복소수의 상등
(The Equality of Complex Numbers)

$$a, b, c, d \in \mathbb{R}$$

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$$a + bi = c + di$$

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Proof

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Proof

$$\begin{aligned} a + bi &= c + di \\ a - c &= (d - b)i \end{aligned}$$

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Proof

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$$a + bi = c + di \quad \Leftrightarrow \quad a = c \ \wedge \ b = d$$

Proof

$$\begin{aligned} a + bi &= c + di \\ a - c &= (d - b)i \\ (a - c)^2 &= (d - b)^2 i^2 \\ (a - c)^2 &= -(d - b)^2 \end{aligned}$$

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$$a + bi = c + di \quad \Leftrightarrow \quad a = c \ \wedge \ b = d$$

Proof

$$\begin{aligned} a + bi &= c + di \\ a - c &= (d - b)i \\ (a - c)^2 &= (d - b)^2 i^2 \\ (a - c)^2 &= -(d - b)^2 \\ (a - c)^2 + (d - b)^2 &= 0 \end{aligned}$$

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Proof

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a + bi &= c + di \\
a - c &= (d - b)i \\
(a - c)^2 &= (d - b)^2 i^2 \\
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a - c = 0 \quad &\wedge \quad d - b = 0
\end{aligned}$$

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Proof

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a + bi &= c + di \\
a - c &= (d - b)i \\
(a - c)^2 &= (d - b)^2 i^2 \\
(a - c)^2 &= -(d - b)^2 \\
(a - c)^2 + (d - b)^2 &= 0 \\
a - c = 0 &\wedge d - b = 0 \\
a = c &\wedge b = d
\end{aligned}$$

Github:
https://min7014.github.io/math20210125001.html

Click or paste URL into the URL search bar, and you can see a picture moving.