

## Matlab Exam Questions And Solutions

This textbook provides the knowledge and skills needed for thorough understanding of the most important methods and ways of thinking in experimental physics. The reader learns to design, assemble, and debug apparatus, to use it to take meaningful data, and to think carefully about the story told by the data. Key Features: Efficiently helps students grow into independent experimentalists through a combination of structured yet thought-provoking and challenging exercises, student-designed experiments, and guided but open-ended exploration. Provides solid coverage of fundamental background information, explained clearly for undergraduates, such as ground loops, optical alignment techniques, scientific communication, and data acquisition using LabVIEW, Python, or Arduino. Features carefully designed lab experiences to teach fundamentals, including analog electronics and low noise measurements, digital electronics, microcontrollers, FPGAs, computer interfacing, optics, vacuum techniques, and particle detection methods. Offers a broad range of advanced experiments for each major area of physics, from condensed matter to particle physics. Also provides clear guidance for student development of projects not included here. Provides a detailed Instructor's Manual for every lab, so that the instructor can confidently teach labs outside their own research area.

Basic Engineering Circuit Analysis has long been regarded as the most dependable textbook for computer and electrical engineering majors. In this new edition, Irwin and Nelms continue to develop the most complete set of pedagogical tools available and provide the highest level of support for students entering into this complex subject. Irwin and Nelms trademark student-centered learning design focuses on helping students complete the connection between theory and practice. Key concepts are explained clearly and illustrated by detailed, worked examples. These are then followed by Learning Assessments, which allow students to work similar problems and check their results against the answers provided.

This textbook, now in its second edition, provides a broad introduction to both continuous and discrete dynamical systems, the theory of which is motivated by examples from a wide range of disciplines. It emphasizes applications and simulation utilizing MATLAB®, Simulink®, the Image Processing Toolbox® and the Symbolic Math toolbox®, including MuPAD. Features new to the second edition include

- sections on series solutions of ordinary differential equations, perturbation methods, normal forms, Gröbner bases, and chaos synchronization;
- chapters on image processing and binary oscillator computing;
- hundreds of new illustrations, examples, and exercises with solutions; and
- over eighty up-to-date MATLAB program files and Simulink model files available online. These files were voted MATLAB Central Pick of the Week in July 2013. The hands-on approach of Dynamical Systems with Applications using MATLAB, Second Edition, has minimal prerequisites, only requiring familiarity with ordinary

differential equations. It will appeal to advanced undergraduate and graduate students, applied mathematicians, engineers, and researchers in a broad range of disciplines such as population dynamics, biology, chemistry, computing, economics, nonlinear optics, neural networks, and physics. Praise for the first edition Summing up, it can be said that this text allows the reader to have an easy and quick start to the huge field of dynamical systems theory.

MATLAB/SIMULINK facilitate this approach under the aspect of learning by doing. –OR News/Operations Research Spectrum The MATLAB programs are kept as simple as possible and the author's experience has shown that this method of teaching using MATLAB works well with computer laboratory classes of small sizes.... I recommend 'Dynamical Systems with Applications using MATLAB' as a good handbook for a diverse readership: graduates and professionals in mathematics, physics, science and engineering. –Mathematica Now readers can master the MATLAB language as they learn how to effectively solve typical problems with the concise, successful ESSENTIALS OF MATLAB PROGRAMMING, 3E. Author Stephen Chapman emphasizes problem-solving skills throughout the book as he teaches MATLAB as a technical programming language. Readers learn how to write clean, efficient, and well-documented programs, while the book simultaneously presents the many practical functions of MATLAB. The first seven chapters introduce programming and problem solving. The last two chapters address more advanced topics of additional data types and plot types, cell arrays, structures, and new MATLAB handle graphics to ensure readers have the skills they need. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

