# *Elimination of lack of explanation and Roots of My Definition (e.g., why pointA=pointB).*


April 5, 2022

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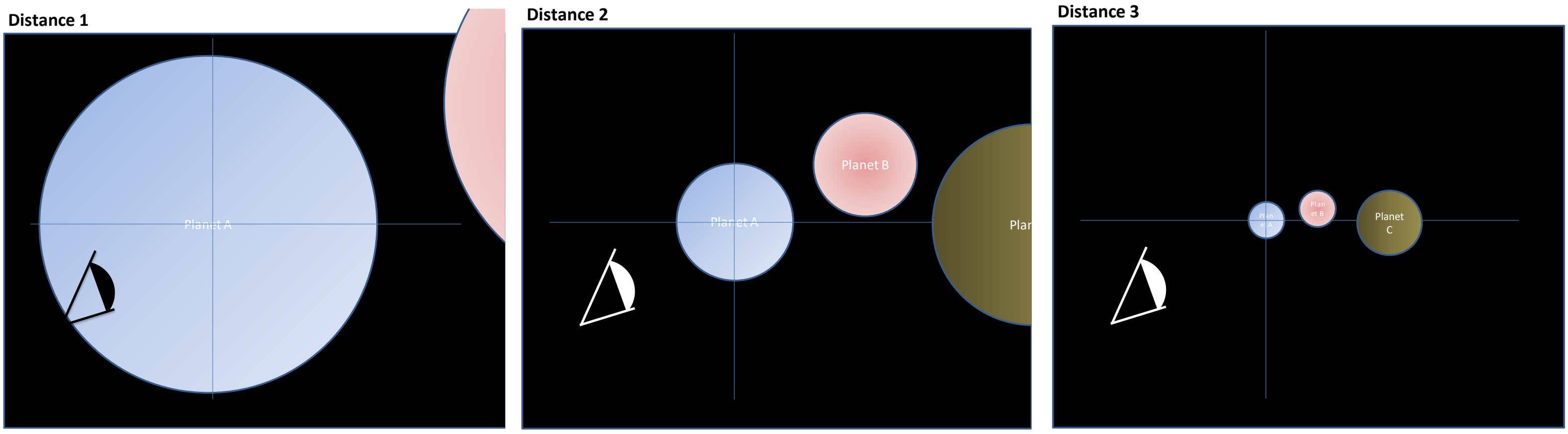
## Abstract

The purpose of this short paper is to stop for a moment and explain my research clearly to you, as I feel that I have been updating my research with somewhat inadequate explanation.


## Roots of Definition

As shown in the figure below, if we move away from the object infinitely, it is clear that all objects approach the origin O infinitely, if we disregard perspective and view the object in two dimensions. And one of the key points is that the concept of moving away infinitely is a minus sign.




$$(-1)\times(\pm\infty)=\frac{1}{\pm\infty} \quad \Rightarrow \quad \boxed{\therefore (\pm\infty)\cdot i-1=0}$$

In addition, if we replace the light speed with the concept of infinity in the light speed invariance theorem of physics, the following follows.

$$R\times(\pm\infty)=\pm\infty,\ R+(\pm\infty)=\pm\infty,\ (-1)\times(\pm\infty)\neq\mp\infty$$

