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Nota di contenuto	Beginning Partial Differential Equations; Copyright; Contents; Preface; 1 First Ideas; 1.1 Two Partial Differential Equations; 1.1.1 The Heat, or Diffusion, Equation; 1.1.2 The Wave Equation; 1.2 Fourier Series; 1.2.1 The Fourier Series of a Function; 1.2.2 Fourier Sine and Cosine Series; 1.3 Two Eigenvalue Problems; 1.4 A Proof of the Fourier Convergence Theorem; 1.4.1 The Role of Periodicity; 1.4.2 Dirichlet's Formula; 1.4.3 The Riemann-Lebesgue Lemma; 1.4.4 Proof of the Convergence Theorem; 2 Solutions of the Heat Equation; 2.1 Solutions on an Interval $[0, L]$ 2.1.1 Ends Kept at Temperature Zero2.1.2 Insulated Ends; 2.1.3 Ends at Different Temperatures; 2.1.4 A Diffusion Equation with Additional Terms; 2.1.5 One Radiating End; 2.2 A Nonhomogeneous Problem; 2.3 The Heat Equation in Two Space Variables; 2.4 The Weak Maximum Principle; 3 Solutions of the Wave Equation; 3.1 Solutions on Bounded Intervals; 3.1.1 Fixed Ends; 3.1.2 Fixed Ends with a Forcing Term; 3.1.3 Damped Wave Motion; 3.2 The Cauchy Problem; 3.2.1 d'Alembert's Solution; 3.2.1.1 Forward and Backward Waves; 3.2.2 The Cauchy Problem on a Half Line 3.2.3 Characteristic Triangles and Quadrilaterals3.2.4 A Cauchy Problem with a Forcing Term; 3.2.5 String with Moving Ends; 3.3 The Wave Equation in Higher Dimensions; 3.3.1 Vibrations in a Membrane with Fixed Frame; 3.3.2 The Poisson Integral Solution; 3.3.3 Hadamard's Method of Descent; 4 Dirichlet and Neumann Problems; 4.1

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6.2 Bessel Functions

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"Featuring a challenging, yet accessible, introduction to partial differential equations, Beginning Partial Differential Equations provides a solid introduction to partial differential equations, particularly methods of solution based on characteristics, separation of variables, as well as Fourier series, integrals, and transforms. Thoroughly updated with novel applications, such as Poe's pendulum and Kepler's problem in astronomy, this third edition is updated to include the latest version of Maples, which is integrated throughout the text. New topical coverage includes novel applications, such as Poe's pendulum and Kepler's problem in astronomy"--

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