Differential Equations With Maple V Cofp

This book provides a set of ODE/PDE integration routines in the six most widely used computer languages, enabling scientists and engineers to apply ODE/PDE analysis toward solving complex problems. This text concisely reviews integration algorithms, then analyzes the widely used Runge-Kutta method. It first presents a complete code before discussin

Maple is a very powerful computer algebra system

used by students, educators, mathematicians, statisticians, scientists, and engineers for doing numerical and symbolic computations. Greatly expanded and updated from the author's MAPLE V Primer, The MAPLE Book offers extensive coverage of the latest version of this outstanding software package, MAPLE 7.0 The MAPLE Book serves both as an introduction to Maple and as a reference. Organized according to level and subject area of mathematics, it first covers the basics of high school algebra and graphing, continues with calculus and differential equations then moves on to more advanced topics, such as linear algebra, vector

calculus, complex analysis, special functions, group theory, number theory and combinatorics. The MAPLE Book includes a tutorial for learning the Maple programming language. Once readers have learned how to program, they will appreciate the real power of Maple. The convenient format and straightforward style of The MAPLE Book let users proceed at their own pace, practice with the examples, experiment with graphics, and learn new functions as they need them. All of the Maple commands used in the book are available on the Internet, as are links to various other files referred to in the book. Whatever your level of expertise, you'll

want to keep The MAPLE Book next to your computer.

Analiza: Como usar el Maple; Matemáticas con Maple; Gráficos; Evaluación y simplificación; Input y output.

The Maple Summer Workshop and Symposium, MSWS '94, reflects the growing commu nity of Maple users around the world. This volume contains the contributed papers. A careful inspection of author affiliations will reveal that they come from North America, Europe, and Australia. In fact, fifteen come from the United States, two from Canada, one from Australia, and nine come from Europe. Of European

papers, two are from Ger many, two are from the Netherlands, two are from Spain, and one each is from Switzerland, Denmark, and the United Kingdom. More important than the geographical diversity is the intellectual range of the contributions. We begin to see in this collection of works papers in which Maple is used in an increasingly flexible way. For example, there is an application in computer science that uses Maple as a tool to create a new utility. There is an application in abstract algebra where Maple has been used to create new functionalities for computing in a rational function field. There are applications to geometrical optics, digital signal

processing, and experimental design.
Partial Differential Equations and Boundary Value Problems with Maple
Maple V Flight Manual
Ordinary Differential Equations
Differential Equations with Maple V®
Maple
Maple V. 3

Xie presents a systematic introduction to ordinary differential equations for engineering students and practitioners. Mathematical concepts and various techniques are presented in a clear,

logical, and concise manner. Various visual features are used to highlight focus areas. Complete illustrative diagrams are used to facilitate mathematical modeling of application problems. Readers are motivated by a focus on the relevance of differential equations through their applications in various engineering disciplines. Studies of various types of differential equations are determined by engineering applications. Theory and techniques for solving differential equations are then

applied to solve practical engineering problems. A step-by-step analysis is presented to model the engineering problems using differential equations from physical principles and to solve the differential equations using the easiest possible method. This book is suitable for undergraduate students in engineering.

Differential Equations with Maple V®Academic Press

Partial Differential Equations and Boundary Value Problems with Maple, Second Edition, presents all of the material

normally covered in a standard course on partial differential equations, while focusing on the natural union between this material and the powerful computational software, Maple. The Maple commands are so intuitive and easy to learn, students can learn what they need to know about the software in a matter of hours - an investment that provides substantial returns. Maple's animation capabilities allow students and practitioners to see real-time displays of the solutions of partial differential equations. This

updated edition provides a quick overview of the software w/simple commands needed to get started. It includes review material on linear algebra and Ordinary Differential equations, and their contribution in solving partial differential equations. It also incorporates an early introduction to Sturm-Liouville boundary problems and generalized eigenfunction expansions. Numerous example problems and end of each chapter exercises are provided. Provides a quick overview of the software w/simple

commands needed to get started Includes review material on linear algebra and Ordinary Differential equations, and their contribution in solving partial differential equations Incorporates an early introduction to Sturm-Liouville boundary problems and generalized eigenfunction expansions Numerous example problems and end of each chapter exercises This two-volume work focuses on partial differential equations (PDEs) with important applications in mechanical and civil engineering, emphasizing

mathematical correctness, analysis, and verification of solutions. The presentation involves a discussion of relevant PDE applications, its derivation, and the formulation of consistent boundary conditions.

