



# Galois Theory

By David A. Cox



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## Praise for the *First Edition*

"...will certainly fascinate anyone interested in abstract algebra: a remarkable book!"

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Galois theory is one of the most established topics in mathematics, with historical roots that led to the development of many central concepts in modern algebra, including groups and fields. Covering classic applications of the theory, such as solvability by radicals, geometric constructions, and finite fields, *Galois Theory, Second Edition* delves into novel topics like Abel's theory of Abelian equations, casus irreducibili, and the Galois theory of origami.

In addition, this book features detailed treatments of several topics not covered in standard texts on Galois theory, including:

- The contributions of Lagrange, Galois, and Kronecker
- How to compute Galois groups
- Galois's results about irreducible polynomials of prime or prime-squared degree
- Abel's theorem about geometric constructions on the lemniscates
- Galois groups of quartic polynomials in all characteristics

Throughout the book, intriguing *Mathematical Notes* and *Historical Notes* sections clarify the discussed ideas and the historical context; numerous exercises and examples use Maple and Mathematica to showcase the computations related to Galois theory; and extensive references have been added to provide readers with additional resources for further study.

*Galois Theory, Second Edition* is an excellent book for courses on abstract algebra at the upper-undergraduate and graduate levels. The book also serves as an interesting reference for anyone with a general interest in Galois theory and its contributions to the field of mathematics.



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## Galois Theory By David A. Cox Bibliography

- Sales Rank: #1652670 in Books
- Brand: imusti
- Published on: 2012-03-27
- Original language: English
- Number of items: 1
- Dimensions: 9.40" h x 1.50" w x 6.30" l, 2.25 pounds
- Binding: Hardcover
- 602 pages

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### Editorial Review

#### Review

“There is barely a better introduction to the subject, in all its theoretical and practical aspects, than the book under review.” (*Zentralblatt MATH*, 1 December 2012)

"the great merit of this book (one of many expositions of the subject) is that everything is taken at a slow pace, with many examples to illustrate every idea. You get the (probably true) impression that the author loves this material, has taught it to undergraduates at Amherst College many times, has learned by experience the ideas which students find difficult, and has then taken great trouble to dissect these ideas and to pick out exactly the right examples and exercises to make them part of the reader's mental equipment." (The Mathematical Gazette 2016)

From the Back Cover

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#### About the Author

**DAVID A. COX**, PhD, is Professor in the Department of Mathematics at Amherst College. He has published extensively in his areas of research interest, which include algebraic geometry, number theory, and the history of mathematics. Dr. Cox is consulting editor for *Wiley's Pure and Applied Mathematics* book series and the author of *Primes of the Form  $x^2 + ny^2$*  (Wiley).

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