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Proof Theory American Mathematical Soc. Rapid, concise, self-contained introduction assumes only familiarity with elementary algebra. Subjects include algebraic varieties; products, projections, and correspondences; normal varieties; differential forms; theory of simple points; algebraic groups; more. 1958 edition.

The Nature of Mathematics Cambridge University Press This well-written and engaging volume, intended for undergraduates, introduces knot theory, an area of growing interest in contemporary mathematics. The hands-on approach features many exercises to be completed by readers. Prerequisites are only a basic familiarity with linear algebra and a willingness to explore the subject in a hands-on manner. The opening chapter offers activities that explore the world of knots and links — including games with knots — and invites the reader to generate their own questions in knot theory. Subsequent chapters guide the reader to discover the formal definition of a knot, families of knots and links, and various knot notations. Additional topics include combinatorial knot invariants, knot polynomials, unknotting operations, and virtual knots.

Category Theory in Context Courier Corporation This comprehensive monograph presents a detailed overview of creative works by the author and other 20th-century logicians that includes applications of proof theory to logic as well as other areas of mathematics. 1975 edition.

Vision in Elementary Mathematics Courier Dover Publications

Clearly presented discussions of fields, vector spaces, homogeneous linear equations, extension fields, polynomials, algebraic elements, as well as sections on solvable groups, permutation groups, solution of equations by radicals, and other concepts. 1966 edition.

An Introductory Course on Differentiable Manifolds Courier Corporation

Problems that beset Archimedes, Newton, Euler, Cauchy, Gauss, Monge, Steiner, and other great mathematical minds. Features squaring the circle, pi, and similar problems. No advanced math is required. Includes 100 problems with proofs.

A History of Japanese Mathematics Courier Corporation

Category theory provides a general conceptual framework that has proved fruitful in subjects as diverse as geometry, topology, theoretical computer science and foundational mathematics. Here is a friendly, easy-to-read textbook that explains the fundamentals at a level suitable for newcomers to the subject. Beginning postgraduate mathematicians will find this book an excellent introduction to all of the basics of category theory. It gives the basic definitions; goes through the various associated gadgetry, such as functors, natural transformations, limits and colimits; and then explains adjunctions. The material is slowly developed using many examples and illustrations to illuminate the concepts explained. Over 200 exercises, with solutions available online, help the reader to access the subject and make the book ideal for self-study. It can also be used as a recommended text for a taught introductory course.

Basic Category Theory Courier Corporation

Anyone interested in mathematics will appreciate this survey, which explores the distinction between the body of knowledge known as mathematics and the methods used in its discovery. 1913 edition.

Advanced Number Theory Courier Corporation

This workbook bridges the gap between lectures and practical applications, offering students of mathematics, engineering, and physics the chance to practice solving problems from a wide variety of fields. 2011 edition.

Introduction to Representation Theory Cambridge University Press

Focusing on topos theory's integration of geometric and logical ideas into the foundations of mathematics and theoretical computer science, this volume explores internal category theory, topologies and sheaves, geometric morphisms, and other subjects. 1977 edition.

Higher Topos Theory (AM-170) Courier Corporation

Basic Category Theory for Computer Scientists provides a straightforward presentation of the basic constructions and terminology of category theory, including limits, functors, natural transformations, adjoints, and cartesian closed categories. Category theory is a branch of pure mathematics that is becoming an increasingly important tool in theoretical computer science, especially in programming language semantics, domain theory, and concurrency, where it is already a standard language of discourse. Assuming a minimum of mathematical preparation, Basic Category Theory for Computer Scientists provides a straightforward presentation of the basic constructions and terminology of category theory, including limits, functors, natural transformations, adjoints, and cartesian closed categories. Four case studies illustrate applications of category theory to programming language design, semantics, and the solution of recursive domain equations. A brief literature survey offers suggestions for further study in more advanced texts. Contents Tutorial • Applications • Further Reading

Algebra: Chapter 0 Courier Corporation

Unusually clear, accessible introduction covers counting, properties of numbers, prime numbers, Aliquot parts, Diophantine problems,

congruences, much more. Bibliography.