Differential Equations

Differential Equations for Engineers

First Leaves: A Tutorial Introduction to Maple V

Solving Differential Equations with Maple V, Release 4

Learning Guide

The Maple V Primer, Release 4

What's in this book This book contains an accelerated introduction to Maple, a computer alge bra language. It is intended for scientific programmers who have experience with other computer languages such as C, FORTRAN, or Pascal. If you wish a longer and more leisurely introduction to Maple, see (8, 27, 39). This book is also intended as a reference summary for people who use Maple infrequently enough so that they forget key commands. Chapter 4 is a keyword summary. This will be useful if you have forgotten the exact Maple command for what you want. This chapter is best accessed through the table of contents, since it is organized by subject matter. The mathematical

prerequisites are calculus, linear algebra, and some differential equations. A course in numerical analysis will also help. Any extra mathematics needed will be developed in the book. This book was prepared using Maple V Release 3, although most of the examples will work with, at most, only slight modification in Maple V Release 2. This book does not require any particular hardware. The systems I have used in developing the book are machines running IBM DOS and WIN/OS2, Unix machines in an ASCII terminal mode, and x windows systems. There should be no adjustments necessary for readers equipped with Macintoshes or other hardware. Maple is an evolving system. New features will be described in the documentation for updates (?updates

in Maple).

Maple V By Example, Second Edition bridges the gap between the very elementary handbooks addressing Maple V and the reference books written for advanced Maple V users. Whereas the First Edition focuses on Release 2 of Maple V, the vehicle for the Second Edition is Maple V, Version 5. The new edition remains an appropriate reference for all users of Maple V but is of particular value to students, instructors, engineers, business persons, and other professionals first learning to use Maple V.

Designed as a tool to help students solve mathematical problems ranging from algebra to differential equations, this program offers powerful symbolic and numeric

computational capabilities. This is the Macintosh version."

Maple is a comprehensive symbolic mathematics application which is well suited for demonstrating physical science topics and solving associated problems. Because Maple is such a rich application, it has a somewhat steep learning curve. Most existing texts concentrate on mathematics; the Maple help facility is too detailed and lacks physical science examples, many Maple-related websites are out of date giving readers information on older Maple versions. This book records the author's journey of discovery; he was familiar with SMath but not with Maple and set out to learn the more advanced application. It leads readers

through the basic Maple features with physical science worked examples, giving them a firm base on which to build if more complex features interest them.

Scaling of Differential Equations

Partial Differential Equations in Mechanics 1

The Maple Book

Maple V Learning Guide

Partial Differential Equations and Boundary Value Problems with Maple V

Student Solutions Manual, Partial Differential Equations & Boundary Value Problems with Maple

This resource manual/laboratory book shows

students how to use the Maple computer algebra system to solve problems in ordinary differential equations. Projects, exercises, and explanations show readers how to get the most out of the Maple computer algebra

Incorporating an innovative modeling approach, this book for a one-semester differential equations course emphasizes conceptual understanding to help users relate information taught in the classroom to real-world experiences. Certain models reappear throughout the book as running

themes to synthesize different concepts from multiple angles, and a dynamical systems focus emphasizes predicting the long-term behavior of these recurring models. Users will discover how to identify and harness the mathematics they will use in their careers, and apply it effectively outside the classroom.
Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.
Presents information about the study of

calculus and differential equations using Maple V mathematical software. Notes that interactive text, along with labs and projects, is provided by Joe A. Martin, Hok Kim, and Ernest Burniston of the Department of Mathematics at the College of Physical and Mathematical Sciences at North Carolina State University. Explains that the information is accessible in the Adobe Acrobat format.

