

Razborov, Alexander A.

On systems of equations in free groups. (English) [Zbl 0848.20018](#)

Duncan, Andrew J. (ed.) et al., Combinatorial and geometric group theory. Proceedings of a workshop held at Heriot-Watt University, Edinburgh, GB, spring of 1993. Cambridge: Cambridge University Press. Lond. Math. Soc. Lect. Note Ser. 204, 269-283 (1995).

As the author points out: "The main purpose of this paper is to introduce non-specialists into recent developments in the study of systems of equations in free groups, at a very intuitive level, into the related techniques". So it is a survey article. The author discusses the following two problems which have been answered in the affirmative by now: 1. It is algorithmically decidable whether a given system of equations in a free group has at least one solution? 2. How to describe a solution set?

The author describes shortly the techniques to deal with these problems and how to reduce them to simpler ones. He also gives a description of the solution sets of these systems. In both cases he discusses the importance of the quadratic equations (or systems) to the whole theory. He finishes this survey by stating and discussing open problems. The list of references contains 29 items.

For the entire collection see [[Zbl 0830.00030](#)].

Reviewer: S.Andreadakis (Athens)

MSC:

[20E05](#) Free nonabelian groups

[20F05](#) Generators, relations, and presentations of groups

[20F10](#) Word problems, other decision problems, connections with logic and automata (group-theoretic aspects)

Cited in **8** Documents

Keywords:

[systems of equations in free groups](#); [survey](#); [quadratic equations](#)