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1 . Proof of the fundamental theorem2 . Multiple Fourier series; 3 . Order of magnitude of Fourier Coefficients; 4 . Change in length of Basic Interval; 5 . Examples; 6 . The Fourier integral; 1 . The fundamental theorem; 2 . Extension.of the result to several variables; 3 . Reciprocity formulas; 7 . Examples of Fourier integrals; 8 . Legendre polynomials; 1 . Construction of the Legendre polynomials by orthogonalization of the powers 1,x, x2; 2 . The generating function; 3 . Other properties of the Legendre polynomials; (a) Recursion formula; (b) Differential equation
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Sommario/riassunto

Since the first volume of this work came out in Germany in 1924, this book, together with its second volume, has remained standard in the field. Courant and Hilbert's treatment restores the historically deep connections between physical intuition and mathematical development, providing the reader with a unified approach to mathematical physics. The present volume represents Richard Courant's second and final revision of 1953.