Student Solutions Manual, Partial Differential Equations & Boundary Value Problems with Maple

A Primer
Essential Maple
Partial Differential Equations in Mechanics 2
An Introduction
Example-driven, Including Maple Code

Learn how to use the modern techniques offered by Maple V, a powerful and popular computer algebra system. The Maple V Primer: Release 4 covers all the basic topics a reader needs to know to use Maple V in its major revision encompassed in Release 4 to do algebra and calculus, solve equations, graph 2- and 3-dimensional plots, perform simple programming tasks, and prepare mathematical

documents. Every common command and function is supported by a specific example, so you won't waste time struggling with the syntax. Graphs, plots, and other Maple output are provided along with the syntax, so the user knows what to expect when she or he uses a particular command. And all the examples come with a short discussion, answering questions you might have about applying the example to your own work. This is a painless - even fun - way to learn how to use Maple V.

The first contemporary textbook on ordinary differential equations (ODEs) to include instructions on MATLAB, Mathematica, and Maple A Course in Ordinary Differential Equations focuses on applications and methods of analytical and numerical solutions, emphasizing

approaches used in the typical engineering, physics, or mathematics student's field o

This introductory text combines models from physics and biology with rigorous reasoning in describing the theory of ordinary differential equations along with applications and computer simulations with Maple. Offering a concise course in the theory of ordinary differential equations, it also enables the reader to enter the field of computer simulations. Thus, it is a valuable read for students in mathematics as well as in physics and engineering. It is also addressed to all those interested in mathematical modeling with ordinary differential equations and systems. Contents Part I: Theory Chapter 1 First-Order Differential Equations Chapter 2 Linear Differential Systems Chapter 3

Second-Order Differential Equations Chapter 4 Nonlinear Differential Equations Chapter 5 Stability of Solutions Chapter 6 Differential Systems with Control Parameters Part II: Exercises Seminar 1 Classes of First-Order Differential Equations Seminar 2 Mathematical Modeling with Differential Equations Seminar 3 Linear Differential Systems Seminar 4 Second-Order Differential Equations Seminar 5 Gronwall's Inequality Seminar 6 Method of Successive Approximations Seminar 7 Stability of Solutions Part III: Maple Code Lab 1 Introduction to Maple Lab 2 Differential Equations with Maple Lab 3 Linear Differential Systems Lab 4 Second-Order Differential Equations Lab 5 Nonlinear Differential Systems Lab 6 Numerical Computation of Solutions Lab 7 Writing Custom Maple

Programs Lab 8 Differential Systems with Control Parameters

Mathematica by Example presents the commands and applications of Mathematica, a system for doing mathematics on a computer. This text serves as a guide to beginning users of Mathematica and users who do not intend to take advantage of the more specialized applications of Mathematica. The book combines symbolic manipulation, numerical mathematics, outstanding graphics, and a sophisticated programming language. It is comprised of 10 chapters. Chapter 1 gives a brief background of the software and how to install it in the computer. Chapter 2 introduces the essential commands of Mathematica. Basic operations on numbers, expressions,

and functions are introduced and discussed. Chapter 3 provides Mathematica's built-in calculus commands. The fourth chapter presents elementary operations on lists and tables. This chapter is a prerequisite for Chapter 5 which discusses nested lists and tables in detail. The purpose of Chapter 6 is to illustrate various computations Mathematica can perform when solving differential equations. Chapters 7, 8, and 9 introduce Mathematica Packages that are not found in most Mathematica reference book. The final chapter covers the Mathematica Help feature. Engineers, computer scientists, physical scientists, mathematicians, business professionals, and students will find the book useful.

