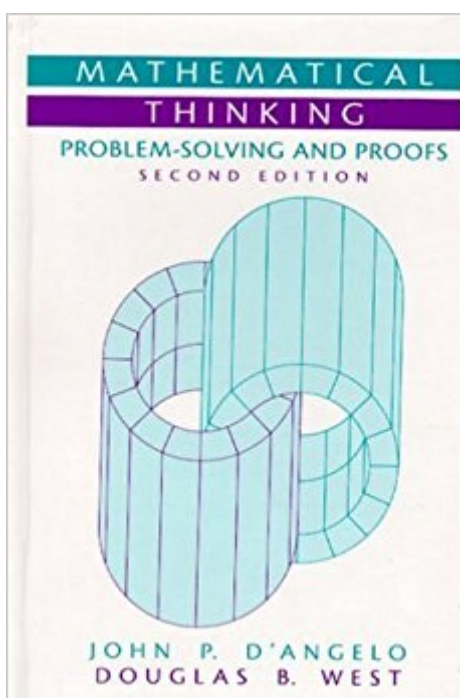


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Mathematical Thinking: Problem-Solving And Proofs (2nd Edition)



Synopsis

This survey of both discrete and continuous mathematics focuses on the logical thinking skills necessary to understand and communicate fundamental ideas and proofs in mathematics, rather than on rote symbolic manipulation. Coverage begins with the fundamentals of mathematical language and proof techniques (such as induction); then applies them to easily-understood questions in elementary number theory and counting; then develops additional techniques of proofs via fundamental topics in discrete and continuous mathematics. Topics are addressed in the context of familiar objects; easily-understood, engaging examples; and over 700 stimulating exercises and problems, ranging from simple applications to subtle problems requiring ingenuity. ELEMENTARY CONCEPTS. Numbers, Sets and Functions. Language and Proofs. Properties of Functions. Induction. PROPERTIES OF NUMBERS. Counting and Cardinality. Divisibility. Modular Arithmetic. The Rational Numbers. DISCRETE MATHEMATICS. Combinatorial Reasoning. Two Principles of Counting. Graph Theory. Recurrence Relations. CONTINUOUS MATHEMATICS. The Real Numbers. Sequences and Series. Continuity. Differentiation. Integration. The Complex Numbers. For anyone interested in learning how to understand and write mathematical proofs, or a reference for college professors and high school teachers of mathematics.

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Customer Reviews

Offering a survey of both discrete and continuous mathematics, Mathematical Thinking begins with the fundamentals of mathematical language and proof techniques such as induction. These are

applied to easily-understood questions in elementary number theory and counting. Further techniques of proofs are then developed via fundamental topics in discrete and continuous mathematics. The text can be used for courses emphasizing discrete mathematics, continuous mathematics, or a balance between the two. It contains many engaging examples and stimulating exercises. --This text refers to an out of print or unavailable edition of this title.

This survey of both discrete and continuous mathematics focuses on the logical thinking skills necessary to understand and communicate fundamental ideas and proofs in mathematics, rather than on rote symbolic manipulation. Coverage begins with the fundamentals of mathematical language and proof techniques (such as induction); then applies them to easily-understood questions in elementary number theory and counting; then develops additional techniques of proofs via fundamental topics in discrete and continuous mathematics. Topics are addressed in the context of familiar objects; easily-understood, engaging examples; and over 700 stimulating exercises and problems, ranging from simple applications to subtle problems requiring ingenuity. ELEMENTARY CONCEPTS. Numbers, Sets and Functions. Language and Proofs. Properties of Functions. Induction. PROPERTIES OF NUMBERS. Counting and Cardinality. Divisibility. Modular Arithmetic. The Rational Numbers. DISCRETE MATHEMATICS. Combinatorial Reasoning. Two Principles of Counting. Graph Theory. Recurrence Relations. CONTINUOUS MATHEMATICS. The Real Numbers. Sequences and Series. Continuity. Differentiation. Integration. The Complex Numbers. For anyone interested in learning how to understand and write mathematical proofs, or a reference for college professors and high school teachers of mathematics.

Well written book. Easy to follow, great job!

I originally purchased this book as a text for a math course and quite enjoyed the selections that we worked through in it. It has been about a year since I took that course and I still find myself going back for references in the book. It is a must have for someone who is interested in proofs or will be doing them on a semi-regular basis.

Good !

I was extremely disappointed by this book. This book is a required textbook at the University of Illinois at Urbana-Champaign, class MATH 347-348. I think the only reason the department has

chosen this book is because John D'Angelo is a faculty at UIUC and the interests of the department are placed above the learning outcomes of the students. The book did not teach me anything, I ended up learning proof techniques on my own, using you-tube videos, professor's office hours, and peer-led study group sessions. The only purpose the textbook served was a collection of exercises for Homework. If you are buying this book for self study, stay away from it.

Um, I had a really hard time understanding the way that this book was written. Maybe you need to be a true mathematician or a wizard to understand it. I did not like it.

quick shipment and nice good, exactly the one required by my course. The content itself is hard though, if you are going to use this book for your course, probably you need to try hard to succeed in it.

The book was coming a loose from the center binder. It has a big orange sticker on the front of the cover that is hard to come off.

This book was an excellent read, and provided some great information. However, as a math text, I feel like it should have provided a bit more examples, and perhaps even a solutions manual. I understand that the books main focus was on the abstract discussions of mathematics, but I feel like that should merit the writer to put a bit more examples to drive home the theorems before copious amounts of problems are assigned at the end of each chapter. A ton of these problems are classical, and need to be understood, in light of this, why isn't there a solutions manual to better explain these problems? I greatly appreciated the voices of the writers keeping themselves grounded in pragmatic language. Too often will mathematicians get lofty in their dictions and fuddle the material they claim to understand all too well. This book did a great job discussing simple concepts simply, meanwhile working the more difficult ones with more space.

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