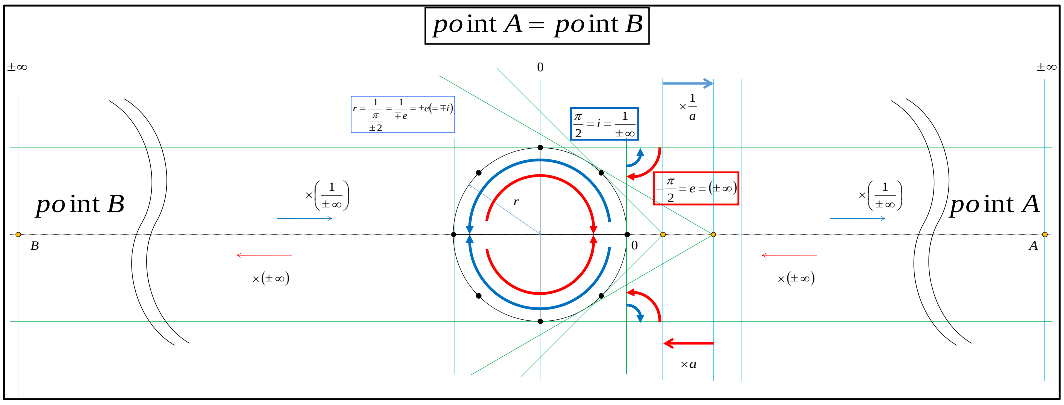
Therefore,

$$\lim_{n\to\infty}\left(1+\frac{1}{(\pm\infty)}\right)^{(\pm\infty)}=e \quad \Rightarrow$$

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

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

# why pointA=pointB




Next, as to why pointA=pointB in the above figure, please note the green tangent line in the figure. In other words, at infinity away from the circle, the two tangent lines (green) of the circle run parallel to each other. This is because I thought it was safe to assume that pointA=pointB, since this coincides with the tangent line from the opposite viewpoint of the circle. This is the basis of this very simple idea.

