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LESSON 7 - Solving More Complicated Problems by Separation of Variables
Heat-Flow Problem with Derivative BCLESSON 8 - Transforming Hard Equations into Easier Ones; Transforming a Heat-Flow Problem with Lateral Heat Loss into an Insulated Problem; LESSON 9 - Solving Nonhomogeneous PDEs (Eigenfunction Expansions); Solution by the Eigenfunction Expansion Method; Solution of a Problem by the Eigenfunction-Expansion Method; LESSON 10 - Integral Transforms (Sine and Cosine Transforms); The Spectrum of a Function; Solution of an Infinite-Diffusion Problem via the Sine Transform; Interpretation of the Solution; LESSON 11 - The Fourier Series and Transform
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Solution of the Semi-infinite String via the D'Alembert Formula

Sommario/riassunto

Most physical phenomena, whether in the domain of fluid dynamics, electricity, magnetism, mechanics, optics, or heat flow, can be described in general by partial differential equations. Indeed, such equations are crucial to mathematical physics. Although simplifications can be made that reduce these equations to ordinary differential equations, nevertheless the complete description of physical systems resides in the general area of partial differential equations.This highly useful text shows the reader how to formulate a partial differential equation from the physical problem (constructing th