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Differential forms on $\mathbb{R}^n$

Definition. Differential forms on $\mathbb{R}^n$

$$\Omega^k(U) := \mathcal{C}^\infty(U, \Lambda^k(\mathbb{R}^n))$$
$$\Gamma\Lambda^\bullet(U) := \bigoplus_k \Gamma\Lambda^k(U)$$



$$\Gamma\Lambda^\bullet(U) \cong \mathcal{C}^\infty(U) \otimes_{\mathbb{R}} \Lambda^\bullet(\mathbb{R}^n)$$

- exterior derivative and integration
 - integral theorem
 - [de Rham cohomology in \$\mathbb{R}^n\$](#)
- metric $g := \sum_{i=1}^n dx_i \otimes dx_i$ stuff
 - musical isomorphism
 - "usual" derivative
 - Hodge dual
 - vector valued differential forms

Current note has 1 direct children and 1 total descendants.

- [stem](#)
 - [subobjects of and functions on \$\mathbb{R}^n, S^n, \mathbb{C}^n\$ and its quotients \$\Gamma \backslash \mathbb{R}^n, \Gamma \backslash \mathbb{C}^n\$](#)
 - [Differential forms on \$\mathbb{R}^n\$](#)
 - [de Rham cohomology in \$\mathbb{R}^n\$](#)

And it has 39 siblings.

- [stem](#)
 - [subobjects of and functions on \$\mathbb{R}^n, S^n, \mathbb{C}^n\$ and its quotients \$\Gamma \backslash \mathbb{R}^n, \Gamma \backslash \mathbb{C}^n\$](#)
 - [Holomorphic functions on spaces over \$\mathbb{C}\$ of dimension 1](#)
 - [Open subsets of \$\mathbb{R}^n\$ with \$\mathcal{C}^2\$ boundary.](#)
 - [Complex ODEs in \$\mathbb{C}\$](#)
 - [Circle packing on \$\mathbb{R}^2\$](#)
 - [Circle packing converges to the Riemann biholomorphism](#)
 - [Bounded connected open subsets of \$\mathbb{C}^n\$](#)
 - [Connected circular open subsets of \$\mathbb{C}^n\$](#)
 - [Continuous functions on \$\mathbb{R}^d\$](#)
 - [Dyadic cubes](#)
 - [Curves](#)
 - [Differentiable functions](#)
 - [Differential forms on \$\mathbb{R}^n\$](#)
 - [Fourier-Wigner transform](#)
 - [Harmonic functions composed with conformal maps](#)
 - [Hilbert transform](#)
 - [Fourier-Cauchy-Poisson correspondence of holomorphic and harmonic functions on the unit disk and their boundary values](#)
 - [Holomorphic subsets of \$\mathbb{C}^n\$](#)
 - [Regular hypersurfaces in \$\mathbb{R}^{2n}\$](#)
 - [Orientable hypersurfaces in \$\mathbb{R}^n\$](#)
 - [Laplace operator on \$\mathbb{R}^n\$](#)
 - $l^\infty(\mathbb{R})$
 - [Lebesgue measurable subsets of and functions on \$\mathbb{R}^n, T^n, S^n\$](#)
 - [Lebesgue measure of boundary of open sets in \$\mathbb{R}^n\$](#)
 - [Local \$\mathbb{R}\$ -algebras](#)
 - $l^p(\mathbb{R})$
 - [Metric density of subsets of \$\mathbb{R}^n\$](#)
 - [Monotone functions on \$\mathbb{R}\$](#)
 - [Cauchy integral of periodic functions](#)
 - [Polygons with integer vertices](#)
 - [Open smooth maps \$U \subseteq \mathbb{R}^2 \rightarrow \mathbb{C}\$](#)
 - [Discrete subgroups of \$\mathbb{R}^n\$](#)
 - [Discrete cocompact subgroups of \$\mathbb{R}^n\$, flat tori](#)
 - [Ramified germs of smooth and holomorphic functions](#)
 - [Open subsets of \$\mathbb{R}^n\$](#)
 - [Open subsets of \$\mathbb{R}^n\$ equipped with the flat metric](#)
 - [Closed subsets of \$\mathbb{R}^n\$ equipped with smooth functions](#)
 - [Quasi-analytic smooth functions on \$\mathbb{R}\$](#)
 - [Star-shaped subsets of \$\mathbb{R}^n\$](#)
 - [ODEs in \$\mathbb{R}^n \leftrightarrow\$ Vector fields in \$\mathbb{R}^n\$](#)