Proceedings of the Maple Summer Workshop and

Symposium, Rensselaer Polytechnic Institute, Troy, New York, August 9–13,1994
Maple V by Example
Ordinary and Partial Differential Equation Routines in C, C++, Fortran, Java, Maple, and MATLAB
An Introduction for Scientific Programmers
The Biharmonic Equation, Poisson's Equation
Elementary Differential Equations and Maple Student Version V Release

Integrating Maple V animation software and traditional topics of partial differential equations, this text discusses first and second-order differential equations, Sturm-Liouville eigenvalue problems, generalized Fourier series, the diffusion

or heat equation and the wave equation in one and two spatial dimensions, the Laplace equation in two spatial dimensions, nonhomogenous versions of the diffusion and wave equations, and Laplace transform methods of solution. Annotation copyrighted by Book News, Inc., Portland, OR. This comprehensive book helps students tap into the power of Maple ® , thereby simplifying the computations and graphics that are often required in the practical use of mathematics. Numerous examples and exercises provide a thorough introduction to the basic Maple ® commands that are needed to solve differential equations. Topics include: numerical algorithms, first order linear systems,

homogeneous and nonhomogeneous equations, beats and resonance, Laplace Transforms, qualitative theory, nonlinear systems, and much more.

An exhaustive reference work and a valuable addition to every Maple V owner's library. Each of the more than 2,500 functions in this guide are covered in alphabetical order, with a separate section devoted to graphics-related functions. Every listing includes an explanation of functionality, annotated examples, and numerous cross-references.

This manual provides a bridge between several courses to show that computer algebra is useful across the curriculum.

It also provides documentation for the Student Version of Maple V.

A Course in Ordinary Differential Equations

Release Notes

Maple V

Introduction To Partial Differential Equations (With Maple), An: A Concise Course

Mathematica by Example

Understanding Maple

The book is designed for undergraduate or beginning level graduate students, and students from interdisciplinary areas including engineers, and others who need to use

partial differential equations, Fourier series, Fourier and Laplace transforms. The prerequisite is a basic knowledge of calculus, linear algebra, and ordinary differential equations.The textbook aims to be practical, elementary, and reasonably rigorous; the book is concise in that it describes fundamental solution techniques for first order, second order, linear partial differential equations for general solutions, fundamental solutions, solution to Cauchy (initial value) problems, and boundary value problems for different PDEs in one and two dimensions, and different coordinates systems. Analytic solutions to boundary value problems are based on Sturm-Liouville eigenvalue problems and series solutions.The book is

accompanied with enough well tested Maple files and some Matlab codes that are available online. The use of Maple makes the complicated series solution simple, interactive, and visible. These features distinguish the book from other textbooks available in the related area. The Maple ODE Lab Book is intended to provide a thorough introduc tion to using symbolic computation software to model, solve, explore, and visualize ordinary differential equations. It is best used as a supplement to existing texts (see the bibliography for some of our recommended texts). Maple was chosen as our software package because of its ease-of-use, affordability, and popularity at many universities and colleges around the

world. The version being used is Maple V Release 4. If you have a previous release of Maple, some of the commands shown in this lab book will work differently (or not at all), but the basic groundwork for solving ODEs hasn't changed. Speak to your system administrator about upgrading to Release 4, or contact: Waterloo Maple Inc. 450 Phillip Street Waterloo, Ontario CANADA N2L 5J2 Phone: (519) 747-2373 FAX: (519) 747-5284 E-mail: info@maplesoft.com WWW: http://www.maplesoft.com 1 2 • Chapter 1. Introduction How This Lab Book Is Organized Each subsequent chapter of this lab book contains information and ex amples of how to apply Maple to various elements of ordinary differential equations. It is

suggested that you read the chapters with your computer on and Maple V Release 4 running. You can then execute many of the com mands yourself and experiment by changing various parameters and/or initial conditions, observing the corresponding changes in the results. /homepage/sac/cam/na2000/index.html7-Volume Set now available at special set price ! This volume contains contributions in the area of differential equations and integral equations. Many numerical methods have arisen in response to the need to solve "real-life" problems in applied mathematics, in particular problems that do not have a closed-form solution. Contributions on both initial-value problems and boundary-value problems in ordinary

