

# Power integral bases in algebraic number fields

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A number field is called monogenic if its ring of integers is a simple ring extension of the ring of rational integers. This is a classical topic of algebraic number theory with an extensive literature going back to Dedekind and Hasse. Our main purpose is to determine all generators of power integral bases. This problem can be reduced to the resolution of certain diophantine equations. We consider this question in the absolute and in the relative case, as well. We mention algorithms in specific number fields and statements on infinite parametric families of number fields.