

[Aleksievskij, D. V.](#); [Vinogradov, A. M.](#); [Lychagin, V. V.](#)

**Basic ideas and notions from differential geometry.** (Russian) Zbl 0675.53001

[Itogi Nauki Tekh., Ser. Sovrem. Probl. Mat., Fundam. Napravleniya 28, 1-299 \(1988\).](#)

The volume is a successful attempt to create an encyclopedia of modern differential geometry. Almost all the sections of this science are touched here: from the theory of curves up to the Atiyah-Singer index theorem. Fortunately, the text is not a list of countless facts. The authors have their own point of view on the subject and they do not conceal it. (A. M. Vinogradov and V. V. Lychagin are specialists in the geometrical theory of differential equations, D. V. Aleksievskij is a specialist in the theory of G-structures.) So the main attention is given to basic concepts of differential geometry, it is considered as a developing branch of mathematics, and its interaction with algebra, topology and physics is described. (Especially, the theme “differential calculus and commutative algebra” must be pointed out.) At the same time, the work contains all fundamental results of differential geometry and interesting examples, which illustrate each new definition or property introduced.

So the book may be used as an overview of an important branch of mathematics and as a collection of fundamental facts and ideas from differential geometry. The list of references contains 193 titles.

Reviewer: [M.Malakhal'tsev](#)

**MSC:**

- 53-01** Introductory exposition (textbooks, tutorial papers, etc.) pertaining to differential geometry
- 58-01** Introductory exposition (textbooks, tutorial papers, etc.) pertaining to global analysis
- 53-02** Research exposition (monographs, survey articles) pertaining to differential geometry

Cited in **2** Reviews  
Cited in **16** Documents

**Keywords:**

[bibliography](#)