Guesstimation Solving The Worlds Problems On The Back Of A Cocktail Napkin

An antidote to mathematical rigor mortis, teaching how to guess answers without needing a proof or an exact calculation. In problem solving, as in street fighting, rules are for fools: do whatever works—don't just stand there! Yet we often fear an unjustified leap even though it may land us on a correct result. Traditional mathematics teaching is largely about solving exactly stated problems exactly, yet life often hands us partly defined problems needing only moderately accurate solutions. This engaging book is an antidote to the rigor mortis brought on by too much mathematical rigor, teaching us how to guess answers without needing a proof or an exact calculation. In Street-Fighting Mathematics, Sanjoy Mahajan builds, sharpens, and demonstrates tools for educated guessing and down-and-dirty, opportunistic problem solving across diverse fields of knowledge—from mathematics to management. Mahajan describes six tools: dimensional analysis, easy cases, lumping, picture proofs, successive approximation, and reasoning by analogy. Illustrating each tool with numerous examples, he carefully separates the tool—the general principle—from the particular application so that the reader can most easily grasp the tool itself to use on problems of particular interest. Street-Fighting Mathematics grew out of a short course taught by the author at MIT for students ranging from first-year undergraduates to graduate students ready for careers in physics, mathematics, management, electrical engineering, computer science, and biology. They benefited from an approach that avoided rigor and taught them how to use mathematics to solve real problems. Street-Fighting Mathematics will appear in print and online under a Creative Commons Noncommercial Share Alike license.
From an award-winning teacher, "a delightful and instructive accessory to an introductory physics course" (Physics World). Physicists use "back-of-the-envelope" estimates to check whether or not an idea could possibly be right. In many cases, the approximate solution is all that is needed. This compilation of 101 examples of back-of-the-envelope calculations celebrates a quantitative approach to solving physics problems. Drawing on a lifetime of physics research and nearly three decades as the editor of The Physics Teacher, Clifford Swartz—a winner of two awards from the American Association of Physics Teachers—provides simple, approximate solutions to physics problems that span a broad range of topics. What note do you get when you blow across the top of a Coke bottle? Could you lose weight on a diet of ice cubes? How can a fakir lie on a bed of nails without getting hurt? Does draining water in the northern hemisphere really swirl in a different direction than its counterpart below the equator? In each case, only a few lines of arithmetic and a few natural constants solve a problem to within a few percent. Covering such subjects as astronomy, magnetism, optics, sound, heat, mechanics, waves, and electricity, this book provides a rich source of material for teachers

and anyone interested in the physics of everyday life. "This is a book that will help make the study of physics fun and relevant." —Mark P. Silverman, author of Waves and Grains: Reflections on Light and Learning

The Calculus of Friendship is the story of an extraordinary connection between a teacher and a student, as chronicled through more than thirty years of letters between them. What makes their relationship unique is that it is based almost entirely on a shared love of calculus. For them, calculus is more than a branch of mathematics; it is a game they love playing together, a constant when all else is in flux. The teacher goes from the prime of his career to retirement, competes in whitewater kayaking at the international level, and loses a son. The student matures from high school math whiz to Ivy League professor, suffers the sudden death of a parent, and blunders into a marriage destined to fail. Yet through it all they take refuge in the haven of calculus--until a day comes when calculus is no longer enough. Like calculus itself, The Calculus of Friendship is an exploration of change. It's about the transformation that takes place in a student's heart, as he and his teacher reverse roles, as they age, as they are buffeted by life itself. Written by a renowned teacher and communicator of mathematics, The Calculus of Friendship is warm, intimate, and deeply moving. The most inspiring ideas of calculus, differential equations, and chaos theory are explained through metaphors, images, and anecdotes in a way that all readers will find beautiful, and even poignant. Math enthusiasts, from high school students to professionals, will delight in the offbeat problems and lucid explanations in the letters. For anyone whose life has been changed by a mentor, The Calculus of Friendship will be an unforgettable journey.

A former international hostage negotiator for the FBI offers a new, field-tested approach to high-stakes negotiations—whether in the boardroom or at home. After a stint policing the rough streets of Kansas City, Missouri, Chris Voss joined the FBI, where his career as a hostage negotiator brought him face-to-face with a range of criminals, including bank robbers and terrorists. Reaching the pinnacle of his profession, he became the FBI's lead international kidnapping negotiator. Never Split the Difference takes you inside the world of high-stakes negotiations and into Voss's head, revealing the skills that helped him and his colleagues succeed where it mattered most: saving lives. In this practical guide, he shares the nine effective principles—counterintuitive tactics and strategies—you too can use to become more persuasive in both your professional and personal life. Life is a series of negotiations you should be prepared for: buying a car, negotiating a salary, buying a home, renegotiating rent, deliberating with your partner. Taking emotional intelligence and intuition to the next level, Never Split the Difference gives you the competitive edge in any discussion.

