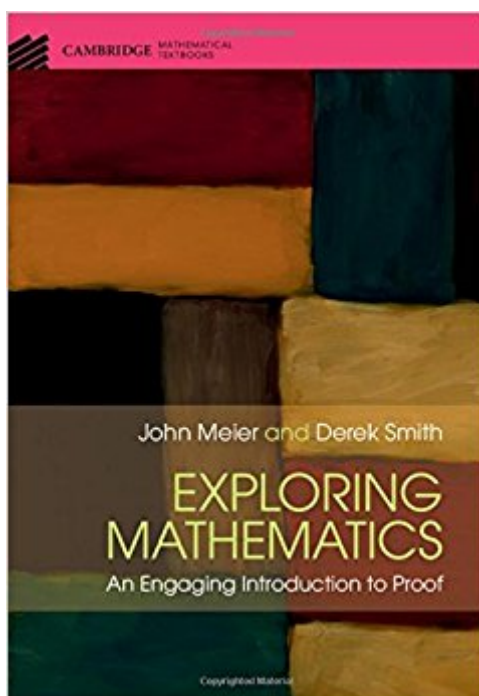The book was found

# Exploring Mathematics: An Engaging Introduction To Proof (Cambridge Mathematical Textbooks)

# Synopsis

Exploring Mathematics gives students experience with doing mathematics - interrogating mathematical claims, exploring definitions, forming conjectures, attempting proofs, and presenting results - and engages them with examples, exercises, and projects that pique their interest. Written with a minimal number of pre-requisites, this text can be used by college students in their first and second years of study, and by independent readers who want an accessible introduction to theoretical mathematics. Core topics include proof techniques, sets, functions, relations, and cardinality, with selected additional topics that provide many possibilities for further exploration. With a problem-based approach to investigating the material, students develop interesting examples and theorems through numerous exercises and projects. In-text exercises, with complete solutions or robust hints included in an appendix, help students explore and master the topics being presented. The end-of-chapter exercises and projects provide students with opportunities to confirm their understanding of core material, learn new concepts, and develop mathematical creativity.

# Book Information

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# Customer Reviews

Advance praise: 'Wonderful list of topics, entertaining presentation, well-chosen problems - this is why I want my grandchildren to engage with the beauty of mathematics. Too many students enter college with tools from calculus but no concept of how mathematicians think, and hardly any exposure to sets, logic, numbers, groups, or probability. How can we expect them to decide about

continuing with mathematics, without a glimpse of the wonders ahead? A marvelous world lies at your students' doorstep, and Exploring Mathematics makes them players, not just observers, in that world. You'll want all your math majors, and perhaps your computer science majors as well, to have this experience.' Peter Winkler, Dartmouth College, New HampshireAdvance praise: 'Meier and Smith have written a wonderful introduction to higher mathematics, showing both the thrill of abstraction and the beauty in discovering proofs.' Tom Garrity, Williams College, MassachusettsAdvance praise: 'I think that this is an excellent book. It is playful and serious at the same time. The book takes the unusual step of explaining not just mathematical topics but also what math is about and how to do it. The book is full of interesting topics, exercises, and examples. I think that this book could really fire up the imagination of a student wanting to get a start in real mathematics.' Richard Schwartz, Brown University, Rhode IslandAdvance praise: 'The biggest step in studying mathematics is learning to write proofs. After calculus, students discover that truth is not a matter of a calculation, but a careful argument, juggling concepts within formal logic. Exploring Mathematics is a guide to this new level. Rich with exercises and projects, the book provides a well-grounded introduction to proof. 'Then the fun begins'. The reader participates by doing what mathematicians do, experimenting, formulating conjectures, exploring foundations for the basis of a proof. This book engages the reader fully to reach the goal of learning to fashion real mathematics. A valuable addition to every undergraduate library.' John McCleary, Vassar College, New York

The transition from predominantly computational courses to upper-level math requires the development of skills, including reading and writing mathematical proofs, and creating illuminating examples and insights. Exploring Mathematics supports students by covering core topics and having them actively develop theorems through exercises and projects.

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