## $+\alpha$

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

②$\log 1=0$

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

④$\log(-1)=i\pi=-2$

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

②⇒③⇒④⇒①⇒②⇒③⇒④⇒①⇒⋯

$\ln(0)=\ln(\frac{1}{\pm\infty})=\ln(\frac{1}{e})=\ln(e^{-1})=-1$

$\ln(1)=\ln(-e^2)=\ln(-1)+2=i\pi+2=-2+2=0$

$\ln(2)=\ln(-e)=\ln(-1)+1=i\pi+1=-2+1=-1$

$\ln(3)=\ln(-2)=\ln(e)=1$

$\ln(4)=\ln(-1)=i\pi=-2$

$\ln(5)=\ln(0)=-1$

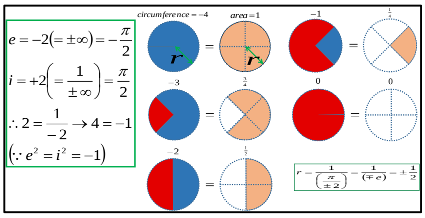
$\ln(6)=\ln(1)=0$

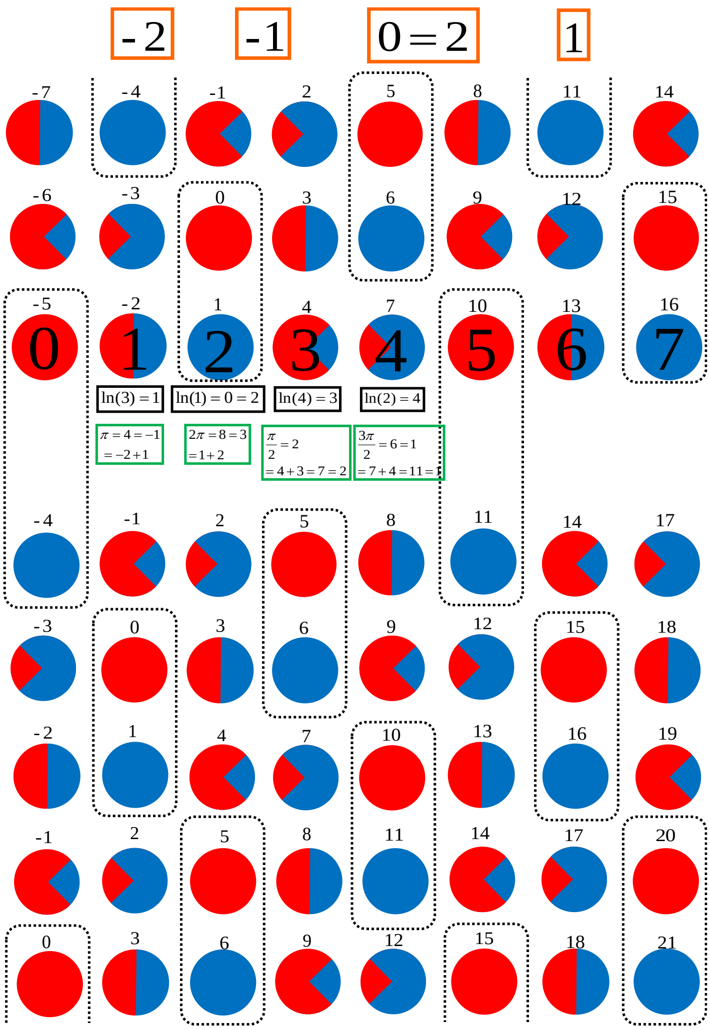
$\ln(7)=\ln(2)=-1$

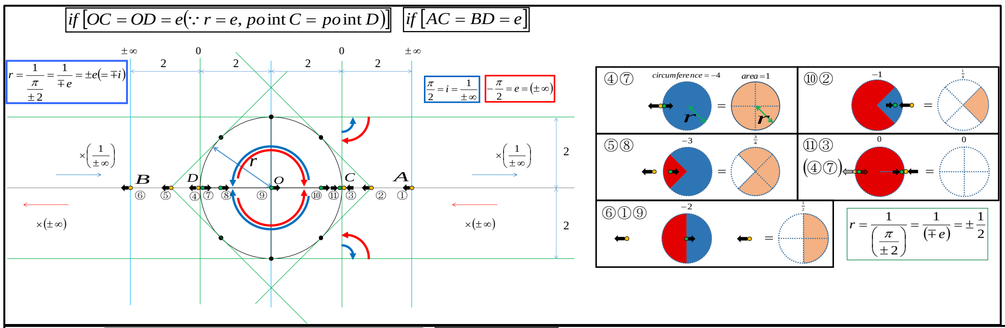
$\ln(8)=\ln(3)=1$

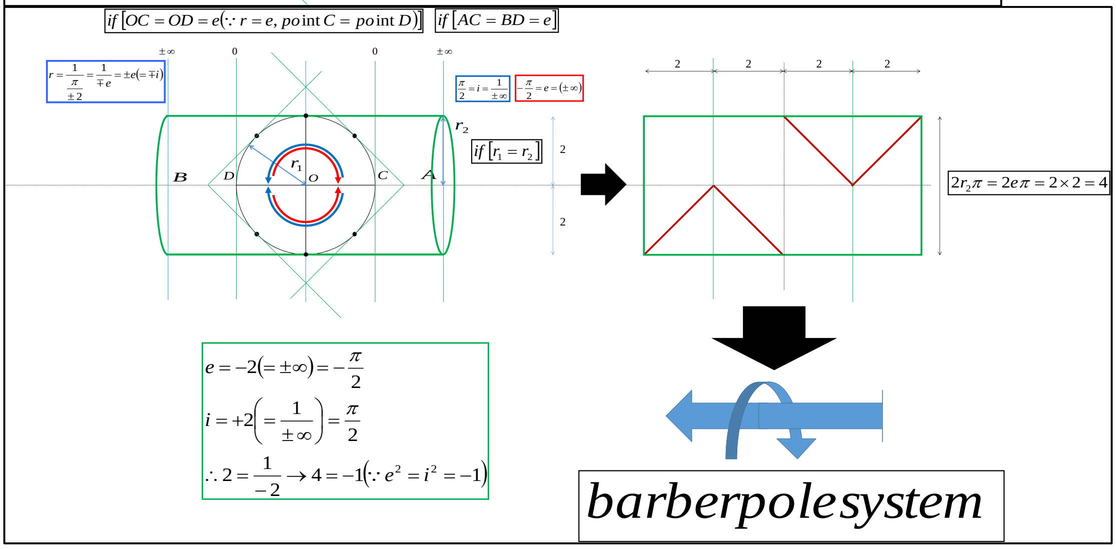
$\ln(9)=\ln(4)=-2$

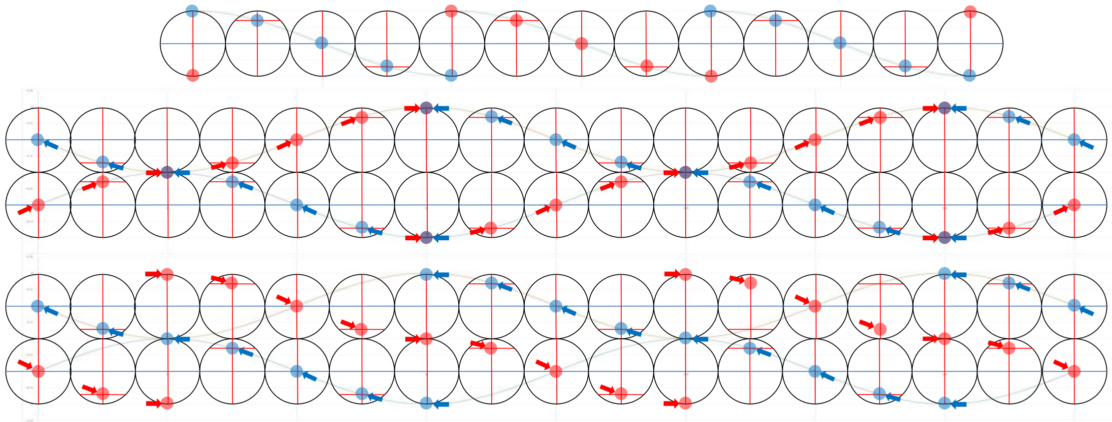
⋮



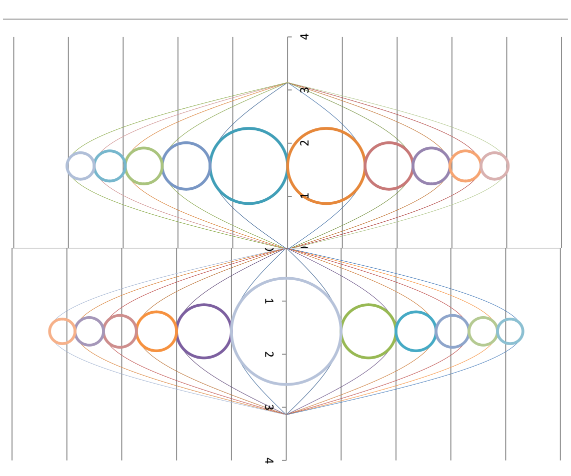



