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Growth of groups and algebras

The growth of a group or algebra is an invariant that provides a measure of how large or "complex" the algebra is. We give a brief survey of growth and Gelfand-Kirillov dimension, highlighting some of the major advances in this area. We then look at the question of what types of growth are possible for groups and algebras. In the case of algebras, one can give an exact characterization of the types of growth that can occur. This is joint work with E. Zelmanov.