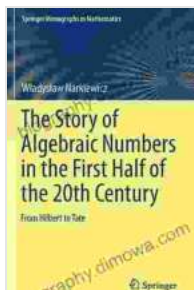# From Hilbert to Tate: A Journey Through the World of Number Theory

In the realm of mathematics, number theory stands as a pillar of knowledge, providing the foundation for countless applications across science and technology. From the development of cryptography to the optimization of computer algorithms, number theory plays a vital role in shaping our modern world.

From Hilbert to Tate: Springer Monographs in Mathematics invites readers to embark on an extraordinary journey through this fascinating field, delving into the groundbreaking contributions of two towering figures in the history of number theory: David Hilbert and John Tate.

The Story of Algebraic Numbers in the First Half of the 20th Century: From Hilbert to Tate (Springer Monographs in Mathematics) by Władysław Narkiewicz

★★★★★ 5 out of 5

Language	: English
File size	: 9386 KB
Screen Reader	: Supported
Print length	: 454 pages
X-Ray for textbooks	: Enabled

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Hilbert's Program and the Birth of Modern Number Theory

David Hilbert, a German mathematician of the late 19th and early 20th centuries, is widely recognized as one of the greatest mathematicians of all

time. His work spanned a vast range of mathematical disciplines, but it was his contributions to number theory that had the most profound impact on the field.

In 1900, Hilbert presented a list of 23 unsolved problems at the International Congress of Mathematicians in Paris. These problems became known as Hilbert's Program and served as a roadmap for mathematical research for decades to come. Many of the problems were related to number theory, and their resolution would lead to major advances in the field.

One of the most significant problems on Hilbert's list was the Riemann Hypothesis, which concerns the distribution of the zeros of the Riemann zeta function. The Riemann Hypothesis is one of the most important unsolved problems in mathematics, and its resolution would have far-reaching implications for number theory and other areas of mathematics.

Tate's Work on Class Field Theory

John Tate, an American mathematician who worked in the mid-20th century, is another towering figure in the history of number theory. Tate's work focused on class field theory, a branch of number theory that studies the relationship between algebraic number fields and their Galois groups.

Tate made several groundbreaking contributions to class field theory, including the development of the Tate-Shafarevich group. The Tate-Shafarevich group is a central object in class field theory, and its study has led to important insights into the structure of algebraic number fields.
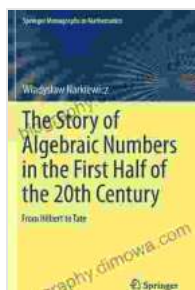
Tate's work on class field theory has had a profound impact on the field, and it continues to be a major area of research today.

From Hilbert to Tate: Springer Monographs in Mathematics provides a comprehensive and accessible overview of the development of number theory in the 20th century. Through the lens of Hilbert and Tate's groundbreaking work, readers will gain a deep understanding of the major concepts and unsolved problems in this fascinating field.

Whether you are a student, a researcher, or simply a curious mind eager to explore the world of numbers, *From Hilbert to Tate: Springer Monographs in Mathematics* is an essential resource that will enrich your understanding of one of the most important and beautiful branches of mathematics.

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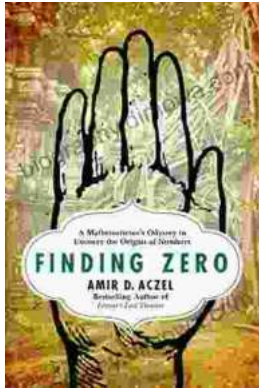|	
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