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Nota di contenuto	1. Introduction -- 2. Vectors and Graphics -- 3. Geometry of Curves -- 4. Kinematics -- 5. Directional Derivatives -- 6. Geometry of Surfaces -- 7. Optimization in Several Variables -- 8. Multiple Integrals -- 9. Multidimensional Calculus -- 10. Physical Applications of Vector Calculus -- 11. MATLAB Tips -- Sample Solutions -- Index.
Sommario/riassunto	This comprehensive treatment of multivariable calculus focuses on the numerous tools that MATLAB® brings to the subject, as it presents introductions to geometry, mathematical physics, and kinematics. Covering simple calculations with MATLAB®, relevant plots, integration, and optimization, the numerous problem sets encourage practice with newly learned skills that cultivate the reader’s understanding of the material. Significant examples illustrate each topic, and fundamental physical applications such as Kepler’s Law, electromagnetism, fluid flow, and energy estimation are brought to prominent position. Perfect for use as a supplement to any standard multivariable calculus text, a “mathematical methods in physics or engineering” class, for independent study, or even as the class text in an “honors” multivariable calculus course, this textbook will appeal to mathematics,

engineering, and physical science students. MATLAB® is tightly integrated into every portion of this book, and its graphical capabilities are used to present vibrant pictures of curves and surfaces. Readers benefit from the deep connections made between mathematics and science while learning more about the intrinsic geometry of curves and surfaces. With serious yet elementary explanation of various numerical algorithms, this textbook enlivens the teaching of multivariable calculus and mathematical methods courses for scientists and engineers.