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Nota di contenuto	Preface -- Numbers and mathematical symbols: natural, rational, irrational and complex numbers/complex plane: formula reading, often used symbols in mathematical formulas -- Equations: equalities and inequalities: expansions, series: fractional equations: equation solving techniques: various rules (such as Cramer’s rule) to solve equations: introduction to basic functions (e.g. square, square root) -- Trigonometry: trigonometric ratios, angles: trigonometric functions (sin, cos, tan) and their complex definitions: epicycles: Fourier series and transform -- Vectors: geometric interpretation of vectors: vector addition/subtraction, scalar multiplication: projections: inner product (including related aspects such as correlation, independence and orthogonality) -- Matrices: basic matrix manipulations e.g.

multiplication and inversion with examples such as the Jacobian, affine transformation, and rotation: Principal Component analysis in matrix notation -- Differentiation: limits and infinity: continuity of a function: the differential: basic differentiation rules: partial differential equations: introduction to dynamic systems -- Integration: explanation in terms of antiderivatives and area under the curve: basic integration rules: convolution -- statistics -- differential equations.

Sommario/riassunto

Accessible and comprehensive, this guide is an indispensable tool for anyone in the sciences – new and established researchers, students and scientists – looking either to refresh their math skills or to prepare for the broad range of math, statistical and data-related challenges they are likely to encounter in their work or studies. In addition to helping scientists improve their knowledge of key mathematical concepts, this unique book will help readers: · Read mathematical symbols · Understand formulas, data or statistical information · Determine medication equivalents · Analyze neuroimaging data Mathematical concepts are presented alongside illustrative and useful real-world scien-tific examples and are further clarified through practical pen-and-paper exercises. Whether you are a student encountering high-level mathematics in your research or a seasoned scientist looking to refresh or strengthen your understanding, Math for Scientists: Refreshing the Essentials will be the book you reach for again and again. In this new edition, two new chapters covering statistics and differential equations have been added, which have been workshopped in the 'authors' popular lecture series in order to maximize the benefit for readers.