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de Rham cohomology of the punctured plane

$H^0(\Omega^\bullet(\mathbb{R}^2 \setminus \{0\})) \cong_{\text{Vec}_{\mathbb{R}}} \mathbb{R}$
 $H^1(\Omega^\bullet(\mathbb{R}^2 \setminus \{0\})) \cong \mathbb{R}$



$$H^1(\Omega^\bullet(\mathbb{R}^2 \setminus \{0\})) = \mathbb{R} \left[\frac{-ydx + xdy}{x^2 + y^2} \right]$$

$H^2(\Omega^\bullet(\mathbb{R}^2 \setminus \{0\})) \cong 0$

Dolbeault cohomology of the punched plane $\mathbb{C}^*$

$$h^{1,0} = \begin{matrix} 0 \\ \infty \\ 0 \end{matrix}$$

where

$$H^{1,0} \ni \frac{dz}{z^n}$$

for all $n > 0$

Current note has 0 direct children and 0 total descendants.

- [stretchy](#)
 - $\mathbb{R}^2 \setminus \{0\}$
 - [de Rham cohomology of the punctured plane](#)

And it has 2 siblings.

- [stretchy](#)
 - $\mathbb{R}^2 \setminus \{0\}$
 - [Angle form on \$\mathbb{R}^2 \setminus \{0\}\$](#)
 - [de Rham cohomology of the punctured plane](#)