

This note, that [was found here](#), as a part of [a collection](#) is written (completely with human hands) by [Rupadarshi Ray](#), was created on May 21, 2025 6:41:08 PM, was last modified on September 1, 2026 11:43:27 PM, and was exported on September 7, 2026 2:50:38 PM.

SO(n,k)

	$\mathbb{Q}$	$\mathbb{R}$	$\mathbb{C}$
1			
2		$SO(2)(\mathbb{R})$	
3		$SO(3,\mathbb{R})$	

SO(p,q,R)

$\downarrow p \xrightarrow{q}$	2	3	4	5	6
2	$SO(2)(2,\mathbb{R})$				
3					
4					
5					
6					

Current note has 5 direct children and 7 total descendants.

- [squishy](#)
 - SO
 - $SO(x^2+y^2-\sqrt{2}z^2)(\mathbb{Z}[\sqrt{2}])$
 - $SO(2)(\mathbb{R})$
 - $\mathfrak{so}(2,\mathbb{R})$
 - $SO^+(2,2)(\mathbb{R})$
 - $SO(3,\mathbb{R})$
 - $\mathfrak{so}(3,\mathbb{R})$ -[Poisson structure on \$\mathbb{R}^3\$](#)
 - $SO(4,\mathbb{R})$

And it has 30 siblings.

- [squishy](#)
 - $SL(2)(\mathbb{R}) \curvearrowright \mathbb{R}^2$
 - $SL(2)(\mathbb{R}) \curvearrowright H^2_{\mathbb{U}}$
 - $\mathbf{Mat}_{\mathbb{C}}(2)$
 - $A_{r,-\langle z \mapsto \lambda z \rangle} \backslash \mathbb{R} \boldsymbol{H}^2_{\mathbb{U}}$
 - $\mathbb{C} \setminus \{0\}, -\langle z \mapsto z+1 \rangle \backslash \mathbb{R} \boldsymbol{H}^2_{\mathbb{U}}$
 - $\mathbb{C} \setminus \{0,1\}, -PSL(2)(\mathbb{Z})[2] \backslash \mathbb{R} \boldsymbol{H}^2_{\mathbb{U}}$
 - $\mathbb{R} \ltimes_{\theta} \mathbb{C}^2$
 - $\boldsymbol{CI}(\mathbb{R}^n, \langle \ , \ \rangle_{0,n})$
 - $\mathbb{C}^n$
 - $U(\mathbb{C} \setminus \{0\})$
 - $PSL(2)(\mathbb{C}) \curvearrowright \mathbb{C}P^1 \cong_{\text{Man}} S^2$
 - $\mathbb{C}P^n$
 - [Farey_graph_complex and tree](#)
 - GL
 - [Heisenberg_group](#)
 - [Incomplete hyperbolic polygon mod side-pairing](#)
 - $\mathbb{R} \boldsymbol{H}^2, \mathbb{R} H^2_{\mathbb{U}}, D^2$
 - $\mathbb{R} \boldsymbol{H}^n$
 - [D_n_lattice](#)
 - [Matrices](#)
 - $\text{Mat}_{\mathbb{R}}(2)$
 - [Mobius endomorphisms](#)
 - [Elementary_group with finite and infinite sided Dirichlet polyhedra](#)
 - [Polynomials](#)
 - $T^*S^1 \not\cong_{\text{Sym}} (\mathbb{R}^2 \setminus \{0\}, dx \wedge dy)$
 - $Z\left(\sum_{1 \leq j \leq n} z_j^2 - 1\right)(\mathbb{C}) \cong_{\text{Sym}} T^*S^{n-1}$
 - SL
 - SO
 - [Seifert–Weber dodecahedral 3-manifold](#)
 - $U(n,\mathbb{C})$