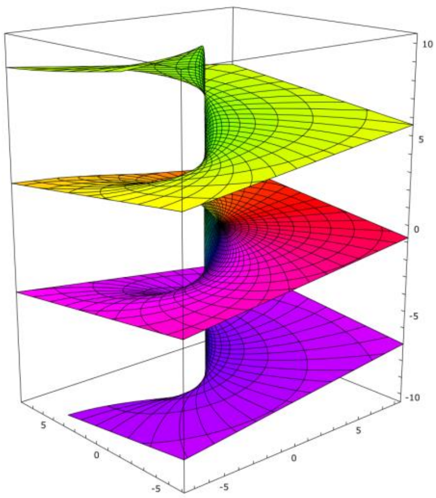


# *Cosmology = my bigbang theory + complex logarithm*





# $proof \;\; that \;\; \ln(z) = \bar{z}$

$$A = \begin{pmatrix} 3 & 1 & 4 & 2 & 0 & 3 & 1 & 4 \\ 4 & 2 & 0 & 3 & 1 & 4 & 2 & 0 \\ 0 & 3 & 1 & 4 & 2 & 0 & 3 & 1 \\ 1 & 4 & 2 & 0 & 3 & 1 & 4 & 2 \\ 2 & 0 & 3 & 1 & 4 & 2 & 0 & 3 \\ 3 & 1 & 4 & 2 & 0 & 3 & 1 & 4 \\ 4 & 2 & 0 & 3 & 1 & 4 & 2 & 0 \\ 0 & 3 & 1 & 4 & 2 & 0 & 3 & 1 \end{pmatrix} \Rightarrow C = \begin{pmatrix} -2 & 1 & -1 & 2 & 0 & -2 & 1 & -1 \\ -1 & 2 & 0 & -2 & 1 & -1 & 2 & 0 \\ 0 & -2 & 1 & -1 & 2 & 0 & -2 & 1 \\ 1 & -1 & 2 & 0 & -2 & 1 & -1 & 2 \\ 2 & 0 & -2 & 1 & -1 & 2 & 0 & -2 \\ -2 & 1 & -1 & 2 & 0 & -2 & 1 & -1 \\ -1 & 2 & 0 & -2 & 1 & -1 & 2 & 0 \\ 0 & -2 & 1 & -1 & 2 & 0 & -2 & 1 \end{pmatrix}$$

