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The McNamara Ascendancy, 1961-1965 Lawrence S. Kaplan 2006 A narrative history and assessment of the early years of Robert McNamara's tenure as Secretary of Defense, including McNamara's relationship with Presidents Kennedy and Johnson, the transformation of the Department of Defense as a part of Kennedy's New Frontier, and the Pentagon's handling of the Cuban Missile Crisis, Bay of Pigs episode, and onset of the Vietnam War along with other major national security events and developments during a turbulent and momentous period of the Cold War. (Fuller description is on the dust jacket flaps.)

AVMA Guidelines for the Euthanasia of Animals (2013 Edition) AVMA Panel on Euthanasia 2013-01-02

The Electric Power Engineering Handbook Leonard L. Grigsby 2000-09-28 The astounding technological developments of our age depend on a safe, reliable, and economical supply of electric power. It stands central to continued innovations and particularly to the future of developing countries.

Therefore, the importance of electric power engineering cannot be overstated, nor can the importance of this handbook to the power engineer. Until now, however, power engineers have had no comprehensive reference to help answer their questions quickly, concisely, and authoritatively-A one-stop reference written by electric power engineers specifically for electric power engineers.

Elements of Control Systems Analysis Chih-fan Chen 1968

Electrical Energy Conversion and Transport George G. Karady 2013-05-03 Designed to support interactive teaching and computer assisted self-learning, this second edition of Electrical Energy Conversion and Transport is thoroughly updated to address the recent environmental effects of electric power generation and transmission, which have become more important together with the deregulation of the industry. New content explores different power generation methods, including renewable energy generation (solar, wind, fuel cell) and includes new sections that discuss the upcoming Smart Grid and the distributed power generation using renewable energy generation, making the text essential reading material for students and practicing engineers.

The Once and Future Ocean Peter Neill 2016-04-01 Peter Neill's The Once and Future Ocean aspires to do nothing less than transform our relationship with the world's most promising and imperiled natural element: the ocean and the inter-connected cycles of water, essential for all aspects of human survival in the 21st century. A successor to the work of Rachael Carson, Aldo Leopold, and Jonathan Schell, The Once and Future Ocean is ambitious in scope yet grounded in actionable, specific ideas and solutions for preserving the health of the world ocean. It explores the ocean's impact on climate, fresh water, food, energy, health, security, sustainable development, community living, and cultural traditions. Neill proposes a new paradigm for value and

social behavior around which to build a new post-industrial, post-consumption global community. This fundamental shift is directed toward the creation of a "new hydraulic society" wherein water in all its cycles and conveyances will determine how we live - from our buildings and cities to the structures of governance in an increasingly populated world. Neill calls for a new ocean ethic and offers concrete examples of technologies and applications that already exist but have been suppressed by vested interests. The *Once and Future Ocean* argues for invention and new solutions, for new answers to fundamental questions, and for a new relationship built around the ocean as a source for new modes of living that are within our grasp if only we have the courage to take hold.

Atkins' Physical Chemistry 11e Peter Atkins 2019-08-20 *Atkins' Physical Chemistry: Molecular Thermodynamics and Kinetics* is designed for use on the second semester of a quantum-first physical chemistry course. Based on the hugely popular *Atkins' Physical Chemistry*, this volume approaches molecular thermodynamics with the assumption that students will have studied quantum mechanics in their first semester. The exceptional quality of previous editions has been built upon to make this new edition of *Atkins' Physical Chemistry* even more closely suited to the needs of both lecturers and students. Re-organised into discrete 'topics', the text is more flexible to teach from and more readable for students. Now in its eleventh edition, the text has been enhanced with additional learning features and maths support to demonstrate the absolute centrality of mathematics to physical chemistry. Increasing the digestibility of the text in this new approach, the reader is brought to a question, then the math is used to show how it can be answered and progress made. The expanded and redistributed maths support also includes new 'Chemist's toolkits' which provide students with succinct reminders of mathematical concepts and techniques right where they need them. Checklists of key concepts at the end of each topic add to the extensive learning support provided throughout the book, to reinforce the main take-home messages in each section. The coupling of the broad coverage of the subject with a structure and use of pedagogy that is even more innovative will ensure *Atkins' Physical Chemistry* remains the textbook of choice for studying physical chemistry.