MATLAB For Dummies

MATLAB Programming for Engineers

Thermodynamics

An Introduction to Scientific Computing in MATLAB

A Companion to Fundamentals of Electric Circuits

A Practical Introduction to Programming and Problem Solving

***MATLAB for Neuroscientists serves as the only complete study manual and teaching resource for MATLAB, the globally accepted standard for scientific computing, in the neurosciences and psychology. This unique introduction can be used to learn the entire empirical and experimental process (including stimulus generation, experimental control, data collection, data analysis, modeling, and more), and the 2nd Edition continues to ensure that a wide variety of computational problems can be addressed in a single programming environment. This updated edition features additional material on the creation of visual stimuli, advanced psychophysics, analysis of LFP data, choice probabilities, synchrony, and advanced spectral analysis. Users at a variety of levels—advanced undergraduates, beginning graduate students, and researchers looking to modernize their skills—will learn to design and implement their own analytical tools, and gain the fluency required to meet the computational needs of neuroscience practitioners. The first complete volume on MATLAB focusing on neuroscience and psychology applications Problem-based approach with many examples from neuroscience***

*and cognitive psychology using real data Illustrated in full color throughout Careful tutorial approach, by authors who are award-winning educators with strong teaching experience This book, first published in 2003, provides a concise but sound treatment of ODEs, including IVPs, BVPs, and DDEs.*

*Maintaining its accessible approach to circuit analysis, the tenth edition includes even more features to engage and motivate engineers. Exciting chapter openers and accompanying photos are included to enhance visual learning. The book introduces figures with color-coding to significantly improve comprehension. New problems and expanded application examples in PSPICE, MATLAB, and LabView are included. New quizzes are also added to help engineers reinforce the key concepts.*

*The First International Symposium on the Education in Mechanism and Machine Science (ISEMMS 2013) aimed to create a stable platform for the interchange of experience among researches of mechanism and machine science. Topics treated include contributions on subjects such as new trends and experiences in mechanical engineering education; mechanism and machine science in mechanical engineering curricula; MMS in engineering programs, such as, for example, methodology, virtual labs and new laws. All papers have been rigorously reviewed and represent the state of the art in their field.*

*New Trends in Educational Activity in the Field of Mechanism and Machine Theory  
A Problem Solving Approach*

*Machine Analysis with Computer Applications for Mechanical Engineers*

*MATLAB Demystified*

*Computer Programming with MATLAB*

*MATLAB for Mechanical Engineers*

*Need to Learn MATLAB? Problem SOLVED! Get started using MATLAB right away with help from this hands-on guide. MATLAB Demystified offers an effective and enlightening method for learning how to get the most out this powerful computational mathematics tool. Using an easy-to-follow format, this book explains the basics of MATLAB up front. You'll find out how to plot functions, solve algebraic equations, and compute integrals. You'll also learn how to solve differential equations, generate numerical solutions of ODEs, and work with special functions. Packed with hundreds of sample equations and explained solutions, and featuring end-of-chapter quizzes and a final exam, this book will teach you MATLAB essentials in no time at all. This self-teaching guide offers: The quickest way to get up and running on MATLAB Hundreds of worked examples with solutions Coverage of MATLAB 7 A quiz at the end of each chapter to reinforce learning and pinpoint weaknesses A final exam at the end of the book A time-saving approach to performing better on homework or on the job Simple enough for a beginner, but challenging enough for an advanced user, MATLAB Demystified is your shortcut to computational precision.*

*This textbook presents a variety of applied mathematics topics in science and engineering with an emphasis on problem solving techniques using MATLAB®. The authors provide a general overview*

of the MATLAB language and its graphics abilities before delving into problem solving, making the book useful for readers without prior MATLAB experience. They explain how to generate code suitable for various applications so that readers can apply the techniques to problems not covered in the book. Examples, figures, and MATLAB scripts enable readers with basic mathematics knowledge to solve various applied math problems in their fields while avoiding unnecessary technical details. This book is for students following an introductory course in numerical methods, numerical techniques or numerical analysis. It introduces MATLAB as a computing environment for experimenting with numerical methods. It approaches the subject from a pragmatic viewpoint; theory is kept at a minimum commensurate with comprehensive coverage of the subject and it contains abundant worked examples which provide easy understanding through a clear and concise theoretical treatment. This edition places even greater emphasis on 'learning by doing' than the previous edition. Fully documented MATLAB code for the numerical methods described in the book will be available as supplementary material to the book on <http://extras.springer.com> A Guide to MATLAB Object-Oriented Programming is the first book to deliver broad coverage of the documented and undocumented object-oriented features of MATLAB. Unlike the typical approach of other resources, this guide explains why each feature is important, demonstrates how each feature is used, and promotes an understanding of

Problem Solving Made Almost Easy

Programming for Computations - MATLAB/Octave

Principles and Practice for the Laboratory

Essentials of MATLAB Programming

Getting Started with MATLAB 5

Solving Applied Mathematical Problems with MATLAB

A MATLAB Exercise Book [Lulu.com](http://Lulu.com)

This workbook is for sale to students who wish to practice their problem solving techniques. The workbook contains a discussion of problem solving strategies and 150 additional problems with complete solutions provided.