differential equations appear in this volume. Numerical methods for initial-value problems in ordinary differential equations fall naturally into two classes: those which use one starting value at each step (one-step methods) and those which are based on several values of the solution (multistep methods). John Butcher has supplied an expert's perspective of the development of numerical methods for ordinary differential equations in the 20th century. Rob Corless and Lawrence Shampine talk about established technology, namely software for initial-value problems using Runge-Kutta and Rosenbrock methods, with interpolants to fill in the solution between mesh-points, but the 'slant' is new - based on the question, "How

should such software integrate into the current generation of Problem Solving Environments?" Natalia Borovykh and Marc Spijker study the problem of establishing upper bounds for the norm of the nth power of square matrices. The dynamical system viewpoint has been of great benefit to ODE theory and numerical methods. Related is the study of chaotic behaviour. Willy Govaerts discusses the numerical methods for the computation and continuation of equilibria and bifurcation points of equilibria of dynamical systems. Arieh Iserles and Antonella Zanna survey the construction of Runge-Kutta methods which preserve algebraic invariant functions. Valeria Antohe and Ian Gladwell present numerical experiments on solving a

Hamiltonian system of Hénon and Heiles with a symplectic and a nonsymplectic method with a variety of precisions and initial conditions. Stiff differential equations first became recognized as special during the 1950s. In 1963 two seminal publications laid to the foundations for later development: Dahlquist's paper on A-stable multistep methods and Butcher's first paper on implicit Runge-Kutta methods. Ernst Hairer and Gerhard Wanner deliver a survey which retraces the discovery of the order stars as well as the principal achievements obtained by that theory. Guido Vanden Berghe, Hans De Meyer, Marnix Van Daele and Tanja Van Hecke construct exponentially fitted Runge-Kutta methods with s stages. Differential-algebraic

equations arise in control, in modelling of mechanical systems and in many other fields. Jeff Cash describes a fairly recent class of formulae for the numerical solution of initial-value problems for stiff and differential-algebraic systems. Shengtai Li and Linda Petzold describe methods and software for sensitivity analysis of solutions of DAE initial-value problems. Again in the area of differential-algebraic systems, Neil Biehn, John Betts, Stephen Campbell and William Huffman present current work on mesh adaptation for DAE two-point boundary-value problems. Contrasting approaches to the question of how good an approximation is as a solution of a given equation involve (i) attempting to estimate the actual error (i.e., the

difference between the true and the approximate solutions) and (ii) attempting to estimate the defect - the amount by which the approximation fails to satisfy the given equation and any side-conditions. The paper by Wayne Enright on defect control relates to carefully analyzed techniques that have been proposed both for ordinary differential equations and for delay differential equations in which an attempt is made to control an estimate of the size of the defect. Many phenomena incorporate noise, and the numerical solution of stochastic differential equations has developed as a relatively new item of study in the area. Keven Burrage, Pamela Burrage and Taketomo Mitsui review the way numerical methods

for solving stochastic differential equations (SDE's) are constructed. One of the more recent areas to attract scrutiny has been the area of differential equations with after-effect (retarded, delay, or neutral delay differential equations) and in this volume we include a number of papers on evolutionary problems in this area. The paper of Genna Bocharov and Fathalla Rihan conveys the importance in mathematical biology of models using retarded differential equations. The contribution by Christopher Baker is intended to convey much of the background necessary for the application of numerical methods and includes some original results on stability and on the solution of approximating equations. Alfredo

Bellen, Nicola Guglielmi and Marino Zennaro contribute to the analysis of stability of numerical solutions of nonlinear neutral differential equations. Koen Engelborghs, Tatyana Luzyanina, Dirk Roose, Neville Ford and Volker Wulf consider the numerics of bifurcation in delay differential equations. Evelyn Buckwar contributes a paper indicating the construction and analysis of a numerical strategy for stochastic delay differential equations (SDDEs). This volume contains contributions on both Volterra and Fredholm-type integral equations. Christopher Baker responded to a late challenge to craft a review of the theory of the basic numerics of Volterra integral and integro-differential equations. Simon Shaw and John

Whiteman discuss Galerkin methods for a type of Volterra integral equation that arises in modelling viscoelasticity. A subclass of boundary-value problems for ordinary differential equation comprises eigenvalue problems such as Sturm-Liouville problems (SLP) and Schrödinger equations. Liviu Ixaru describes the advances made over the last three decades in the field of piecewise perturbation methods for the numerical solution of Sturm-Liouville problems in general and systems of Schrödinger equations in particular. Alan Andrew surveys the asymptotic correction method for regular Sturm-Liouville problems. Leon Greenberg and Marco Marletta survey methods for higher-order Sturm-Liouville problems. R.