Concepts and Principles of Pharmacology James E. Barrett 2020-01-31 Celebrating 100 years of HEP, this volume will discuss key pharmacological discoveries and concepts of the past 100 years. These discoveries have dramatically changed the medical treatment paradigms of many diseases and these concepts have and will continue to shape discovery of new medicines. Newly evolving technologies will similarly be discussed as they will shape the future of the pharmacology and, accordingly, medical therapy.

Advanced Combustion Techniques and Engine Technologies for the Automotive Sector Akhilendra Pratap Singh 2019-10-10 This book discusses the recent advances in combustion strategies and engine technologies, with specific reference to the automotive sector. Chapters discuss the advanced combustion technologies, such as gasoline direct ignition (GDI), spark assisted compression ignition (SACI), gasoline compression ignition (GCI), etc., which are the future of the automotive sector. Emphasis is given to technologies which have the potential for utilization of alternative fuels as well as emission reduction. One special section includes a few chapters for methanol utilization in two-wheelers and four wheelers. The book will serve as a valuable resource for academic researchers and professional automotive engineers alike.

Electroweak Symmetry Breaking 1995

Data Driven Approach Towards Disruptive Technologies T P Singh 2021-04-06 This book is a compilation of peer-reviewed papers presented at the International Conference on Machine Intelligence and Data Science Applications, organized by the School of Computer Science, University of Petroleum & Energy Studies, Dehradun, India, during 4–5 September 2020. The book addresses the algorithmic aspect of machine intelligence which includes the framework and optimization of various states of algorithms. Variety of papers related to wide applications in various fields like data-driven industrial IoT, bioinformatics, network and security, autonomous computing and various other aligned areas. The book concludes with interdisciplinary applications like legal, health care, smart society, cyber-physical system and smart agriculture. All papers have been carefully reviewed. The book is of interest to computer science engineers, lecturers/researchers in machine intelligence discipline and engineering graduates.

Lumb & Jones Veterinary Anesthesia John C. Thurmon 1996-04-18 All the anesthesia techniques currently used in veterinary medicine are covered in one

concise clinical volume. There's new material on topics such as laboratory and exotic animals, local anesthesia, and regional anesthesia. Each of the 26 chapters is organized so that species specific and organ specific information can be easily accessed and understood. The contributors list is a virtual "who's who" of veterinary anesthesia. This will be a valuable text for students in veterinary anesthesia and surgery, as well as a great reference for practitioners.

Processing and Fabrication of Advanced Materials Alan Kin Tak Lau 2011-11-29 The 20th International Symposium on the Processing and Fabrication of Advanced Materials (PFAMXX) was organized by Hong Kong Polytechnic University, during the 15-17th December 2011, in Hong Kong. The main purpose of this interdisciplinary symposium was to bring together state-of-the-art developments regarding all aspects of the processing and fabrication of advanced materials, spanning the entire gamut of metallic, intermetallic, ceramic, ceramic-matrix composites, metal-matrix composites, intermetallic-matrix composites, advanced polymers and polymer-matrix composites; together with surface and high-temperature coatings. The symposium provided an attractive forum for the presentation of the latest advances, in materials processing and fabrication, by researchers and engineers from industry, research laboratories and academia. The proceedings cover the areas of: Advanced Composite Materials (Polymer, Metal and Ceramics); Natural Fibres (Plant- or Animal-Based) Composites; Nanostructural Materials; Properties of Materials; Failure Analysis; Computational Analysis and Simulations; Advanced Manufacturing Processes; Bio-materials and Bio-composites; Materials Characterizations. The result is an excellent and timely overview of the subject.

Epidemiology and the Delivery of Health Care Services Denise M. Oleske 2012-12-06 In this introductory textbook to epidemiology, students will discover the knowledge and skills required for managing population-based health care under health reform. Fundamental epidemiological techniques are presented teaching students to assess the health status of populations served; determine appropriate interventions based upon knowledge of factors which affect health status; and evaluate the impact of health care systems, programs, technologies, and policies on the health status of populations. Each chapter includes case studies and discussion questions.