A complete reference to all MATLAB functions and graphics, covering all features of Version 5. Over 100 MATLAB M-files demonstrate the use of MATLAB in performing real-world tasks. While teaching the Numerical Methods for Engineers course over the last 15 years, the author found a need for a new textbook, one that was less elementary, provided applications and problems better suited for chemical engineers, and contained instruction in Visual Basic for Applications (VBA). This led to six years of developing teaching notes that

*Electronics and Circuit Analysis Using MATLAB*

*Essential MATLAB for Scientists and Engineers*

*A MATLAB Exercise Book*

*Matlab for Engineers*

*Teaching and Learning Mathematics Online*

*Dynamical Systems with Applications using MATLAB®*

Steven Chapra's second edition, *Applied Numerical Methods with MATLAB for Engineers and Scientists*, is written for engineers and scientists who want to learn numerical problem solving. This text focuses on problem-solving (applications) rather than theory, using MATLAB, and is intended for Numerical Methods users; hence theory is included only to inform key concepts. The second edition feature new material such as Numerical Differentiation and ODE's: Boundary-Value Problems. For those who require a more theoretical approach, see Chapra's best-selling *Numerical Methods for Engineers*, 5/e (2006), also by McGraw-Hill.

An elementary first course for students in mathematics and engineering Practical in approach: examples of code are provided for students to debug, and tasks – with full solutions – are provided at the end of each chapter Includes a glossary of useful terms, with each term supported by an example of the syntaxes commonly encountered This is a short, focused introduction to MATLAB, a comprehensive software system for mathematical and technical computing. It contains concise explanations of essential MATLAB commands, as well as easily understood instructions for using MATLAB's programming features, graphical capabilities, simulation models, and rich desktop interface. Written for MATLAB 7, it can also be used with earlier (and later) versions of MATLAB. This book teaches how to graph functions, solve equations, manipulate images, and much more. It contains explicit instructions for using MATLAB's companion software, Simulink, which allows graphical models to be built for dynamical systems. MATLAB's new "publish" feature is discussed, which allows mathematical computations to be combined with text and graphics, to produce polished, integrated, interactive documents. For the beginner it explains everything needed to start using MATLAB, while experienced users making the switch to MATLAB 7 from an earlier version will also find much useful information here.

The use of MATLAB is ubiquitous in the scientific and engineering communities today, and justifiably so. Simple programming, rich graphic facilities, built-in functions, and extensive toolboxes offer users the power and flexibility they need to solve the complex analytical problems inherent in modern technologies. The ability to use MATLAB effectively has become practically a prerequisite to success for engineering professionals. Like its best-selling predecessor, *Electronics and Circuit Analysis Using MATLAB*, Second Edition helps build that proficiency. It provides an easy, practical introduction to MATLAB and clearly demonstrates its use in solving a wide range of electronics and circuit analysis problems. This edition reflects recent MATLAB enhancements, includes new material, and provides even more examples and exercises. New in the Second Edition: Thorough revisions to the first three chapters that incorporate additional MATLAB functions and bring the material up to date with recent changes to MATLAB

A new chapter on electronic data analysis Many more exercises and solved examples  
New sections added to the chapters on two-port networks, Fourier analysis, and  
semiconductor physics MATLAB m-files available for download Whether you are a  
student or professional engineer or technician, Electronics and Circuit Analysis Using  
MATLAB, Second Edition will serve you well. It offers not only an outstanding  
introduction to MATLAB, but also forms a guide to using MATLAB for your specific  
purposes: to explore the characteristics of semiconductor devices and to design and  
analyze electrical and electronic circuits and systems.

