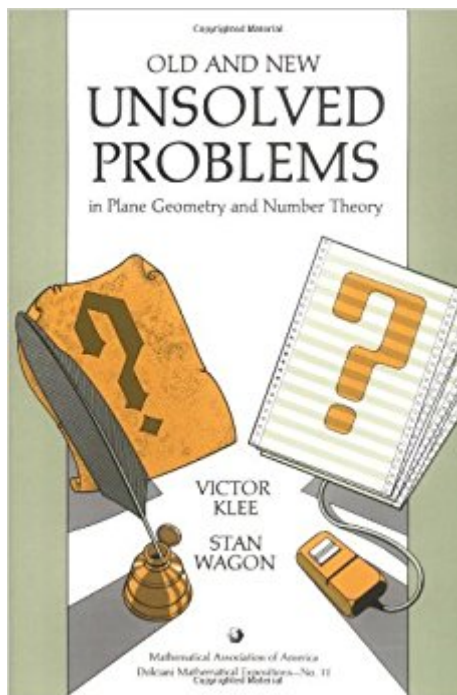




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# Old And New Unsolved Problems In Plane Geometry And Number Theory (Dolciani Mathematical Expositions)



## Synopsis

Victor Klee and Stan Wagon discuss some of the unsolved problems in number theory and geometry, many of which can be understood by readers with a very modest mathematical background. The presentation is organized around 24 central problems, many of which are accompanied by other, related problems. The authors place each problem in its historical and mathematical context, and the discussion is at the level of undergraduate mathematics. Each problem section is presented in two parts. The first gives an elementary overview discussing the history and both the solved and unsolved variants of the problem. The second part contains more details, including a few proofs of related results, a wider and deeper survey of what is known about the problem and its relatives, and a large collection of references. Both parts contain exercises, with solutions. The book is aimed at both teachers and students of mathematics who want to know more about famous unsolved problems.

## Book Information

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## Customer Reviews

'This is a book that not only belongs in every university, college, and high school library, it very definitely belongs in every public library.' Mathematical Reviews

Victor Klee and Stan Wagon discuss 24 unsolved problems in number theory and geometry, many of which can be understood by readers with a very modest mathematical background. Each

problem section gives an elementary overview discussing the history of the problem, proofs of related results and a wider survey of what is known about the problem.

This is a very cool book. It's designed to be used by people with a range of mathematical knowledge and talent. There are easier problems given along with the very hard unsolved ones, and every topic is discussed in two separate places, once at an elementary level and once at a deeper level for people with more training. My big misgiving about this book is that it's way out of date. They produced a new edition in 1996, but it hasn't been updated since then. For example, problem 1.2 (a conjecture about illuminable polygons) was solved in 1995, but that fact didn't make it into the 1996 edition. Fermat's last theorem, problem 13 in the book, was also been solved in 1995, but that was also too late to make it into the book. Normality of  $\pi$ , problem 21, has not been cracked, but significant progress has been made in the last decade. Other problems, like the various conjectures surrounding different versions of Conway's angel problem, would presumably have been good ones to include in the book if it had been updated since 1996. So if you're going to use this book, you'd better realize that you're missing quite a lot of information, and you'll need to supplement it with more information gleaned from the internet, e.g., from Wikipedia's article on "Unsolved problems in mathematics."

I admit I didn't read the entire book. But don't think that discredits my review. You see this is a special math book... One that you don't read cover to cover. You simply skim through the book and pick a unsolved problem that interest you. So you see it isn't read cover to cover like a textbook. And that is what makes this such an excellent math book. The book isn't about remembering rules it is about problem solving. And the organization of the book helps in gathering facts and understanding how others have approached the problem. Unsolved problems is part of what mathematics are based on. Most of the content is easy to understand at undergraduate level. For fun I recommend only reading the problem's description and do your own research and later compare it to the second section of the book. I have worked on Prime numbers and have made some progress. (Just check my profile.) Math work does not get done without math problems. So if you are looking for a learning experience this is an excellent place to start.

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