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Nota di contenuto	1 Introduction to Maple V -- 1.1 Basics -- 1.2 Algebraic Equations -- 1.3 Calculus and Differential Equations -- 1.4 Simplification and Manipulation of Results -- 1.5 Extending the Power of Maple -- 1.6 Graphics -- 1.7 Problems -- 2 Review of Introductory Mechanics -- 2.1 Kinematics in Rectangular Coordinate Systems -- 2.2 Newton's Laws of Motion -- 2.3 Examples of Motion Under Constant Forces -- 2.4 Conservation of Mechanical Energy -- 2.5 Momentum Conservation -- 2.6 Problems -- 3 Newtonian Dynamics of Particles -- 3.1 Kinematics in Other Coordinate Systems -- 3.2 Explicitly Time-Dependent Forces -- 3.3 Position- or Velocity-Dependent Forces -- 3.4 Work and Energy -- 3.5 Power -- 3.6 Angular Momentum and Torque -- 3.7 Central Forces -- 3.8 Problems -- 4 The Harmonic Oscillator -- 4.1 Linear Restoring Force -- 4.2 Simple Harmonic Motion -- 4.3 Damped Harmonic Motion -- 4.4 Sinusoidally-Driven Harmonic Motion -- 4.5 Impulse-Driven Harmonic Oscillator -- 4.6 Approximate Simple Harmonic Motion -- 4.7 Problems -- 5 Systems of Particles -- 5.1 The Two-Body Problem -- 5.2 The N-Body Problem -- 5.3 Simple Rigid Body Motion -- 5.4 Equilibrium of a Rigid Body -- 5.5 Coupled Harmonic Oscillators -- 5.6 Problems -- References.

Sommario/riassunto

Many problems in classical mechanics can now be readily solved using computers. This text integrates Maple, a general-purpose symbolic computation program, into the traditional sophomore- or junior-level mechanics course. Intended primarily as a supplement to a standard text, it discusses all the topics usually covered in the course and shows how to solve problems using Maple and how to display solutions graphically to gain further insight. The text is self-contained and can also be used for self-study or as the primary text in a mechanics course.