Used Car Buying Guide Consumer Reports Books 1998-08 This specialty buying guide presents easy-to-use historical profiles of some 200 models--cars, trucks, minivans, sport utility vehicles--giving readers a comprehensive view of each model as a used car.

Evidence Based Validation of Traditional Medicines Subhash C. Mandal 2021-01-18 The demand for traditional medicines, herbal health products, herbal pharmaceuticals, nutraceuticals, food supplements and herbal cosmetics etc. is increasing globally due to the growing recognition of these products as mainly non-toxic, having lesser side effects, better compatibility with physiological flora, and availability at affordable prices. In the last century, medical science has made incredible advances all over the globe. In spite of global reorganization and a very sound history of traditional uses, the promotion of traditional medicine faces a number of challenges around the globe, primarily in developed nations. Regulation and safety is the high concern for the promotion of traditional medicine. Quality issues and quality control, pharmacovigilance, scientific investigation and validation, intellectual property rights, and biopiracy are some key issues that restrain the advancement of traditional medicine around the globe. This book contains diverse and unique chapters, explaining in detail various subsections like phytomolecule, drug discovery and modern techniques, standardization and validation of traditional medicine, and medicinal plants, safety and regulatory issue of traditional medicine, pharmaceutical excipients from nature, plants for future. The contents of the book will be useful for the academicians, researchers and people working in the area of traditional medicine.

Trends and Applications in Information Systems and Technologies Álvaro Rocha 2021-03-28 This book is composed of a selection of articles from The 2021 World Conference on Information Systems and Technologies (WorldCIST'21), held online between 30 and 31 of March and 1 and 2 of April 2021 at Hangra de Heroismo, Terceira Island, Azores, Portugal. WorldCIST is a global forum for researchers and practitioners to present and discuss recent results and innovations, current trends, professional experiences and challenges of modern information systems and technologies research, together with their technological development and applications. The main topics covered are: A) Information and Knowledge Management; B) Organizational Models and Information Systems; C) Software and Systems Modeling; D) Software Systems, Architectures, Applications and Tools; E) Multimedia Systems and Applications; F) Computer Networks, Mobility and Pervasive Systems; G) Intelligent and Decision Support Systems; H) Big Data Analytics and

Applications; I) Human–Computer Interaction; J) Ethics, Computers & Security; K) Health Informatics; L) Information Technologies in Education; M) Information Technologies in Radiocommunications; N) Technologies for Biomedical Applications.

Applications of Process Engineering Principles in Materials Processing, Energy and Environmental Technologies Shijie Wang 2017-02-07 This collection offers new research findings, innovations, and industrial technological developments in extractive metallurgy, energy and environment, and materials processing. Technical topics included in the book are thermodynamics and kinetics of metallurgical reactions, electrochemical processing of materials, plasma processing of materials, composite materials, ionic liquids, thermal energy storage, energy efficient and environmental cleaner technologies and process modeling. These topics are of interest not only to traditional base ferrous and non-ferrous metal industrial processes but also to new and upcoming technologies, and they play important roles in industrial growth and economy worldwide.

Advances in Energy Systems Engineering Georgios M. Kopanos 2016-10-17 This book provides a scientific framework for integrated solutions to complex energy problems. It adopts a holistic, systems-based approach to demonstrate the potential of an energy systems engineering approach to systematically quantify different options at various levels of complexity (technology, plant, energy supply chain, mega-system). Utilizing modeling, simulation and optimization-based frameworks, along with a number of real-life applications, it focuses on advanced energy systems including energy supply chains, integrated biorefineries, energy planning and scheduling approaches and urban energy systems. Featuring contributions from leading researchers in the field, this work is useful for academics, researchers, industry practitioners in energy systems engineering, and all those who are involved in model-based energy systems.