Basic Category Theory for Computer Scientists Cambridge University Press

Eminent mathematician/teacher approaches algebraic number theory from historical standpoint. Demonstrates how concepts, definitions, and theories have evolved during last two centuries. Features over 200 problems and specific theorems. Includes numerous graphs and tables.

Introduction to Graph Theory Courier Dover Publications

This up-to-date introductory treatment employs the language of category theory to explore the theory of structures. Its unique approach stresses concrete categories, and each categorical notion features several examples that clearly illustrate specific and general cases. A systematic view of factorization structures, this volume contains seven chapters. The first five focus on basic theory, and the final two explore more recent research results in the realm of concrete categories, cartesian closed categories, and quasitopoi. Suitable for advanced undergraduate and graduate students, it requires an elementary knowledge of set theory and can be used as a reference as well as a text. Updated by the authors in 2004, it offers a unifying perspective on earlier work and summarizes recent developments.

Introduction to Algebraic Geometry Courier Corporation

This truly elementary book on categories introduces retracts, graphs, and adjoints to students and scientists.

Abstract and Concrete Categories American Mathematical Soc.

These counterexamples deal mostly with the part of analysis known as "real variables." Covers the real number system, functions and limits, differentiation, Riemann integration, sequences, infinite series, functions of 2 variables, plane sets, more. 1962 edition.

Topos Theory OUP Oxford

A short introduction ideal for students learning category theory for the first time.

Categorical Homotopy Theory Cambridge University Press

A world-famous mathematician explores Moore's theory of experiments, Kleene's theory of regular events and expressions, Kleene algebras, the differential calculus of events, factors and the factor matrix, and the theory of operators. Additional subjects include context-free languages, communicative regular algebra, axiomatic questions, and logical problems. Solutions to problems. 1971 edition.

Counterexamples in Analysis Courier Corporation

A graduate-level textbook that presents basic topology from the perspective of category theory. This graduate-level textbook on topology takes a unique approach: it reintroduces basic, point-set topology from a more modern, categorical perspective. Many graduate students are familiar with the ideas of point-set topology and they are ready to learn something new about them. Teaching the subject using category theory—a contemporary branch of mathematics that provides a way to represent abstract concepts—both deepens students' understanding of elementary topology and lays a solid foundation for future work in advanced topics. After presenting the basics of both category theory and topology, the book covers the universal properties of familiar constructions and three main topological properties—connectedness, Hausdorff, and compactness. It presents a fine-grained approach to convergence of sequences and filters;

explores categorical limits and colimits, with examples; looks in detail at adjunctions in topology, particularly in mapping spaces; and examines additional adjunctions, presenting ideas from homotopy theory, the fundamental groupoid, and the Seifert van Kampen theorem. End-of-chapter exercises allow students to apply what they have learned. The book expertly guides students of topology through the important transition from undergraduate student with a solid background in analysis or point-set topology to graduate student preparing to work on contemporary problems in mathematics.

Number Theory and Its History Courier Corporation

Higher category theory is generally regarded as technical and forbidding, but part of it is considerably more tractable: the theory of infinity-categories, higher categories in which all higher morphisms are assumed to be invertible. In Higher Topos Theory, Jacob Lurie presents the foundations of this theory, using the language of weak Kan complexes introduced by Boardman and Vogt, and shows how existing theorems in algebraic topology can be reformulated and generalized in the theory's new language. The result is a powerful theory with applications in many areas of mathematics. The book's first five chapters give an exposition of the theory of infinity-categories that emphasizes their role as a generalization of ordinary categories. Many of the fundamental ideas from classical category theory are generalized to the infinity-categorical setting, such as limits and colimits, adjoint functors, ind-objects and pro-objects, locally accessible and presentable categories, Grothendieck fibrations, presheaves, and Yoneda's lemma. A sixth chapter presents an infinity-categorical version of the theory of Grothendieck topoi, introducing the notion of an infinity-topos, an infinity-category that resembles the infinity-category of topological spaces in the sense that it satisfies certain axioms that codify some of the basic principles of algebraic topology. A seventh and final chapter presents applications that illustrate connections between the theory of higher topoi and ideas from classical topology.

Challenging Problems in Algebra Courier Corporation

First course in algebraic topology for advanced undergraduates. Homotopy theory, the duality theorem, relation of topological ideas to other branches of pure mathematics. Exercises and problems. 1972 edition.