
A MATHEMATICIAN'S LOGBOOK

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*A document written in LaTeX
containing a selection of topics
to study for a mathematics degree*

created for students and interested parties

English version of September 29, 2019

Preface

FiXme!

FiXme: 0.1-(1): translate here

Berlin, January 25th, 2017
Jonas Frede

Recommendation for the reader

FiXme: 0.2-(2): translate here

FiXme: 0.3-(3): diagram for order of chapters to read

FiXme: 0.4-(4): translate here

FiXme!

FiXme!

FiXme!

Contents

1 Foundations of Mathematics	1
1.1 Elements of Logic	1
I Algebra and Number Theory	2
2 Linear Algebra	3
3 Algebra	4
4 Number Theory	5
II Analysis and Geometry	6
5 Analysis	7
6 Topology	8
7 Geometry	9
8 Complex Analysis	10
9 Differential Geometry	11
III Discrete and Algorithmic Mathematics	12
10 Algorithmic und computer-oriented Mathematics	13
11 Numerical Analysis	14
12 Optimization	15
12.1 Linear Optimization	15
13 Discrete Mathematics	16
IV Probability Theory	17
14 Probability Theory	18
14.1 Martingales	18

V Exercises	19
15 Foundations of Mathematics	20
15.1 Test exercise	20
16 Linear Algebra	21
17 Algebra	22
18 Number Theory	23
19 Analysis	24
20 Topology	25
21 Geometry	26
22 Complex Analysis	27
23 Differential Geometry	28
24 Algorithmic und computer-oriented Mathematics	29
25 Numerical Analysis	30
26 Optimization	31
27 Discrete Mathematics	32
28 Probability Theory	33
 VI Appendices	 34
A Computer Science	35
Bibliography	36

List of Corrections

0.1-(1): translate here	I
0.2-(2): translate here	II
0.3-(3): diagram for order of chapters to read	II
0.4-(4): translate here	II
1.0.1-(5): translate introductory paragraph	1
1.1.1-(6): translate everything here	1
3.0.1-(7): translate here	4
5.0.1-(8): stuff to translate here	7
7.0.1-(9): translate here	9
12.0.1-(10): translate here	15

1 Foundations of Mathematics

FiXme!

FiXme: 1.0.1-(5): translate introductory paragraph

1.1 Elements of Logic

FiXme!

FiXme: 1.1.1-(6): translate everything here

Part I

Algebra and Number Theory

2 Linear Algebra

3 Algebra

FiXme: 3.0.1-(7): translate here

FiXme!

4 Number Theory

Part II

Analysis and Geometry

5 Analysis

FiXme: 5.0.1-(8): stuff to translate here

FiXme!

6 Topology

7 Geometry

FiXme: 7.0.1-(9): translate here

FiXme!

8 Complex Analysis

9 Differential Geometry

Part III

Discrete and Algorithmic Mathematics

10 Algorithmic und computer-oriented Mathematics

11 Numerical Analysis

12 Optimization

FiXme: 12.0.1-(10): [translate here](#) To get rid of the empty bibliography warning, we cite Ziegler [\[1\]](#). FiXme!

12.1 Linear Optimization

13 Discrete Mathematics

Part IV

Probability Theory

14 Probability Theory

14.1 Martingales

Part V

Exercises

15 Foundations of Mathematics

15.1 Test exercise

Exercise here.

Solution here.

16 Linear Algebra

17 Algebra

18 Number Theory

19 Analysis

20 Topology

21 Geometry

22 Complex Analysis

23 Differential Geometry

24 Algorithmic und computer-oriented Mathematics

25 Numerical Analysis

26 Optimization

27 Discrete Mathematics

28 Probability Theory

Part VI

Appendices

A Computer Science

Bibliography

- [1] Günter M. Ziegler. *Lectures on 0/1 Polytopes*. 1999. arXiv: [math/9909177v1](#) [[math.CO](#)] (cit. on p. [15](#)).