Electromagnetics and Calculation of Fields

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Book Condition: New. Publisher/Verlag: Springer, Berlin | This introduction to electromagnetic fields emphasizes the computation of fields and the development of theoretical relations. It presents the electromagnetic field and Maxwell's equations with a view toward connecting the disparate applications to the underlying relations, along with computational methods of solving the equations. | 'I. The Electromagnetic Field and Maxwell's Equations.- 1. Mathematical Preliminaries.- 1.1. Introduction.- 1.2. The Vector Notation.- 1.3. Vector Derivation.- 1.3.1. The Nabla (?) Operator.- 1.3.2. Definition of the Gradient, Divergence, and Curl.- 1.4. The Gradient.- 1.4.1. Example of Gradient.- 1.5. The Divergence.- 1.5.1. Definition of Flux.- 1.5.2. The Divergence Theorem.- 1.5.3. Conservative Flux.- 1.5.4. Example of Divergence.- 1.6. The Curl.- 1.6.1. Circulation of a Vector.- 1.6.2. Stokes' Theorem.- 1.6.3. Example of Curl.- 1.7. Second Order Operators.- 1.8. Application of Operators to More than One Function.- 1.9. Expressions in Cylindrical and Spherical Coordinates.- 2. The Electromagnetic Field and Maxwell's Equations.- 2.1. Introduction.- 2.2. Maxwell's Equations.- 2.2.1. Fundamental Physical Principles of the Electromagnetic Field.- 2.2.2. Point Form of the Equations.- 2.2.3. The Equations in Vacuum.- 2.2.4. The Equations in Media with ?=?0and ?=?0.- 2.2.5. The Equations in General Media.- 2.2.6. The Integral Form of Maxwell's Equations.- 2.3. Approximations to Maxwell's...

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