

This note, that [was found here](#), as a part of [a collection](#) is written (completely with human hands) by [Rupadarshi Ray](#), was created on July 6, 2025 6:38:34 PM, was last modified on September 1, 2026 11:43:37 PM, and was exported on September 7, 2026 2:50:39 PM.

$$PSL(2)(\mathbb{C})$$

$$PSL(2)(\mathbb{C}) := \frac{SL(2)(\mathbb{C})}{\{I, -I\}}$$

Proposition:

$$\underbrace{\frac{GL(n,\mathbb{C})}{\{\lambda I : \lambda \neq 0\}}}_{PGL(n,\mathbb{C})} \cong \underbrace{\frac{SL(n,\mathbb{C})}{\{-I,I\}}}_{PSL(n,\mathbb{C})}$$

- action
 - [Mobius transformations on \$\mathbb{C}P^1\$](#)

conjugacy classes

Proposition: The function

$$\begin{aligned} \text{tr}^2 : PSL(2)(\mathbb{C}) &\rightarrow \mathbb{C} \\ \pm \begin{bmatrix} a & b \\ c & d \end{bmatrix} &\mapsto (a+d)^2 \end{aligned}$$

is a well-defined function whose preimages are precisely conjugacy classes of $PSL(2)(\mathbb{C})$.

Current note has 0 direct children and 0 total descendants.

- [squishy](#)
 - SL
 - $SL(2)(\mathbb{C})$
 - $PSL(2)(\mathbb{C})$
- [stem](#)
 - [Objects stemming from \$PSL\(2\)\(\mathbb{C}\)\$](#)

And it has 2 siblings.

- [squishy](#)
 - SL
 - $SL(2)(\mathbb{C})$
 - $\mathfrak{sl}(2,\mathbb{C})$
 - $PSL(2)(\mathbb{C})$