

GROUPS OF INTERMEDIATE GROWTH

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The growth of a finitely generated group is an invariant of a geometric nature that allows us to compare the size of different groups even when they are infinite. It is a central notion in the field of geometric group theory, which is the study of groups through geometric methods. There are three broad types of growth behaviour in groups: polynomial, exponential, and *intermediate*, meaning faster than any polynomial yet slower than exponential. We propose to investigate in more details the latter.

Groups of intermediate growth are very mysterious and intriguing. Their existence was an open question for a long time, until the first example was discovered by Grigorchuk in 1983. Since then, only a few more families of examples have been discovered, but many questions remain unsolved.

We propose to study the main notions and results related to growth in groups, and then to work towards the discovery of new examples of groups of intermediate growth.