Mastering Complexity

Never Split the Difference

From World War I to the Present Day

Essentials of Paleomagnetism
Rays, Waves, and Scattering
Everyday Calculus
Guesstimation 2.0
How Many Licks?

Guesstimation is a book that unlocks the power of approximation--it's popular mathematics rounded to the nearest power of ten! The ability to estimate is an important skill in daily life. More and more leading businesses today use estimation questions in interviews to test applicants' abilities to think on their feet. Guesstimation enables anyone with basic math and science skills to estimate virtually anything--quickly--using plausible assumptions and elementary arithmetic. Lawrence Weinstein and John Adam present an eclectic array of estimation problems that range from devilishly simple to quite sophisticated and from serious real-world concerns to downright silly ones. How long would it take a running faucet to fill the inverted dome of the Capitol? What is the total length of all the pickles consumed in the US in one year? What are the relative merits of internal-combustion and electric cars, of coal and nuclear energy? The problems are marvelously diverse, yet the skills to solve them are the same. The authors show how easy it is to derive useful ballpark estimates by breaking complex problems into simpler, more manageable ones--and how there can be many paths to the right answer. The book is written in a question-and-answer format with lots of hints along the way. It includes a handy appendix summarizing the few formulas and basic science concepts needed, and its small size and French-fold design make it conveniently portable. Illustrated with humorous pen-and-ink sketches, Guesstimation will delight popular-math enthusiasts and is ideal for the classroom.

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The Web has changed the game for your customers— and, therefore, for you. Now, CustomerCentric Selling, already recognized as one of the premier methodologies for managing the buyer-seller relationship, helps you level the playing field so you can reach clients when they are ready to buy and create a superior customer experience. Your business and its people need to be "CustomerCentric"—willing and able to identify and serve customers' needs in a world where competition waits just a mouse-click away. Traditional wisdom has long held that selling means convincing and persuading buyers. But today's buyers no longer want or need to be sold in traditional ways. CustomerCentric Selling gives you mastery of the crucial eight aspects of communicating with today's clients to achieve optimal results: Having conversations instead of making presentations Asking relevant questions instead of offering opinions Focusing on solutions and not only relationships Targeting businesspeople instead of gravitating toward users Relating product usage instead of relying on features Competing to win—not just to stay busy Closing on the buyer's timeline (instead of yours) Empowering buyers instead of trying to "sell" them What's

more, CustomerCentric Selling teaches and reinforces key tactics that will make the most of your organization's resources. Perhaps you feel you don't have the smartest internal systems in place to ensure an ideal workflow. (Perhaps, as is all too common, you lack identifiable systems almost entirely.) From the basics—and beyond—of strategic budgeting and negotiation to assessing and developing the skills of your sales force, you'll learn how to make sure that each step your business takes is the right one.

The essential primer for physics students who want to build their physical intuition Presented in A. Zee's incomparably engaging style, this book introduces physics students to the practice of using physical reasoning and judicious guesses to get at the crux of a problem. An essential primer for advanced undergraduates and beyond, Fly by Night Physics reveals the simple and effective techniques that researchers use to think through a problem to its solution—or failing that, to smartly guess the answer—before starting any calculations. In typical physics classrooms, students seek to master an enormous toolbox of mathematical methods, which are necessary to do the precise calculations used in physics. Consequently, students often develop the unfortunate impression that physics consists of well-defined problems that can be solved with tightly reasoned and logical steps. Idealized textbook exercises and homework problems reinforce this erroneous impression. As a result, even the best students can find themselves completely unprepared for the challenges of doing actual research. In reality, physics is replete with back of the envelope estimates, order of magnitude guesses, and fly by night leaps of logic. Including exciting problems related to cutting-edge topics in physics, from Hawking radiation to gravity waves, this indispensable book will help students more deeply understand the equations they have learned and develop the confidence to start flying by night to arrive at the answers they seek. For instructors, a solutions manual is available upon request.

