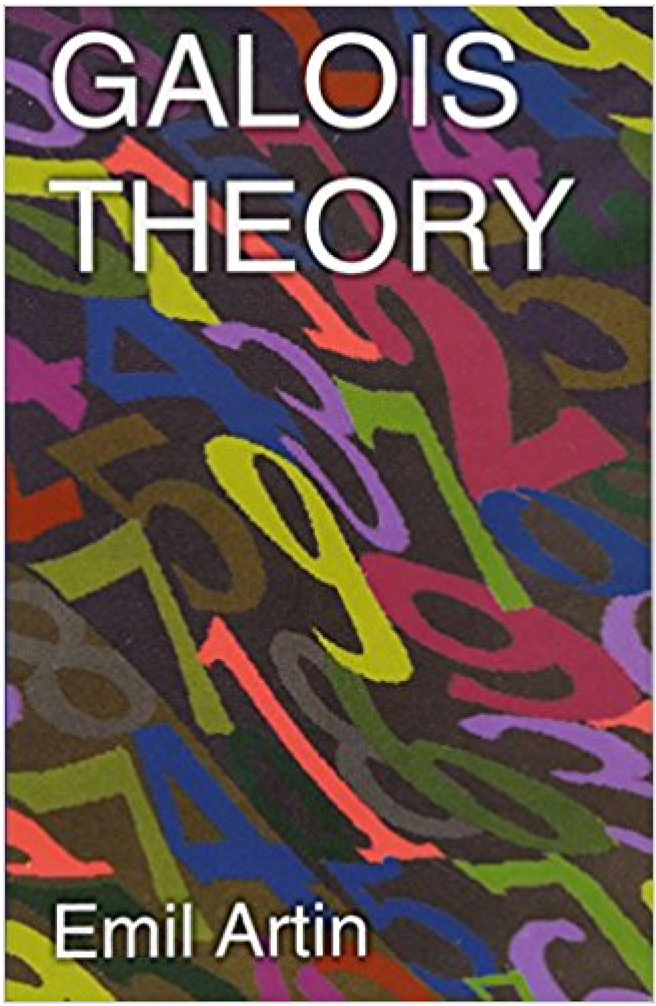
Galois Theory: Lectures Delivered At The University Of Notre Dame By Emil Artin (Notre Dame Mathematical Lectures, Number 2)



Synopsis

In the nineteenth century, French mathematician Evariste Galois developed the Galois theory of groups-one of the most penetrating concepts in modem mathematics. The elements of the theory are clearly presented in this second, revised edition of a volume of lectures delivered by noted mathematician Emil Artin. The book has been edited by Dr. Arthur N. Milgram, who has also supplemented the work with a Section on Applications.The first section deals with linear algebra, including fields, vector spaces, homogeneous linear equations, determinants, and other topics. A second section considers extension fields, polynomials, algebraic elements, splitting fields, group characters, normal extensions, roots of unity, Noether equations, Jummer’s fields, and more.Dr. Milgram’s section on applications discusses solvable groups, permutation groups, solution of equations by radicals, and other concepts.

Book Information

Paperback: 96 pages

Publisher: Dover Publications; 0002-Revised edition (July 10, 1997)

Language: English

ISBN-10: 0486623424

ISBN-13: 978-0486623429

Product Dimensions: 5.5 x 0.2 x 8.5 inches

Shipping Weight: 4.2 ounces (View shipping rates and policies)

Average Customer Review: 3.8 out of 5 stars 18 customer reviews

Best Sellers Rank: #494,658 in Books (See Top 100 in Books) #63 inÃ Â Books > Science & Math > Mathematics > Pure Mathematics > Group Theory #1914 inÃ Â Books > Science & Math > Mathematics > Pure Mathematics > Algebra

Customer Reviews

This is a cute little book that guides the reader into Galois theory starting all the way from the review of linear algebra and polynomial rings over fields and progressing all the way to the Fundamental theorem. There are moreover many nice sections on Finite fields, Noether equations, Kummer extensions and as a final chapter the application to solvability by radicals of a general polynomial and the ruler and compass constructions. So the book is pretty self-contained and contains lots of good stuff. Also, Artin has a knack of giving very down-to-earth proofs that could be characterized as computational (rather than conceptual). It depends on everyone’s preference whether they like this approach but for me it was very refreshing change of pace (compared to abstract and ofter almost magical proofs e.g. from commutative algebra).In any case, patient reader will walk away from this book with a feeling of having built the subject from the ground up.Nevertheless, I can't give it 5 stars because the book is very lacking in exercises. There are some applications scattered here and there (e.g. on symmetric extensions of function fields and on symmetric functions) but this is hopelessly insufficient to solidify the knowledge gained from the theorems. To properly understand Galois theory one needs to get their hands dirty by investigating splitting fields and Galois groups of all kinds of polynomials and paying close attention to the interaction of roots and group actions. In this regard the book leaves the reader completely on their own and so should be complemented by some additional source of exercices.

