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The cyclic subfield integer index

par Bart de SMIT

Abstract. In this note we consider the index in the ring of integers of an abelian extension of a number field K of the additive subgroup generated by integers which lie in subfields that are cyclic over K. This index is finite, it only depends on the Galois group and the degree of K, and we give an explicit combinatorial formula for it. When generalizing to more general Dedekind domains, a correction term can be needed if there is an inseparable extension of residue fields. We identify this correction term for abelian extensions of type (p, p).

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