Biometric Authentication in Online Learning Environments

From Basics to Real-World Applications for Materials Scientists, Applied Physicists, and  
Devices Engineers

A Gentle Introduction to Numerical Simulations with MATLAB/Octave  
Concepts and Applications

The MATLAB Project Book for Linear Algebra

Introduction to MATLAB for Engineers

**A practical guide to problem solving using MATLAB. Designed to complement a taught course introducing MATLAB but ideally suited for any beginner. This book provides a brief tour of some of the tasks that MATLAB is perfectly suited to instead of focusing on any particular topic. Providing instruction, guidance and a large supply of exercises, this book is meant to stimulate problem-solving skills rather than provide an in-depth knowledge of the MATLAB language.**

**Based on a teach-yourself approach, the fundamentals of MATLAB are illustrated throughout with many examples from a number of different scientific and engineering areas, such as simulation, population modelling, and numerical methods, as well as from business and everyday life. Some of the examples draw on first-year university level maths, but these are self-contained so that their omission will not detract from learning the principles of using MATLAB. This completely revised new edition is based on the latest version of MATLAB. New chapters cover handle graphics, graphical user interfaces (GUIs), structures and cell arrays, and importing/exporting data. The chapter on numerical methods now includes a general GUI-driver ODE solver. \* Maintains the easy informal style of the first edition \* Teaches the basic principles of scientific programming with MATLAB as the vehicle \* Covers the latest version of MATLAB**

**This book presents computer programming as a key method for solving mathematical problems. There are two versions of the book, one for MATLAB and one for Python. The book was inspired by the Springer book TCSE 6: A Primer on Scientific**

**Programming with Python (by Langtangen), but the style is more accessible and concise, in keeping with the needs of engineering students. The book outlines the shortest possible path from no previous experience with programming to a set of skills that allows the students to write simple programs for solving common mathematical problems with numerical methods in engineering and science courses. The emphasis is on generic algorithms, clean design of programs, use of functions, and automatic tests for verification.**

**This is a value pack of MATLAB for Engineers: International Version and MATLAB & Simulink Student Version 2011a**

**Numerical Methods with Worked Examples: Matlab Edition  
Solving ODEs with MATLAB**

**Numerical Methods for Chemical Engineers Using Excel, VBA, and MATLAB**

**A Guide to MATLAB**

**Problem Solving in Quantum Mechanics**

**A Guide to MATLAB Object-Oriented Programming**

*This book provides students with the opportunity to improve their programming skills using the MATLAB environment to implement algorithms and the use of MATLAB as a tool in solving problems in engineering. An introduction to MATLAB basics is presented along with MATLAB commands. MATLAB is considered as the software of choice. MATLAB can be used interactively and has an inventory of routines, called as functions, which minimize the task of programming even more. In the computational aspects, MATLAB has emerged as a very powerful tool for numerical computations involved in engineering topics. The idea of computer-aided design and analysis using MATLAB with the Symbolic Math Tool box and the control systems tool box has been incorporated. Many solved problems are presented that demonstrate the application of MATLAB to the analysis of problems in control systems, basic engineering mechanics: statics and dynamics, mechanical vibrations, electrical circuits, and numerical methods. Presentations are limited to very basic topics to serve as an introduction to advanced topics in those areas of discipline. The numerous worked examples and unsolved exercise problems are intended to provide the reader with an awareness of the general applicability of MATLAB. An extensive bibliography to guide the student to further sources of information on engineering topics covered in this book using MATLAB is provided at the end of the book. All end-of chapter*

**problems are fully solved in the Solution Manual available only to Instructors. Contents: 1. INTRODUCTION 2. MATLAB BASICS 3. MATLAB TUTORIAL 4. DIRECT NUMERICAL INTEGRATION METHODS.**

**Emphasizing problem-solving skills throughout, this fifth edition of Chapman's highly successful book teaches MATLAB as a technical programming language, showing students how to write clean, efficient, and well-documented programs, while introducing them to many of the practical functions of MATLAB. The first eight chapters are designed to serve as the text for an Introduction to Programming / Problem Solving course for first-year engineering students. The remaining chapters, which cover advanced topics such as I/O, object-oriented programming, and Graphical User Interfaces, may be covered in a longer course or used as a reference by engineering students or practicing engineers who use MATLAB. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.**