Any student (graduate or undergraduate) who is learning Galois theory will benefit greatly from reading this book. Artin has a very elegant style of writing and many parts of the book read like a novel. At its current price, there's no reason to not buy this book; you may actually want to buy a few extra copies as they make great gifts and/or stocking stuffers.I would also recommend Artin's Geometric Algebra.

great book but the kindle version is packed full of typos and misprints. get the latest dover edition and you're all set.

Evariste Galois was the Beethoven of mathematics because he was able to "see" mathematical ideas with his entire being. This volume delves deeply into his mathematics but it is presented in a way accessible to anyone willing to put in a little effort. The primary role of Galois theory in the proof of Tanyama-Shimura conjecture and, by implication, the proof of Fermat's Last Theorem speaks volumes about this mathematician's genius. This book is well worth the effort and acts as a springboard to other cutting edge mathematics like Elliptic Curves, Modular Forms, Langlands Program, and eventually Riemann Hypothesis. Galois had a passion for mathematics that reflected the Romanticism of the early nineteenth century. Definitely give this book the old college try.

Galois Theory is in traditional mathematical format. The major elements of the book are definitions, lemmas, theorems, and proofs. The book introduces the major topics of Galois Theory. They are fields, extension fields, splitting fields, unique decomposition of polynomials into irreducible factors, solvable groups, permutation groups, and solution of equations by radical. The last part of the book contains the major results of Galois Theory with proofs using the theorems from the second part of the book. They are theorem 5: The polynomial f(x) is solvable by radicals if and only if its group is solvable; theorem 4: The symmetric group G on n letters is not solvable for n > 4; theorem 6: The group of the general equation of degree n is the symmetric group on n letters. The general equation of degree n is not solvable by radicals if n > 4. This is my second Galois Theory book. What impress me most is the involvement to prove the major results of Galois Theory such as theorem 5 and theorem 6. In order to prove the theorems, mathematicians invent many mathematical objects. They are root, group, symmetric group, solvable group, field, extension field, splitting field, Kummer field/extension, Abelian group, normal subgroup, normal extension, factor/quotient group, homomorph, fixed field, extension by radicals field, and more. Nowadays, we put all these objects under the domain of abstract algebra. The book is certainly not self-contained because one would need an abstract algebra textbook for reference to the mathematical objects.

good

very clear exposition. I am more than happy with my purchase.

I expected that lectures on a theory might start out by giving a definition of that theory, or at least some indication of what the lectures would cover. But this book seems never to get to that point. Instead, (for example) the first section is devoted to linear algebra and the second paragraph tells us ". . . a field is a set of elements which. . .(form) an additive Abelian group . . ." In other words, it starts with the assumption that we are already familiar with group theory (but that we are unfamiliar with fields!). I have read it twice now and I still have no idea what the author's intent was or who was in his target audience.

Galois Theory: Lectures Delivered at the University of Notre Dame by Emil Artin (Notre Dame Mathematical Lectures, Number 2) Introduction to Non-Abelian Class Field Theory, An: Automorphic Forms of Weight 1 and 2-Dimensional Galois Representations (Series on Number Theory and Its Applications) Barrio Boy: 40th Anniversary Edition (University of Notre Dame Press) Barrio Boy (University of Notre Dame Press) 2017 University of Notre Dame 12 Month Desk Blotter The Idea of A University (Notre Dame Series in the Great Books) Bird at the Buzzer: UConn, Notre Dame, and a Women's Basketball Classic Ara's Knights: Ara Parseghian and the Golden Era of Notre Dame Football The Hunchback of Notre Dame (Piano/Vocal/Guitar Artist Songbook) Day by Day: The Notre Dame Prayerbook for Students Notre Dame Fighting Irish 2013 Vintage Football Calendar

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