$$B = \begin{pmatrix} 1 & 2 & 3 & 4 & 0 & 1 & 2 & 3 \\ 3 & 4 & 0 & 1 & 2 & 3 & 4 & 0 \\ 0 & 1 & 2 & 3 & 4 & 0 & 1 & 2 \\ 2 & 3 & 4 & 0 & 1 & 2 & 3 & 4 \\ 4 & 0 & 1 & 2 & 3 & 4 & 0 & 1 \\ 1 & 2 & 3 & 4 & 0 & 1 & 2 & 3 \\ 3 & 4 & 0 & 1 & 2 & 3 & 4 & 0 \\ 0 & 1 & 2 & 3 & 4 & 0 & 1 & 2 \end{pmatrix} \Rightarrow D = \begin{pmatrix} 1 & 2 & -2 & -1 & 0 & 1 & 2 & -2 \\ -2 & -1 & 0 & 1 & 2 & -2 & -1 & 0 \\ 0 & 1 & 2 & -2 & -1 & 0 & 1 & 2 \\ 2 & -2 & -1 & 0 & 1 & 2 & -2 & -1 \\ -1 & 0 & 1 & 2 & -2 & -1 & 0 & 1 \\ 1 & 2 & -2 & -1 & 0 & 1 & 2 & -2 \\ -2 & -1 & 0 & 1 & 2 & -2 & -1 & 0 \\ 0 & 1 & 2 & -2 & -1 & 0 & 1 & 2 \end{pmatrix}$$

$$AB = BA = BC = CB = DA = AD = \begin{pmatrix} 1 & 4 & 2 & 0 & 3 & 1 & 4 & 2 \\ 0 & 1 & 2 & 3 & 4 & 0 & 1 & 2 \\ 4 & 3 & 2 & 1 & 0 & 4 & 3 & 2 \\ 3 & 0 & 2 & 4 & 1 & 3 & 0 & 2 \\ 2 & 2 & 2 & 2 & 2 & 2 & 2 & 2 \\ 1 & 4 & 2 & 0 & 3 & 1 & 4 & 2 \\ 0 & 1 & 2 & 3 & 4 & 0 & 1 & 2 \\ 4 & 3 & 2 & 1 & 0 & 4 & 3 & 2 \end{pmatrix} = \begin{pmatrix} 1 & -1 & 2 & 0 & -2 & 1 & -1 & 2 \\ 0 & 1 & 2 & -2 & -1 & 0 & 1 & 2 \\ -1 & -2 & 2 & 1 & 0 & -1 & -2 & 2 \\ -2 & 0 & 2 & -1 & 1 & -2 & 0 & 2 \\ 2 & 2 & 2 & 2 & 2 & 2 & 2 & 2 \\ 1 & -1 & 2 & 0 & -2 & 1 & -1 & 2 \\ 0 & 1 & 2 & -2 & -1 & 0 & 1 & 2 \\ -1 & -2 & 2 & 1 & 0 & -1 & -2 & 2 \end{pmatrix}$$

$$CD = DC = \begin{pmatrix} 1 & -1 & 2 & 0 & -2 & 1 & -1 & 2 \\ 0 & 1 & 2 & -2 & -1 & 0 & 1 & 2 \\ -1 & -2 & 2 & 1 & 0 & -1 & -2 & 2 \\ -2 & 0 & 2 & -1 & 1 & -2 & 0 & 2 \\ 2 & 2 & 2 & 2 & 2 & 2 & 2 & 2 \\ 1 & -1 & 2 & 0 & -2 & 1 & -1 & 2 \\ 0 & 1 & 2 & -2 & -1 & 0 & 1 & 2 \\ -1 & -2 & 2 & 1 & 0 & -1 & -2 & 2 \end{pmatrix} \qquad \therefore AB = BA = BC = CB = CD = DC = DA = AD$$