**Scientific Computing with MATLAB®, Second Edition improves students' ability to tackle mathematical problems. It helps students understand the mathematical background and find reliable and accurate solutions to mathematical problems with the use of MATLAB, avoiding the tedious and complex technical details of mathematics. This edition retains the structure of its predecessor while expanding and updating the content of each chapter. The book bridges the gap between problems and solutions through well-grouped topics and clear MATLAB example scripts and reproducible MATLAB-generated plots. Students can effortlessly experiment with the scripts for a deep, hands-on exploration. Each chapter also includes a set of problems to strengthen understanding of the material. Online education has become a major component of higher education worldwide. In mathematics and statistics courses, there exists a number of challenges that are unique to the teaching and learning of mathematics and statistics in an online environment. These challenges are deeply connected to already existing difficulties related to math anxiety, conceptual understanding of mathematical ideas, communicating mathematically, and the appropriate use of technology. Teaching and Learning Mathematics Online bridges these issues by presenting meaningful and practical solutions for teaching mathematics and statistics online. It focuses on the**

**problems observed by mathematics instructors currently working in the field who strive to hone their craft and share best practices with our professional community. The book provides a set of standard practices, improving the quality of online teaching and the learning of mathematics. Instructors will benefit from learning new techniques and approaches to delivering content. Features Based on the experiences of working educators in the field Assimilates the latest technology developments for interactive distance education Focuses on mathematical education for developing early mathematics courses**

### **Matlab**

**A Comprehensive Tutorial and Reference**

**Scientific Computing with MATLAB**

**An Introduction to Programming and Numerical Methods in MATLAB**

### **Experimental Physics**

Fully revised to match the more traditional sequence of course materials, this full-color second edition presents the basic principles and methods of thermodynamics using a clear and engaging style and a wealth of end-of-chapter problems. It includes five new chapters on topics such as mixtures, psychrometry, chemical equilibrium, and combustion, and discussion of the Second Law of Thermodynamics has been expanded and divided into two chapters, allowing instructors to introduce the topic using either the cycle analysis in Chapter 6 or the definition of entropy in Chapter 7. Ancillaries including a password-protected solutions manual, figures in electronic format, prepared PowerPoint lecture slides, and instructional videos are available.

"A topical and timely useful textbook dealing with the practical aspects of quantum mechanics including discussions on a broad range of topics including recent technological developments such as superconducting Josephson junctions, atomic cavities, lasers, gated quantum dots, optical measurements, non-linear optics, spintronic devices, etc."--

Not only do modeling and simulation help provide a better understanding of how real-world systems function, they also enable us to predict system behavior before a system is actually built and to test systems accurately under varying operating conditions. Modeling and Simulation of Systems Using MATLAB® and Simulink® provides comprehensive, state-of-the-art coverage of all the important aspects of modeling and simulating both physical and conceptual systems. Various real-life examples show how simulation plays a key role in understanding real-world systems. The author also explains how to effectively use MATLAB and Simulink software to successfully apply the modeling and simulation techniques presented. After introducing the underlying philosophy of systems, the book offers step-by-step procedures for modeling different types of systems using modeling techniques, such as the theoretic approach, interpretive structural modeling, and system dynamics modeling. It then explains how simulation evolved from pre-computer days into the current science of today. The text also covers modern soft computing techniques, including artificial neural networks, fuzzy systems, and genetic algorithms, for modeling and simulating complex and nonlinear systems. The final chapter addresses discrete systems modeling. Preparing both undergraduate and graduate students for advanced modeling and simulation courses, this text helps them carry out effective simulation studies. In addition, students should be able to comprehend and conduct simulation research after completing this text. This comprehensive and stimulating introduction to Matlab, a computer language now widely

technical computing, is based on an introductory course held at Qian Weichang College, Shanghai University, in the fall of 2014. Teaching and learning a substantial programming language aren't always straightforward tasks. Accordingly, this textbook is not meant to cover the whole range of high-performance technical programming environment, but to motivate first- and second-year undergraduate students in mathematics and computer science to learn Matlab by studying representative problems, developing algorithms and programming them in Matlab. While several examples are taken from the field of scientific computing, the main emphasis is on programming. A few examples are completely discussed and solved, allowing students to learn Matlab by doing: by solving problems, comparing approaches and assessing the proposed solutions.

Mastering MATLAB 5

Basic Engineering Circuit Analysis

A Quick Introduction for Scientists and Engineers

Applied Numerical Methods with MATLAB for Engineers and Scientists

Learning MATLAB

MATLAB for Neuroscientists

MATLAB is one of the most widely used tools in the field of engineering today. Its broad appeal lies in its interactive environment with hundreds of built-in functions. This book is designed to get you up and running in just a few hours.