Advances in Materials Processing and Manufacturing Applications Amar Patnaik 2022-06-24 This book presents selected papers from the International Conference on Advances in Materials Processing and Manufacturing Applications (iCADMA 2020), held on November 5–6, 2020, at Malaviya National Institute of Technology, Jaipur, India. iCADMA 2020 proceedings is divided into four topical tracks – Advanced Materials, Materials Manufacturing and Processing, Engineering Optimization and Sustainable Development, and Tribology for Industrial Application.

Differential Equations Christian Constanda 2017-03-14 This textbook is designed with the needs of today's student in mind. It is the ideal textbook for a first course in elementary differential equations for future engineers and scientists, including mathematicians. This book is accessible to anyone who has a basic knowledge of precalculus algebra and differential and integral calculus. Its carefully crafted text adopts a concise, simple, no-frills approach to differential equations, which helps students acquire a solid experience in many classical solution techniques. With a lighter accent on the physical interpretation of the results, a more manageable page count than comparable texts, a highly readable style, and over 1000 exercises designed to be solved without a calculating device, this book emphasizes the understanding and practice of essential topics in a succinct yet fully rigorous fashion. Apart from several other enhancements, the second edition contains one new chapter on numerical methods of solution. The book formally splits the "pure" and "applied" parts of the contents by placing the discussion of selected mathematical models in separate chapters. At the end of most of the 246 worked examples, the author provides the commands in Mathematica® for verifying the results. The book can be used independently by the average student to learn the fundamentals of the subject, while those interested in pursuing more advanced material can regard it as an easily taken first step on the way to the next level. Additionally, practitioners who encounter differential equations in their professional work will find this text to be a convenient source of reference.

Radiation Shielding J. Kenneth Shultis 2000-01-01 This newly published book is intended for dual use as a textbook for students in radiation shielding courses and a reference work for shielding practitioners. It emphasizes the principles behind techniques used in various aspects of shield analysis and presents these principles in many different contexts. This approach is intended to provide a strong base of understanding in order to facilitate use of the large shielding codes that have come to dominate shielding design and analysis. An assumption is made that the reader has an understanding of mathematics through basic calculus and vector analysis as well as a knowledge of the nuclear physics of radioactive decay. For most chapters, problem

sets are provided.

Vehicle Sensors and Actuators 2005

Improving Animal Welfare Temple Grandin 2020-12-15 "Completely revised, updated and with two new chapters on sustainability and new technologies for improving animal welfare, the third edition of this highly successful textbook remains essential reading for students of ethology and animal science"--

Emerging Space Powers Brian Harvey 2011-01-30 This work introduces the important emerging space powers of the world. Brian Harvey describes the origins of the Japanese space program, from rocket designs based on WW II German U-boats to tiny solid fuel 'pencil' rockets, which led to the launch of the first Japanese satellite in 1970. The next two chapters relate how Japan expanded its space program, developing small satellites into astronomical observatories and sending missions to the Moon, Mars, comet Halley, and asteroids. Chapter 4 describes how India's Vikram Sarabhai developed a sounding rocket program in the 1960s. The following chapter describes the expansion of the Indian space program. Chapter 6 relates how the Indian space program is looking ahead to the success of the moon probe Chandrayan, due to launch in 2008, and its first manned launching in 2014. Chapters 7, 8, and 9 demonstrate how, in Iran, communications and remote sensing drive space technology. Chapter 10 outlines Brazil's road to space, begun in the mid-1960's with the launch of the Sonda sounding rockets. The following two chapters describe Brazil's satellites and space launch systems and plans for the future. Chapters 13 and 14 study Israel's space industry. The next chapters look at the burgeoning space programs of North and South Korea. The book ends by contrasting and comparing all the space programs and speculating how they may evolve in the future. An appendix lists all launches and launch attempts to date of the emerging space powers.

Proceeding of the Second International Conference on Microelectronics, Computing & Communication Systems (MCCS 2017) Vijay Nath 2018-07-30 The volume presents high quality papers presented at the Second International Conference on Microelectronics, Computing & Communication Systems (MCCS 2017). The book discusses recent trends in technology and advancement in MEMS and nanoelectronics, wireless communications, optical communication, instrumentation, signal processing, image processing, bioengineering, green energy, hybrid vehicles, environmental science, weather forecasting, cloud computing, renewable energy, RFID, CMOS sensors, actuators, transducers, telemetry systems, embedded systems, and sensor network applications. It includes original papers based on original theoretical, practical, experimental, simulations, development, application, measurement, and testing. The applications and solutions discussed in the book will serve as a good reference material for future works.

