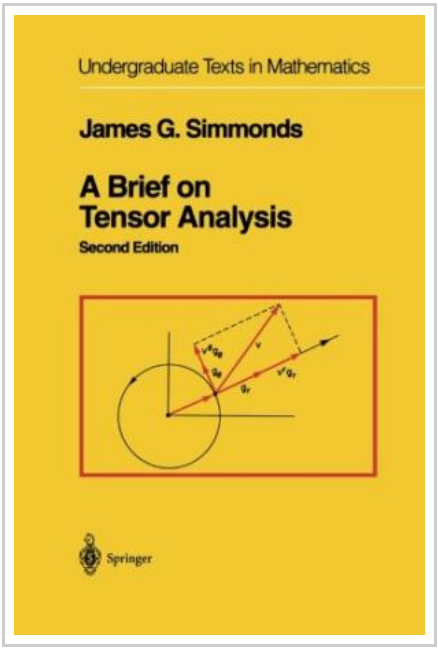

A Brief on Tensor Analysis

By Simmonds, James G.

Book Condition: New. Publisher/Verlag: Springer, Berlin | In this text which gradually develops the tools for formulating and manipulating the field equations of Continuum Mechanics, the mathematics of tensor analysis is introduced in four, well-separated stages, and the physical interpretation and application of vectors and tensors are stressed throughout. This new edition contains more exercises. In addition, the author has appended a section on Differential Geometry. | I Introduction: Vectors and Tensors.- Three-Dimensional Euclidean Space.- Directed Line Segments.- Addition of Two Vectors.- Multiplication of a Vector v by a Scalar ?.- Things That Vectors May Represent.- Cartesian Coordinates.- The Dot Product.- Cartesian Base Vectors.- The Interpretation of Vector Addition.- The Cross Product.- Alternative Interpretation of the Dot and Cross Product. Tensors.- Definitions.- The Cartesian Components of a Second Order Tensor.- The Cartesian Basis for Second Order Tensors.- Exercises.- II General Bases and Tensor Notation.- General Bases.- The Jacobian of a Basis Is Nonzero.- The Summation Convention.- Computing the Dot Product in a General Basis.- Reciprocal Base Vectors.- The Roof (Contravariant) and Cellar (Covariant) Components of a Vector.- Simplification of the Component Form of the Dot Product in a General Basis.- Computing the Cross Product in a General Basis.- A Second...

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