Student assessment in online learning is submitted remotely without any face-to-face interaction, and therefore, student authentication is widely seen as one of the major challenges in online examination. Authentication is the process of determining whether someone or something is, in fact, who or what it is declared to be. As the dependence upon computers and computer networks grows, especially within education, the need for authentication has increased. Biometric Authentication in Online Learning Environments provides innovative insights into biometrics as a strategy to mitigate risk and provide authentication, while introducing a framework that provides security to improve e-learning and on-line examination by utilizing biometric-based authentication techniques. This book examines e-learning, security, threats in online exams, security considerations, and biometric technologies, and is designed for IT professionals, higher education administrators, professors, researchers, business professionals, academicians, and libraries seeking topics centered on biometrics as an authentication strategy within educational environments.

MatLab, Third Edition is the only book that gives a full introduction to programming in MATLAB combined with an explanation of the software's powerful functions, enabling engineers to fully exploit its extensive capabilities in solving engineering problems. The book provides a systematic, step-by-step approach, building on concepts throughout the text, facilitating easier learning. Sections on common pitfalls and programming guidelines direct students towards best practice. The book is organized into 14 chapters, starting with programming concepts such as variables, assignments, input/output, and selection statements; moves onto loops; and then solves problems using both the 'programming concept' and the 'power of MATLAB' side-by-side. In-depth coverage is given to input/output, a topic that is fundamental to many engineering applications. Vectorized Code has been made into its own chapter, in order to emphasize the importance of using MATLAB efficiently. There are also expanded examples on low-level file input functions, Graphical User Interfaces, and use of MATLAB Version R2012b; modified and new end-of-chapter exercises; improved labeling of plots; and improved standards for variable names and documentation. This book will be a valuable resource for engineers learning to program and model in MATLAB, as well as for undergraduates

## Where To Download Matlab Exam Questions And Solutions

in engineering and science taking a course that uses (or recommends) MATLAB. Presents programming concepts and MATLAB built-in functions side-by-side Systematic, step-by-step approach, building on concepts throughout the book, facilitating easier learning Sections on common pitfalls and programming guidelines direct students towards best practice Go from total MATLAB newbie to plotting graphs and solving equations in a flash! MATLAB is one of the most powerful and commonly used tools in the STEM field. But did you know it doesn't take an advanced degree or a ton of computer experience to learn it? MATLAB For Dummies is the roadmap you've been looking for to simplify and explain this feature-filled tool. This handy reference walks you through every step of the way as you learn the MATLAB language and environment inside-and-out. Starting with straightforward basics before moving on to more advanced material like Live Functions and Live Scripts, this easy-to-read guide shows you how to make your way around MATLAB with screenshots and newly updated procedures. It includes: A comprehensive introduction to installing MATLAB, using its interface, and creating and saving your first file Fully updated to include the 2020 and 2021 updates to MATLAB, with all-new screenshots and up-to-date procedures Enhanced debugging procedures and use of the Symbolic Math Toolbox Brand new instruction on working with Live Scripts and Live Functions, designing classes, creating apps, and building projects Intuitive walkthroughs for MATLAB's advanced features, including importing and exporting data and publishing your work Perfect for STEM students and new professionals ready to master one of the most powerful tools in the fields of engineering, mathematics, and computing, MATLAB For Dummies is the simplest way to go from complete newbie to power user faster than you would have thought possible. For Beginners and Experienced Users Modeling and Simulation of Systems Using MATLAB and Simulink Getting Started with MATLAB 7

**The aim of this book is to motivate students into learning Machine Analysis by reinforcing theory and applications throughout the text. The author uses an enthusiastic 'hands-on' approach by including photos of actual mechanisms in place of abstract line illustrations, and directs students towards developing their own software for mechanism analysis using Excel & Matlab. An accompanying website includes a detailed list of tips for learning machine analysis, including tips on working homework problems, note taking, preparing for tests, computer programming and other topics to aid in student success. Study guides for each chapter that focus on teaching the thought process needed to solve problems by presenting practice problems are included, as are computer animations for common mechanisms discussed in the text.**