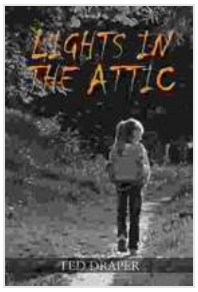
Lights in the Attic: Explorations in Higher Geometry by Solomon Lefschetz



Lights in the Attic by Solomon Lefschetz

4.4 out of 5

Language	: English
File size	: 671 KB
Text-to-Speech	: Enabled
Screen Reader	: Supported
Enhanced typesetting	: Enabled
Print length	: 34 pages

Solomon Lefschetz was one of the leading mathematicians of the 20th century. He made significant contributions to algebraic geometry, topology, and differential equations. His book, *Lights in the Attic: Explorations in Higher Geometry*, is a collection of essays that cover a wide range of topics in these fields. The essays are written in a clear and engaging style that makes them accessible to both mathematicians and non-mathematicians alike.

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In the to *Lights in the Attic*, Lefschetz explains that he wrote the book to share his passion for mathematics with a wider audience. He writes, "I have tried to write in a way that will be accessible to anyone with a basic understanding of mathematics. I hope that the reader will find these essays enjoyable and stimulating, and that they will inspire him or her to explore the world of mathematics further."

Algebraic Geometry

The first part of *Lights in the Attic* is devoted to algebraic geometry. Algebraic geometry is the study of geometric objects that are defined by polynomial equations. Lefschetz was a leading expert in this field, and his essays on algebraic geometry are some of the most important in the book.

In one essay, Lefschetz discusses the concept of a scheme. Schemes are a generalization of the concept of a variety, which is a geometric object that is defined by a polynomial equation. Lefschetz shows how schemes can be used to study a wide range of geometric problems.

In another essay, Lefschetz discusses the concept of a sheaf. Sheaves are a way of studying the local properties of a geometric object. Lefschetz shows how sheaves can be used to study a wide range of topological and geometric problems.

Topology

The second part of *Lights in the Attic* is devoted to topology. Topology is the study of the properties of geometric objects that are invariant under continuous deformations. Lefschetz was a leading expert in this field as

well, and his essays on topology are some of the most important in the book.

In one essay, Lefschetz discusses the concept of a homology group. Homology groups are a way of studying the topological properties of a geometric object. Lefschetz shows how homology groups can be used to study a wide range of topological problems.

In another essay, Lefschetz discusses the concept of a cohomology group. Cohomology groups are a generalization of the concept of a homology group. Lefschetz shows how cohomology groups can be used to study a wide range of topological and geometric problems.

Differential Equations

The third part of *Lights in the Attic* is devoted to differential equations. Differential equations are equations that describe the rate of change of a physical system. Lefschetz was a leading expert in this field as well, and his essays on differential equations are some of the most important in the book.

In one essay, Lefschetz discusses the concept of a differential equation. Differential equations can be used to model a wide range of physical phenomena, from the motion of a planet to the flow of fluid.

In another essay, Lefschetz discusses the concept of a solution to a differential equation. Solutions to differential equations can be used to predict the behavior of a physical system. Lefschetz shows how solutions to differential equations can be found using a variety of mathematical techniques.

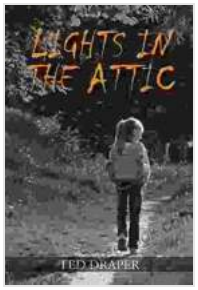
Miscellaneous

The fourth part of *Lights in the Attic* is devoted to a variety of mathematical topics that do not fit into the other categories. These topics include number theory, set theory, and the history of mathematics.

In one essay, Lefschetz discusses the concept of a prime number. Prime numbers are numbers that are divisible only by 1 and themselves. Lefschetz discusses the history of prime number research and some of the open problems in this area.

In another essay, Lefschetz discusses the concept of a set. Sets are collections of objects. Lefschetz discusses the different ways to define sets and some of the paradoxes that can arise from the concept of a set.

Lights in the Attic is a fascinating and stimulating collection of essays by one of the leading mathematicians of the 20th century. The essays cover a wide range of topics in mathematics, and they are written in a clear and engaging style that makes them accessible to both mathematicians and non-mathematicians alike. I highly recommend this book to anyone who is interested in learning more about mathematics.



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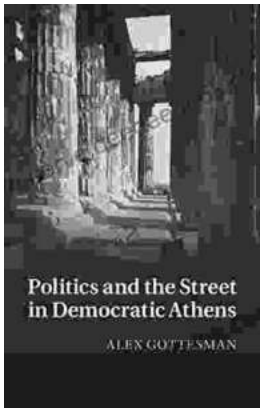

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