$$B - A = C = \begin{pmatrix} -2 & 1 & -1 & 2 & 0 & -2 & 1 & -1 \\ -1 & 2 & 0 & -2 & 1 & -1 & 2 & 0 \\ 0 & -2 & 1 & -1 & 2 & 0 & -2 & 1 \\ 1 & -1 & 2 & 0 & -2 & 1 & -1 & 2 \\ 2 & 0 & -2 & 1 & -1 & 2 & 0 & -2 \\ -2 & 1 & -1 & 2 & 0 & -2 & 1 & -1 \\ -1 & 2 & 0 & -2 & 1 & -1 & 2 & 0 \\ 0 & -2 & 1 & -1 & 2 & 0 & -2 & 1 \end{pmatrix} = \begin{pmatrix} 2-2i & -1+i & 1-i & -2+2i & 0 & 2-2i & -1+i & 1-i \\ 1-i & -2+2i & 0 & 2-2i & -1+i & 1-i & -2+2i & 0 \\ 0 & 2-2i & -1+i & 1-i & -2+2i & 0 & 2-2i & -1+i \\ -1+i & 1-i & -2+2i & 0 & 2-2i & -1+i & 1-i & -2+2i \\ -2+2i & 0 & 2-2i & -1+i & 1-i & -2+2i & 0 & 2-2i \\ 2-2i & -1+i & 1-i & -2+2i & 0 & 2-2i & -1+i & 1-i \\ 1-i & -2+2i & 0 & 2-2i & -1+i & 1-i & -2+2i & 0 \\ 0 & 2-2i & -1+i & 1-i & -2+2i & 0 & 2-2i & -1+i \end{pmatrix}, (\because i = 2)$$

$$\therefore \bar{C} = \begin{pmatrix} 2+2i & -1-i & 1+i & -2-2i & 0 & 2+2i & -1-i & 1+i \\ 1+i & -2-2i & 0 & 2+2i & -1-i & 1+i & -2-2i & 0 \\ 0 & 2+2i & -1-i & 1+i & -2-2i & 0 & 2+2i & -1-i \\ -1-i & 1+i & -2-2i & 0 & 2+2i & -1-i & 1+i & -2-2i \\ -2-2i & 0 & 2+2i & -1-i & 1+i & -2-2i & 0 & 2+2i \\ 2+2i & -1-i & 1+i & -2-2i & 0 & 2+2i & -1-i & 1+i \\ 1+i & -2-2i & 0 & 2+2i & -1-i & 1+i & -2-2i & 0 \\ 0 & 2+2i & -1-i & 1+i & -2-2i & 0 & 2+2i & -1-i \end{pmatrix} = \begin{pmatrix} 6 & -3 & 3 & -6 & 0 & 6 & -3 & 3 \\ 3 & -6 & 0 & 6 & -3 & 3 & -6 & 0 \\ 0 & 6 & -3 & 3 & -6 & 0 & 6 & -3 \\ -3 & 3 & -6 & 0 & 6 & -3 & 3 & -6 \\ -6 & 0 & 6 & -3 & 3 & -6 & 0 & 6 \\ 6 & -3 & 3 & -6 & 0 & 6 & -3 & 3 \\ 3 & -6 & 0 & 6 & -3 & 3 & -6 & 0 \\ 0 & 6 & -3 & 3 & -6 & 0 & 6 & -3 \end{pmatrix}$$

$$= \begin{pmatrix} 1 & 2 & -2 & -1 & 0 & 1 & 2 & -2 \\ -2 & -1 & 0 & 1 & 2 & -2 & -1 & 0 \\ 0 & 1 & 2 & -2 & -1 & 0 & 1 & 2 \\ 2 & -2 & -1 & 0 & 1 & 2 & -2 & -1 \\ -1 & 0 & 1 & 2 & -2 & -1 & 0 & 1 \\ 1 & 2 & -2 & -1 & 0 & 1 & 2 & -2 \\ -2 & -1 & 0 & 1 & 2 & -2 & -1 & 0 \\ 0 & 1 & 2 & -2 & -1 & 0 & 1 & 2 \end{pmatrix} = D \quad , \quad \therefore \ln(C) = \bar{C} \quad (\because i = 2)$$

*Proof end* (References 複素対数函数 - Wikipedia)