Moore in the 1960s first showed the feasibility of validated solutions of differential equations, that is, of computing guaranteed enclosures of solutions. Boundary integral equations. Numerical solution of integral equations associated with boundary-value problems has experienced continuing interest. Peter Junghanns and Bernd Silbermann present a selection of modern results concerning the numerical analysis of one-dimensional Cauchy singular integral equations, in particular the stability of operator sequences associated with different projection methods. Johannes Elschner and Ivan Graham summarize the most important results achieved in the last years about the numerical solution of one-dimensional

integral equations of Mellin type of means of projection methods and, in particular, by collocation methods. A survey of results on quadrature methods for solving boundary integral equations is presented by Andreas Rathsfeld. Wolfgang Hackbusch and Boris Khoromski present a novel approach for a very efficient treatment of integral operators. Ernst Stephan examines multilevel methods for the h-, p- and hp- versions of the boundary element method, including pre-conditioning techniques. George Hsiao, Olaf Steinbach and Wolfgang Wendland analyze various boundary element methods employed in local discretization schemes.

The book serves both as a reference for various scaled

models with corresponding dimensionless numbers, and as a resource for learning the art of scaling. A special feature of the book is the emphasis on how to create software for scaled models, based on existing software for unscaled models. Scaling (or non-dimensionalization) is a mathematical technique that greatly simplifies the setting of input parameters in numerical simulations. Moreover, scaling enhances the understanding of how different physical processes interact in a differential equation model. Compared to the existing literature, where the topic of scaling is frequently encountered, but very often in only a brief and shallow setting, the present book gives much more thorough explanations of how to reason about finding

the right scales. This process is highly problem dependent, and therefore the book features a lot of worked examples, from very simple ODEs to systems of PDEs, especially from fluid mechanics. The text is easily accessible and example-driven. The first part on ODEs fits even a lower undergraduate level, while the most advanced multiphysics fluid mechanics examples target the graduate level. The scientific literature is full of scaled models, but in most of the cases, the scales are just stated without thorough mathematical reasoning. This book explains how the scales are found mathematically. This book will be a valuable read for anyone doing numerical simulations based on ordinary or partial differential

equations.

Maple V Flight Manual Release 4

Ordinary Differential Equations and Integral Equations

Partial Differential Equations & Boundary Value Problems with Maple V

Solving ODEs with Maple V

Student Version : Release 4: Macintosh Version

Maple V: Mathematics and its Applications

Although the Partial Differential Equations (PDE) models that are now studied are usually beyond traditional mathematical analysis, the numerical methods that are being developed and used require testing and validation. This

is often done with PDEs that have known, exact, analytical solutions. The development of analytical solutions is also an active area of research, with many advances being reported recently, particularly traveling wave solutions for nonlinear evolutionary PDEs. Thus, the current development of analytical solutions directly supports the development of numerical methods by providing a spectrum of test problems that can be used to evaluate numerical methods. This book surveys some of these new developments in analytical and numerical methods, and relates the two through a series of PDE examples. The

PDEs that have been selected are largely "named" since they carry the names of their original contributors. These names usually signify that the PDEs are widely recognized and used in many application areas. The authors' intention is to provide a set of numerical and analytical methods based on the concept of a traveling wave, with a central feature of conversion of the PDEs to ODEs. The Matlab and Maple software will be available for download from this website shortly. www.pdecomp.net Includes a spectrum of applications in science, engineering, applied mathematics Presents a combination of

numerical and analytical methods Provides transportable computer codes in Matlab and Maple