To Defend and Deter John C. Lonquest 2014-09-15 The Department of Defense's official history of the United States Cold War missile program-- completely reformatted with all-new color illustrations and photographs not used in the original edition. The DoD commissioned this study as part of its Cold War Project in 1996. With permission from the DoD's Legacy Program, Hole in the Head Press brings To Defend and Deter back into print. This informative guide offers a thorough look at Cold War missile development, from the earliest beginnings of rocketry in the 13th century to the arms control agreements that began in the 1970s. Both a narrative history and reference guide, To Defend and Deter traces the evolution of the Cold War and establishes the United States missile program's scope and its massive impact on the American landscape, citizens, and structure of the U.S. military establishment. Inside you'll find: Over 400 pages of photographs, illustrations, charts, maps and diagrams In-depth look at Cold War air defense, including Nike, Atlas, Titan, Minuteman, Jupiter, Thor and Snark missiles Technical profiles of weapon systems State-by-state listings of missile facilities and launch sites An extensive bibliography and full index

The Dictionary of Cell and Molecular Biology John M. Lackie 2012-12-31 The Dictionary of Cell and Molecular Biology, Fifth Edition, provides definitions for thousands of terms used in the study of cell and molecular biology. The headword count has been expanded to 12,000 from 10,000 in the Fourth Edition. Over 4,000 headwords have been rewritten. Some headwords have second, third, and even sixth definitions, while fewer than half are unchanged. Many of the additions were made to extend the scope in plant cell biology, microbiology, and bioinformatics. Several entries related to specific pharmaceutical compounds have been removed, while some generic entries ("alpha blockers, "NSAIDs, and "tetracycline antibiotics, for example), and some that are frequently part of the experimentalist's toolkit and probably never used in the clinic, have been retained. The Appendix includes prefixes for SI units, the

Greek alphabet, useful constants, and single-letter codes for amino acids. Thoroughly revised and expanded by over 20% with over 12,000 entries in cellular and molecular biology Includes expanded coverage of terms, including plant molecular biology, microbiology and biotechnology areas Consistently provides the most complete short definitions of technical terminology for anyone working in life sciences today Features extensive cross-references Provides multiple definitions, notes on word origins, and other useful features

Mechanism and Theory in Food Chemistry Dominic W.S. Wong 1989-09-30 This is a unique book on food chemistry emphasizing modern mechanisms underlying the chemical reactions that occur in food during processing and storage and interactions among the components of foods. The author has stressed the principles of the reaction mechanisms, carefully detailing what is known to occur or is expected to occur based on his detailed understanding of organic chemical reactions. This unifies the themes of oxidation, reduction, hydrolysis, structure, polymerization, emulsification, etc., that are key to the conceptual approach used.

Foldable Flex and Thinned Silicon Multichip Packaging Technology John W. Balde 2013-11-27 Foldable Flex and Thinned Silicon Multichip Packaging Technology presents newly emerging methods used to make stacked chip packages in the so-called 2-1/2 D technology (3-D in physical format, but interconnected only through the circuits on folded flex). It is also being used in single chip packages where the thinness of the chips and the flex substrate made packages significantly thinner than through any other means.

Games and Learning Alliance Iza Marfisi-Schottman 2020-11-20 This book constitutes the refereed proceedings of the 9th International Conference on Games and Learning Alliance, GALA 2020, held in Laval, France, in December 2020. The 35 full papers and 10 short papers were carefully reviewed and selected from 77 submissions. The papers cover a broad spectrum of topics: Serious Game Design; Serious Game Analytics; Virtual and Mixed Reality Applications; Gamification Theory; Gamification Applications; Serious Games for Instruction; and Serious Game Applications and Studies.