And 99 Other Infuriating Challenging Brain Teasers From The Great T
A Mathematical Nature Walk
Managerial Economics
A Practical Guide for Policy Analysis
The Precipice
Turning Numbers Into Knowledge
Topics in Classical Mathematical Physics
Modeling Aspects of Urban Life

Calculus. For some of us, the word conjures up memories of ten-pound textbooks and visions of tedious abstract equations. And yet, in reality, calculus is fun and accessible, and surrounds us everywhere we go. In Everyday Calculus, Oscar Fernandez demonstrates that calculus can be used to explore practically any aspect of our lives, including the most effective number of hours to sleep and the fastest route to get to work. He also shows that calculus can be both useful—determining which seat at the theater leads to the best viewing experience, for instance—and fascinating—exploring topics such as time

travel and the age of the universe. Throughout, Fernandez presents straightforward concepts, and no prior mathematical knowledge is required. For advanced math fans, the mathematical derivations are included in the appendixes. The book features a new preface that alerts readers to new interactive online content, including demonstrations linked to specific figures in the book as well as an online supplement. Whether you're new to mathematics or already a curious math enthusiast, Everyday Calculus will convince even die-hard skeptics to view this area of math in a whole new way. This one-of-a-kind book presents many of the mathematical concepts, structures, and techniques used in the study of rays, waves, and scattering. Panoramic in scope, it includes discussions of how ocean waves are refracted around islands and underwater ridges, how seismic waves are refracted in the earth's interior, how atmospheric waves are scattered by mountains and ridges, how the scattering of light waves produces the blue sky, and meteorological phenomena such as rainbows and coronas. Rays, Waves, and Scattering is a valuable resource for practitioners, graduate students, and advanced undergraduates in applied mathematics, theoretical physics, and engineering. Bridging the gap between advanced treatments of the subject written for specialists and less mathematical books aimed at beginners, this unique mathematical compendium features problems and exercises throughout that are geared to various levels of sophistication, covering everything from Ptolemy's theorem to Airy integrals (as well as more technical material), and several informative appendixes. Provides a panoramic look at wave motion in many different contexts Features problems and exercises throughout Includes numerous appendixes, some on topics not often covered An ideal reference book for practitioners Can also serve as a supplemental text in classical applied mathematics, particularly wave theory and mathematical methods in physics and engineering Accessible to anyone with a strong background in ordinary differential equations, partial differential equations, and functions of a complex variable "This book by Lisa Tauxe and others is a marvelous tool for education and research in Paleomagnetism. Many students in the U.S. and around the world will welcome this publication, which was previously only available via the Internet. Professor Tauxe has performed a service for teaching and research that is utterly unique."—Neil D. Opdyke, University of Florida Managerial economics, meaning the application of economic methods in the managerial decision-making process, is a fundamental part of any business or management course. This textbook covers all the main aspects of managerial economics: the theory of the firm; demand theory and estimation; production and cost theory and estimation; market structure and pricing; game theory; investment analysis and government policy. It includes numerous and extensive case studies, as well as review questions and problem-solving sections at the end of each chapter. Nick Wilkinson adopts a user-friendly problem-solving approach which takes the reader in gradual steps from simple problems through increasingly difficult material to complex case studies,

providing an understanding of how the relevant principles can be
applied to real-life situations involving managerial decision-making.
This book will be invaluable to business and economics students at
both undergraduate and graduate levels who have a basic training in
calculus and quantitative methods.
Mathematics in Nature
Unfolding the Napkin
A Practical Guide To Quantitative Finance Interviews
Fly By Night Physics
CustomerCentric Selling, Second Edition
You Can Draw in 30 Days
Mrs. Perkins's Electric Quilt
Guesstimation

〖Another terrific book by Rob Eastaway〗 SIMON SINGH 〖A delightfully accessible guide to how to play with numbers〗 HANNAH FRY

How might Hercules, the most famous of the Greek heroes, have used mathematics to complete his astonishing Twelve Labors? From conquering the Nemean Lion and cleaning out the Augean Stables, to capturing the Erymanthean Boar and entering the Underworld to defeat the three-headed dog Cerberus, Hercules and his legend are the inspiration for this book of fun and original math puzzles. While Hercules relied on superhuman strength to accomplish the Twelve Labors, Mythematics shows how math could have helped during his quest. How does Hercules defeat the Lernean Hydra and stop its heads from multiplying? Can Hercules clean the Augean Stables in a day? What is the probability that the Cretan Bull will attack the citizens of Marathon? How does Hercules deal with the terrifying Kraken? Michael Huber's inventive math problems are accompanied by short descriptions of the Twelve Labors, taken from the writings of Apollodorus, who chronicled the life of Hercules two thousand years ago. Tasks are approached from a mathematical modeling viewpoint, requiring varying levels of knowledge, from basic logic and geometry to differential and integral calculus. Mythematics provides helpful hints and complete solutions, and the appendixes include a brief history of the Hercules tale, a review of mathematics and equations, and a guide to the various disciplines of math used throughout the book. An engaging combination of ancient mythology and modern mathematics, Mythematics will enlighten and delight mathematics and classics enthusiasts alike.