Partial Differential Equations presents a balanced and comprehensive introduction to the concepts and techniques required to solve problems containing unknown functions of multiple variables. While focusing on the three most classical partial differential equations (PDEs)—the wave, heat, and Laplace equations—this detailed text also presents a broad practical perspective that merges mathematical concepts with real-world application in diverse areas including

molecular structure, photon and electron interactions, radiation of electromagnetic waves, vibrations of a solid, and many more. Rigorous pedagogical tools aid in student comprehension; advanced topics are introduced frequently, with minimal technical jargon, and a wealth of exercises reinforce vital skills and invite additional self-study. Topics are presented in a logical progression, with major concepts such as wave propagation, heat and diffusion, electrostatics, and quantum mechanics placed in contexts familiar to students of various fields in science and engineering. By

understanding the properties and applications of PDEs, students will be equipped to better analyze and interpret central processes of the natural world.

Designed as a tool to help students solve mathematical problems ranging from algebra to differential equations, this program offers powerful symbolic and numeric computational capabilities. This version is for Windows. System requirements for this version are an IBM PC or compatible, Intel 80386 or compatible, 18-30 MB free disk space, 8MB RAM, Windows 95, Windows NT or Windows 3.1."

Maple V Mathematics Learning Guide is the

fully revised introductory documentation for Maple V Release 5. It shows how to use Maple V as a calculator with instant access to hundreds of high-level math routines and as a programming language for more demanding or specialized tasks. Topics include the basic data types and statements in the Maple V language. The book serves as a tutorial introduction and explains the difference between numeric computation and symbolic computation, illustrating how both are used in Maple V Release 5. Extensive "how-to" examples are presented throughout the text to show how common types of calculations can be

easily expressed in Maple. Graphics examples are used to illustrate the way in which 2D and 3D graphics can aid in understanding the behaviour of problems.

Tutorials for Calculus, Linear Algebra, and Differential Equations

Calculus and Differential Equations With Maple V.

The Maple V Handbook

Student Version

The Maple® O.D.E. Lab Book

Traveling Wave Analysis of Partial Differential Equations

Offering numeric computation, symbolic computation,

graphics, and programming, Maple V Release 3 Student Edition gives students the power to explore and solve a tremendous range of problems with unsurpassed speed and accuracy. Featuring both 3-D and 2-D graphics and more than 2,500 built-in functions. Maple V Release 3,Student Edition offers students all the power and capability they need for the entire array of undergraduate courses in mathematics, science, and engineering.Maple V's vast library of functions also provides sophisticated scientific visualization, programming, and document preparation capabilities, including the ability to output standard mathematical notation.

Differential Equations with Maple V provides an introduction and discussion of topics typically covered in an undergraduate course in ordinary differential equations as well as some supplementary topics such as Laplace transforms, Fourier series, and partial differential equations. It also illustrates how Maple V is used to enhance the study of differential equations not only by eliminating the computational difficulties, but also by overcoming the visual limitations associated with the solutions of differential equations. The book contains chapters that present differential equations and illustrate how Maple V can be used to solve some typical problems. The text covers topics on differential

equations such as first-order ordinary differential equations, higher order differential equations, power series solutions of ordinary differential equations, the Laplace Transform, systems of ordinary differential equations, and Fourier Series and applications to partial differential equations. Applications of these topics are also provided. Engineers, computer scientists, physical scientists, mathematicians, business professionals, and students will find the book useful.

This tutorial shows how to use Maple both as a calculator with instant access to hundreds of high-level math routines and as a programming language for more demanding tasks. It covers topics such as the basic data

types and statements in the Maple language. It explains the differences between numeric computation and symbolic computation and illustrates how both are used in Maple. Extensive "how-to" examples are used throughout the tutorial to show how common types of calculations can be expressed easily in Maple. The manual also uses many graphics examples to illustrate the way in which 2D and 3D graphics can aid in understanding the behavior of functions.

Partial Differential Equations

Numerical and Analytical Methods with Matlab and Maple

Fundamentals, Laplace's Equation, Diffusion Equation,

Wave Equation