

<<代数函数与Abelian函数>>

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内容概要

This short book gives an introduction to algebraic and abelian functions, with emphasis on the complex analytic point of view. It could be used for a course or seminar addressed to second year graduate students. The goal is the same as that of the first edition, although I have made a number of additions. I have used the Weil proof of the Riemann-Roch theorem since it is efficient and acquaints the reader with adeles, which are a very useful tool pervading number theory. The proof of the Abel-Jacobi theorem is that given by Artin in a seminar in 1948. As far as I know, the very simple proof for the Jacobi inversion theorem is due to him. The Riemann-Roch theorem and the Abel-Jacobi theorem could form a one semester course. The Riemann relations which come at the end of the treatment of Jacobi's theorem form a bridge with the second part which deals with abelian functions and theta functions. In May 1949, Weil gave a boost to the basic theory of theta functions in a famous Bourbaki seminar talk. I have followed his exposition of a proof of Poincare that to each divisor on a complex torus there corresponds a theta function on the universal covering space. However, the correspondence between divisors and theta functions is not needed for the linear theory of theta functions and the projective embedding of the torus when there exists a positive non-degenerate Riemann form. Therefore I have given the proof of existence of a theta function corresponding to a divisor only in the last chapter, so that it does not interfere, with the self-contained treatment of the linear theory.

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