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A guidebook for solving problems on ordinary differential equations. Textbook. (Rukovodstvo k resheniyu zadach po obyknovennym differentsial'nym uravneniyam. Uchebnoe posobie). Ed. by M. Yu. Zhukov. (Rukovodstvo k resheniyu zadach po obyknovennym differentsial'nym uravneniyam. Uchebnoe posobie.) (Russian) [Zbl 0729.34001](#)
Rostov-na-Donu: Izdatel'stvo Rostovskogo Universiteta. 336 p. R. 1.60 (1989).

The present book is an introduction to the ordinary differential equations with emphasis on applications. It contains many illustrations and examples. It consists of three chapters. Chapter I treats differential equations of the first order of the form $y' = f(x, y)$ and of the form $M(x, y)dx + N(x, y)dy = 0$. The second chapter deals with linear differential equations and systems of such equations. The power series method, Fourier method and operator method are illustrated on various examples. The last chapter is devoted to the qualitative theory of autonomous systems and especially to the Lyapunov stability theory.

Reviewer: [L.Janos \(Praha\)](#)

MSC:

- [34-01](#) Introductory exposition (textbooks, tutorial papers, etc.) pertaining to ordinary differential equations
- [34A05](#) Explicit solutions, first integrals of ordinary differential equations
- [34A25](#) Analytical theory of ordinary differential equations: series, transformations, transforms, operational calculus, etc.
- [00A07](#) Problem books
- [34C05](#) Topological structure of integral curves, singular points, limit cycles of ordinary differential equations
- [34D20](#) Stability of solutions to ordinary differential equations

Keywords:

textbook; linear differential equations; power series method; Fourier method; Lyapunov stability theory