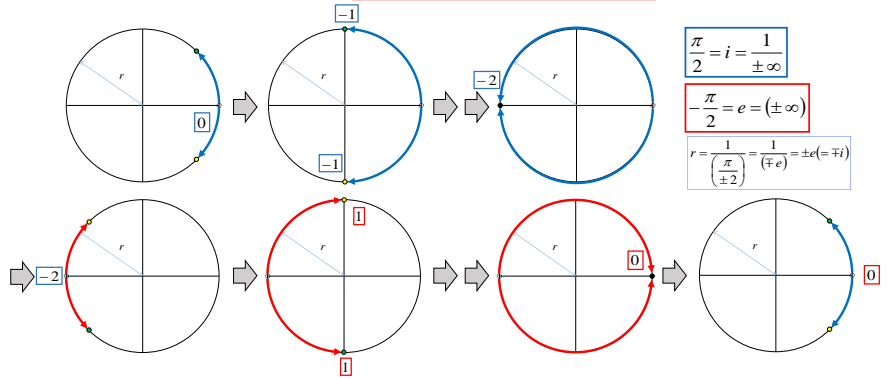
$$(1+i)^r = -1 \left(\because e^{ir} = -1 \right)$$

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

$$i\pi = -2$$

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

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



$$\frac{\pi}{2} = i = \frac{1}{\pm \infty}$$

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

$$r = \frac{1}{\left(\frac{\pi}{\pm 2}\right)} = \frac{1}{(\mp e)} = \pm e (= \mp i)$$

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

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

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

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

