Info

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$\mathbb{C}$-linear maps

$$\mathbb{C} \to \mathbb{C}$$

Definition. A $\mathbb{C}$-**linear map** $T : \mathbb{C} \to \mathbb{C}$ is a map such that

$$T(z_1 + \alpha z_2) = T(z_1) + \alpha T(z_2)$$

for all $z_1, z_2, \alpha \in \mathbb{C}$

A $\mathbb{C}$-linear map is also a $\mathbb{R}$-linear map, but the revserse is not true.

- $z \to z^*$ is not $\mathbb{C}$-linear because

$$iz \mapsto (iz)^* = (-i)z^* \neq i(z)^*$$

inclusion as a subalgebra of $\mathbb{R}$-linear maps on $\mathbb{R}^2$

$$\begin{aligned} \mathrm{EndVec}_{\mathbb{C}}(\mathbb{C}) &\to \mathrm{EndVec}_{\mathbb{R}}(\mathbb{R}^2) \\ [re^{i\theta}] &\mapsto r\mathrm{Rot}_2^\theta \end{aligned}$$

Current note has 0 direct children and 0 total descendants.

- stretchy
  - $(\mathbb{C}, +, \times)$
    - $\mathbb{C}$-linear maps $\mathbb{C} \to \mathbb{C}$

And it has 1 siblings.

- stretchy
  - $(\mathbb{C}, +, \times)$
    - $\mathbb{C}$-linear maps $\mathbb{C} \to \mathbb{C}$