MATLAB® Recipes for Earth Sciences Martin H. Trauth 2007 Introduces methods of data analysis in geosciences using MATLAB such as basic statistics for univariate, bivariate and multivariate datasets, jackknife and bootstrap resampling schemes, processing of digital elevation models, gridding and contouring, geostatistics and kriging, processing and georeferencing of satellite images, digitizing from the screen, linear and nonlinear time-series analysis and the application of linear time-invariant and adaptive filters. Includes a brief description of each method and numerous examples demonstrating how MATLAB can be used on data sets from earth sciences.

Accounting for Social Risk Factors in Medicare Payment National Academies of Sciences, Engineering, and Medicine 2017-06-18 Recent health care payment reforms aim to improve the alignment of Medicare payment strategies with goals to improve the quality of care provided, patient experiences with health care, and health outcomes, while also controlling costs. These efforts move Medicare away from the volume-based payment of traditional fee-for-service models and toward value-based purchasing, in which cost control is an explicit goal in addition to clinical and quality goals. Specific payment strategies include pay-for-performance and other quality incentive programs that tie financial rewards and sanctions to the quality and efficiency of care provided and accountable care organizations in which health care providers are held accountable for both the quality and cost of the care they deliver. Accounting For Social Risk Factors in Medicare Payment is the fifth and final report in a series of brief reports that aim to inform ASPE analyses that account for social risk factors in Medicare payment programs mandated through the IMPACT Act. This report aims to put the entire series in context and offers additional thoughts about how to best consider the various methods for accounting for social risk factors, as well as next steps.

Vector Calculus Susan Jane Colley 2012 Normal 0 false false false Vector Calculus, Fourth Edition, uses the language and notation of vectors and matrices to teach multivariable calculus. It is ideal for students with a solid background in single-variable calculus who are capable of thinking in more general terms about the topics in the course. This text is distinguished from others by its readable narrative, numerous figures, thoughtfully selected examples, and carefully crafted exercise sets. Colley includes not only basic and advanced exercises, but also mid-level exercises that form a necessary bridge between the two.

Proceedings of the 12th International Symposium on Computer Science in Sport (IACSS 2019) Martin Lames 2019-11-14 This book provides an overview

of current activities in the fascinating area between computer science and sports, presenting the state of the art in utilising the latest developments in computer science to support sports coaches and athletes. It covers a broad range of topics reflecting the diversity of this interdisciplinary field, including concepts in informatics like expert systems, modelling, simulation, machine learning, robotics, and sensor integration. Further, it describes applications of computer science in sports, such as alpine skiing, badminton, football, rowing, and table tennis, as well as interesting applications areas of sport like dementia, physiology, training, and space flights. The appeals to informaticians interested in the application field of sports as well as for sports scientists and practitioners looking for advanced methods in their particular sport.

Thermal Analysis of Liquid-metal Fast Breeder Reactors Yu S. Tang 1978 This monograph is written as a treatise on the state-of-the-art of liquid-metal fast breeder reactor thermal and hydraulic design and analysis.

History of the Office of the Secretary of Defense, Volume V Lawrence S. Kaplan 2011-06-01 Originally published in 2006, this volume from the History Office of the Office of the Secretary of Defense provides a narrative history and assessment of the early years of Robert McNamara's tenure as Secretary of Defense, including McNamara's relationship with Presidents Kennedy and Johnson, the transformation of the Department of Defense as a part of Kennedy's New Frontier, and the Pentagon's handling of the Cuban Missile Crisis, Bay of Pigs episode, and onset of the Vietnam War along with other major national security events and developments during a turbulent and momentous period of the Cold War.

Metadata and Semantic Research Emmanouel Garoufallou 2021-03-17 This book constitutes the thoroughly refereed proceedings of the 14th International Conference on Metadata and Semantic Research, MTSR 2020, held in Madrid, Spain, in December 2020. Due to the COVID-19 pandemic the conference was held online. The 24 full and 13 short papers presented were carefully reviewed and selected from 82 submissions. The papers are organized in the following tracks: metadata, linked data, semantics and ontologies; metadata and semantics for digital libraries, information retrieval, big, linked, social and open data; metadata and semantics for agriculture, food, and environment, AgroSEM 2020; metadata and semantics for open repositories, research information systems and data infrastructures; digital humanities and digital curation, DHC 2020; metadata and semantics for cultural collections and applications; european and national projects; knowledge IT artifacts (KITA) in professional communities and aggregations, KITA 2020.

