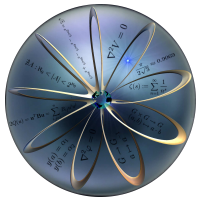

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## matrix representation

| | |
|---|---|
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A matrix representation of a group $G$ is a group homomorphism between $G$ and $GL_n(\mathbb{C})$, that is, a function

$$X : G \to GL_n(\mathbb{C})$$

such that

- $X(gh) = X(g)X(h)$,
- $X(e) = I$

Notice that this definition is equivalent to the group representation definition when the vector space $V$ is finite dimensional over $\mathbb{C}$. The parameter $n$ (or in the case of a group representation, the dimension of $V$) is called the *degree* of the representation.

# References

[1] Bruce E. Sagan. *The Symmetric Group: Representations, Combinatorial Algorithms and Symmetric Functions.* 2a Ed. 2000. Graduate Texts in Mathematics. Springer.