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Collana	MATLAB solutions series
Disciplina	004 510
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Nota di contenuto	<p>""2.7 Number Systems""""Chapter 3: Real and Complex Numbers""; ""3.1 Rational Numbers""; ""3.2 Continued Fractions""; ""3.3 Irrational Numbers""; ""3.4 Algebraic Numbers""; ""3.5 Real Numbers""; ""3.6 Common Functions with Real Arguments""; ""3.7 Complex Numbers""; ""3.8 Common Functions with Complex Arguments""; ""3.9 Divisibility in the Complex Field. The Ring of Gaussian Integers""; ""3.10 Approximation and Precision""; ""3.11 Types of Numbers and Expressions""; ""3.12 Random Numbers""; ""Chapter 4: Numerical Variables, Vectors and Matrices""; ""4.1 Variables""</p> <p>""4.2 Variables and Special Constants""""4.3 Symbolic and Numeric Variables""; ""4.4 Vector Variables""; ""4.5 Matrix Variables""; ""4.6 Character Variables""; ""4.7 Operators""; ""4.7.1 Arithmetic Operators""; ""4.7.2 Relational Operators""; ""4.7.3 Logical Operators""; ""4.8 Logic Functions""; ""4.9 Elementary Functions that Support Complex Matrix Arguments""; ""4.10 Elementary Functions that Support Complex Vector Arguments""; ""4.11 Vector Functions of Several Variables""; ""4.12 Functions of One Variable""; ""Chapter 5: Vectors and Matrices""; ""5.1 Vectors and Matrices""</p> <p>""5.2 Operations with Numeric Matrices""""5.3 Eigenvalues and</p>

Eigenvectors""; ""5.4 Matrix Decomposition""; ""5.5 Similar Matrices and Diagonalization""; ""5.6 Sparse Matrices""; ""5.7 Special Matrices""; ""Chapter 6: Functions""; ""6.1 Custom Defined Functions""; ""6.2 Functions and M-files""; ""6.3 Functions and Flow Control. Loops""; ""6.4 The FOR loop""; ""6.5 The WHILE loop""; ""6.6 IF ELSEIF ELSE END LOOP""; ""6.7 Recursive Functions""; ""6.8 Conditional Functions""; ""6.9 Defining Functions Directly. Evaluating Functions""; ""6.10 Functions of One Variable""; ""6.11 Functions of Several Variables""""6.12 Piecewise Functions""; ""6.13 Functional Operations""; ""Chapter 7: Programming and Numerical Analysis""; ""7.1 MATLAB and Programming""; ""7.2 The Text Editor""; ""7.3 Scripts""; ""7.4 Functions and M-files. Eval and feval""; ""7.5 Local and Global Variables""; ""7.6 Data Types""; ""7.7 Flow Control: FOR, WHILE and IF ELSEIF Loops""; ""7.8 FOR Loops""; ""7.9 WHILE Loops""; ""7.10 IF ELSEIF ELSE END Loops""; ""7.11 SWITCH and CASE""; ""7.12 CONTINUE""; ""7.13 BREAK""; ""7.14 TRY ... CATCH""; ""7.15 RETURN""; ""7.16 Subfunctions""; ""7.17 Commands in M-files""

## Sommario/riassunto

MATLAB is a high-level language and environment for numerical computation, visualization, and programming. Using MATLAB, you can analyze data, develop algorithms, and create models and applications. The language, tools, and built-in math functions enable you to explore multiple approaches and reach a solution faster than with spreadsheets or traditional programming languages, such as C/C++ or Java. This book is designed for use as a scientific/business calculator so that you can get numerical solutions to problems involving a wide array of mathematics using MATLAB. Just look up the function you want in the book and you are ready to use it in MATLAB or use the book to learn about the enormous range of options that MATLAB offers. MATLAB Numerical Calculations focuses on MATLAB capabilities to give you numerical solutions to problems you are likely to encounter in your professional or scholastic life. It introduces you to the MATLAB language with practical hands-on instructions and results, allowing you to quickly achieve your goals. Starting with a look at basic MATLAB functionality with integers, rational numbers and real and complex numbers, and MATLAB's relationship with Maple, you will learn how to solve equations in MATLAB, and how to simplify the results. You will see how MATLAB incorporates vector, matrix and character variables, and functions thereof. MATLAB is a powerful tool used to defined, manipulate and simplify complex algebraic expressions. With MATLAB you can also work with ease in matrix algebra, making use of commands which allow you to find eigenvalues, eigenvectors, determinants, norms and various matrix decompositions, among many other features. Lastly, you will see how you can write scripts and use MATLAB to explore numerical analysis, finding approximations of integrals, derivatives and numerical solutions of differential equations.