

4. EXERCISES

Exercises

- (1) Let K be a number field. Consider $X_{\mathbb{Q}} = \text{Spec } K$ as a variety over \mathbb{Q} . Let $X_{\mathbb{R}}$ be the corresponding real variety. Compute the absolute absolute Hodge cohomology of $X_{\mathbb{R}}$. Compare the obtained dimensions with the rank of the groups $K_i(K)$.
- (2) Compute the mixed Hodge structure of $\mathbb{P}^1 \setminus \{0, 1\}$.

REFERENCES

- [BG94] J. I. Burgos Gil, *A C^∞ -logarithmic Dolbeault complex*, *Compositio Math.* **92** (1994), 61–86.
- [Hir64] H. Hironaka, *Resolution of singularities of an algebraic variety over a field of characteristic zero*, *Annals of Math.* **79** (1964), 109–326.
- [Nag62] M. Nagata, *Imbedding of an abstract variety in a complete variety*, *J. Math. Kyoto Univ.* **2** (1962), 1–10.