Thinking About Equations Matt A. Bernstein 2011-09-20 An accessible guide to developing intuition and skills for solving mathematical problems in the physical sciences and engineering. Equations play a central role in problem solving across various fields of study. Understanding what an equation means is an essential step toward forming an effective strategy to solve it, and it also lays the foundation for a more successful and fulfilling work experience. Thinking About Equations provides an accessible guide to developing an intuitive understanding of mathematical methods and, at the same time, presents a number of practical mathematical tools for successfully solving problems that arise in engineering and the physical sciences. Equations form the basis for nearly all numerical solutions, and the authors illustrate how a firm understanding of problem solving can lead to improved strategies for computational approaches. Eight succinct chapters provide thorough topical coverage, including: Approximation and estimation Isolating important variables Generalization and special cases Dimensional analysis and scaling Pictorial methods and graphical solutions Symmetry to simplify equations Each chapter contains a general discussion that is integrated with worked-out problems from various fields of study, including physics, engineering, applied mathematics, and physical chemistry. These examples illustrate the mathematical concepts and techniques that are frequently encountered when solving problems. To accelerate learning, the worked example problems are grouped by the equation-related concepts that they illustrate as opposed to subfields within science and mathematics, as in conventional treatments. In addition, each problem is accompanied by a comprehensive solution, explanation, and commentary, and numerous exercises at the end of each chapter provide an opportunity to test comprehension. Requiring only a working knowledge of basic calculus and introductory physics, Thinking About Equations is an excellent supplement for courses in engineering and the physical sciences at the upper-undergraduate and graduate levels. It is also a valuable reference for researchers, practitioners, and educators in all branches of engineering, physics, chemistry, biophysics, and other related fields who encounter mathematical problems in their day-to-day work.

Sulfate Minerals Charles N. Alpers 2018-12-17 Volume 40 of Reviews in Mineralogy and Geochemistry compiles and synthesizes current information on

sulfate minerals from a variety of perspectives, including crystallography, geochemical properties, geological environments of formation, thermodynamic stability relations, kinetics of formation and dissolution, and environmental aspects. The first two chapters cover crystallography (Chapter 1) and spectroscopy (Chapter 2). Environments with alkali and alkaline earth sulfates are described in the next three chapters, on evaporites (Chapter 3), barite-celestine deposits (Chapter 4), and the kinetics of precipitation and dissolution of gypsum, barite, and celestine (Chapter 5). Acidic environments are the theme for the next four chapters, which cover soluble metal salts from sulfide oxidation (Chapter 6), iron and aluminum hydroxysulfates (Chapter 7), jarosites in hydrometallurgy (Chapter 8), and alunite-jarosite crystallography, thermodynamics, and geochronology (Chapter 9). The next two chapters discuss thermodynamic modeling of sulfate systems from the perspectives of predicting sulfate-mineral solubilities in waters covering a wide range in composition and concentration (Chapter 10) and predicting interactions between sulfate solid solutions and aqueous solutions (Chapter 11). The concluding chapter on stable-isotope systematics (Chapter 12) discusses the utility of sulfate minerals in understanding the geological and geochemical processes in both high- and low-temperature environments, and in unraveling the past evolution of natural systems through paleoclimate studies. The review chapters in this volume were the basis for a short course on sulfate minerals sponsored by the Mineralogical Society of America (MSA) November 11-12, 2000 in Tahoe City, California, prior to the Annual Meeting of MSA, the Geological Society of America, and other associated societies in nearby Reno, Nevada. The conveners of the course (and editors of this volume of Reviews in Mineralogy and Geochemistry), Alpers, John Jambor, and Kirk Nordstrom, also organized related topical sessions at the GSA meeting on sulfate minerals in both hydrothermal and low-temperature environments.