Maple™ provides a complete environment for rapid technical solution development within any technical organization. From original concept to solutions deployed in the field, Maple is with you every step of the way.

**Advanced Analysis**
- Intuitive problem entry
- Powerful symbolic
- Advanced numerics
- Data import/export and plotting
- Rich environment for technical documentation

**Technical Application Development**
- Powerful, flexible language
- Parallel computation
- Advanced code development tools
- Built-in numeric algorithms (for example, signal processing and optimization)
- Data import/export and plotting
- Connectivity with other tools (for example, CAD)
- Code generation for use in other applications
- User interface development tools

**Design Calculations**
- Multiple deployment options include those that do not require the use of Maple by the end user:
  - The free Maple Player™
  - Online through a MapleNet™ web server
  - Maple
- Intuitive user interface – no knowledge of Maple required
- Easy entry of equations and data
- Meaningful presentation of results
- Illuminating visualizations
- Print-ready documents

With Maple, you get a strong connection between your engineering knowledge and the final applications, so the understanding behind the applications is preserved, the process can be validated, and the code more easily updated.
**Key Features**

**Mathematics**
Maple includes over 5,000 computational functions covering virtually every area of mathematics, including:

- Abstract Algebra
- Algebra
- Algebraic Curves
- Calculus
- Combinatorial Functions
- Combinatorial Structures
- Complex Arithmetic and Functions
- Curve Fitting
- Differential Algebra
- Differential Equations
- Differential Forms
- Differential Geometry
- Discrete and Integral Transforms
- Dynamic Systems
- Euclidean Geometry
- Financial Mathematics
- Gaussian Integers
- Generating Functions
- Graph Theory
- Group Theory
- Lie Symmetries
- Linear Algebra
- Linear Functional Systems of Equations
- Linear Operators
- Linear Programming
- Linear Recurrence Equations
- Logic
- Numerical Approximations
- Number Theory
- Optimization
- Orthogonal Polynomials
- P-adic Numbers
- Physics
- Polynomials
- Polynomial Systems
- Q-Difference Equations
- Rational Normal Forms
- Real Domain Computations
- Series Expansions
- Scientific Constants
- Scientific Error Analysis
- Signal Processing
- Special Functions
- Statistics
- Statistical Process Control
- Symbolic-Numeric Algorithms for Polynomials
- Tensors
- Time Series Analysis
- Tolerances
- Units and Dimensions
- Variational Calculus
- Vector Calculus
- Smart plot view automatically focuses on the region of a 2-D plot that is most meaningful
- Light modeling, legends, axis control, titles, glossiness, griddelines, and transparency
- Display typeset text and mathematical expressions in plot titles, labels, legends, tickmark labels, and axis labels
- International (non-English) characters in titles, legends, and labels
- Plot annotations for 2-D and 3-D plots include arrows, shapes, and drawing tools
- Zoom and pan 2-D and 3-D plots and animations
- Real-time rotation of 3-D plots
- Fly-through animations of 3-D plots using user-defined camera paths
- Interactive control of parameters through sliders
- Live Data Plots for creating and customizing statistical plots such as area charts, histograms, and pie charts
- Standard geometric objects, regular solids, and polyhedra
- Layering of graphics and animations of different types
- Wide variety of coordinate systems

**User Interface**
- Easy problem entry with Clickable Math™ features, including a math equation editor, palettes, Smart Popups, Drag-to-Solve, and self-documenting context menus
- Technical document environment with comprehensive word processing tools, including a spell-checker that understands math terminology
- Hundreds of task templates for fill-in-the-blank problem solving
- Interactive assistants for many tasks, including equation manipulation, analyzing ODEs and ODE systems, creating plots and matrices, converting units, and exploring parameters in expressions
- Command completion and code editor
- Tables, symbolic spreadsheets, code regions, drawing canvas, and interactive components such as buttons, sliders, and dials
- MapleCloud™ for easy exchange of documents and Math Apps with colleagues and students

**Symbolic and Numeric Computations**
- Work with exact quantities such as fractions, radicals, and symbols, eliminating accumulated round-off errors
- Choose from a variety of exact and approximate techniques, as best suits your needs
- Approximations can be computed at any precision that is required, and are not restricted by hardware limitations
- Solvers use a combination of symbolic and numeric techniques, allowing them to solve problems for which either approach alone would be insufficient

**Visualization**
- 2-D and 3-D graphs and animations, created through menus, commands, and interactive assistants
- Over 170 plot types and options, including implicit, contour, complex, polar, vector field, conformal, density, ODE, PDE, engineering, and statistical plots

**Programming**
- Full featured programming language for scripts, programs, and full applications
- Interpreted language supports easy exploration and fast prototyping
- Procedural, functional, and object oriented programming
- Advanced features include operator overloading, assumptions on variables, and exception handling
- Debugging, profiling, security, and library management tools
- Source code of most routines available for viewing

- Create and manipulate many kinds of data structures, including sets, strings, lists, arrays, stacks, queues, records, and modules
- Tools for manipulating mathematical objects, including polynomials, integrals, and sums
- Powerful type system, including ability to extend existing types
- Generate and manipulate Maple worksheets through their XML representation
- User-level routines for multi-threaded and multiprocess programming on multi-core computers
- Compiler package, CUDA™ support, parallel algorithms, and optimization tools promote highly efficient user code for numeric computations
- External function interface for transparent access to dynamic libraries
- Interactive embedded components include buttons, sliders, plots, check boxes, list boxes, toggle buttons, radio button, dials, gauges, data tables, videos, and mathematical expression boxes for entering and displaying 2-D math
- Customizable context-sensitive menus
- Tools for building interactive applications

**Connectivity**
- Code generation for C, C#, Fortran, Java, MATLAB®, Perl, Python®, and Visual Basic
- Internet connectivity
- MATLAB connectivity includes two way integration and code translation
- Mathematica® Notebook conversion and command translation tools
- OpenMaple™ API for C, C#, Java, and Visual Basic programs
- External calling to Java, C, C#, and Fortran
- Connect with Microsoft® Excel®, databases, and CAD systems
- MathML 2.0 presentation and content support
- Import and export of XML documents
- Export documents to HTML, XML, MathML, LaTeX, RTF, PDF, and ePub
- Export plots to BMP, DAE, DXF, EPS, GIF, HPGL, JPEG, PCX, PLY, POY, STL, TÉK, WMF, X3D, and more
- Import, manipulate, and export data from WAV, JPEG, and TIFF files
- Import data from ASCII, CSV, DIF, MATLAB, Matrix Market, Microsoft Excel, ODS, and more
- Share solutions with the Maple Player or over the web with MapleNet and The Möbius Project™

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Maple soft

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