In the Fifth Edition of A Practical Guide for Policy Analysis: The Eightfold Path to More Effective Problem Solving, Eugene Bardach and new co-author Eric Patashnik draw on more than 40 years of experience teaching students to be effective, accurate, and persuasive policy analysts. This bestselling handbook presents dozens of concrete tips, interesting case studies, and step-by-step strategies that are easily applicable for the budding analyst as well as the seasoned professional. In this new edition, Bardach and Patashnik update many examples to reflect the shifting landscape of policy issues. A new section with advice on how to undertake policy design in addition to making policy choices makes the book even more engaging. Readers will also appreciate a sample document of real world policy analysis, suggestions for developing creative, "out-of-the-box" solutions, and tips for working with clients.

What mathematical modeling uncovers about life in the city X and the City, a book of diverse and accessible math-based topics, uses basic modeling to explore a wide range of entertaining questions about urban life. How do you estimate the number of dental or doctor's offices, gas stations, restaurants, or movie theaters in a city of a given size? How can mathematics be used to maximize traffic flow through tunnels? Can you predict whether a traffic light will stay green

long enough for you to cross the intersection? And what is the likelihood that your city will be hit by an asteroid? Every math problem and equation in this book tells a story and examples are explained throughout in an informal and witty style. The level of mathematics ranges from precalculus through calculus to some differential equations, and any reader with knowledge of elementary calculus will be able to follow the materials with ease. There are also some more challenging problems sprinkled in for the more advanced reader. Filled with interesting and unusual observations about how cities work, X and the City shows how mathematics undergirds and plays an important part in the metropolitan landscape.

The World Is Flat [Further Updated and Expanded; Release 3.0]

Basic Methods of Policy Analysis and Planning -- Pearson eText

The Consulting Interview Bible

Solving Today's Problems on the Back of a Napkin

Consider a Cylindrical Cow

Problem Solving for College Students

The Eightfold Path to More Effective Problem Solving

Solving the Twelve Labors of Hercules

From rainbows, river meanders, and shadows to spider webs, honeycombs, and the markings on animal coats, the visible world is full of patterns that can be described mathematically. Examining such readily observable phenomena, this book introduces readers to the beauty of nature as revealed by mathematics and the beauty of mathematics as revealed in nature. Generously illustrated, written in an informal style, and replete with examples from everyday life, Mathematics in Nature is an excellent and undaunting introduction to the ideas and methods of mathematical modeling. It illustrates how mathematics can be used to formulate and solve puzzles observed in nature and to interpret the solutions. In the process, it teaches such topics as the art of estimation and the effects of scale, particularly what happens as things get bigger. Readers will develop an understanding of the symbiosis that exists between basic scientific principles and their mathematical expressions as well as a deeper appreciation for such natural phenomena as cloud formations, halos and glories, tree heights and leaf patterns, butterfly and moth wings, and even puddles and mud cracks. Developed out of a university course, this book makes an ideal supplemental text for courses in applied mathematics and mathematical modeling. It will also appeal to mathematics educators and enthusiasts at all levels, and is designed so that it can be dipped into at leisure.

Simple and effective techniques for quickly estimating virtually anything Guesstimation 2.0 reveals the simple and effective techniques needed to estimate virtually anything—quickly—and illustrates them using an eclectic array of problems. A stimulating follow-up to Guesstimation, this is the must-have book for anyone preparing for a job interview in technology or finance, where more and more leading businesses test applicants using estimation questions just like these. The ability to guesstimate on your feet is an essential skill to have in today's world, whether you're trying to distinguish between a billion-dollar subsidy and a trillion-dollar stimulus, a megawatt wind turbine and a gigawatt nuclear

plant, or parts-per-million and parts-per-billion contaminants. Lawrence Weinstein begins with a concise tutorial on how to solve these kinds of order of magnitude problems, and then invites readers to have a go themselves. The book features dozens of problems along with helpful hints and easy-to-understand solutions. It also includes appendixes containing useful formulas and more. Guesstimation 2.0 shows how to estimate everything from how closely you can orbit a neutron star without being pulled apart by gravity, to the fuel used to transport your food from the farm to the store, to the total length of all toilet paper used in the United States. It also enables readers to answer, once and for all, the most asked environmental question of our day: paper or plastic?

This new edition of Friedman's landmark book explains the flattening of the world better than ever- and takes a new measure of the effects of this change on each of us.

Taken literally, the title "All of Statistics" is an exaggeration. But in spirit, the title is apt, as the book does cover a much broader range of topics than a typical introductory book on mathematical statistics. This book is for people who want to learn probability and statistics quickly. It is suitable for graduate or advanced undergraduate students in computer science, mathematics, statistics, and related disciplines. The book includes modern topics like non-parametric curve estimation, bootstrapping, and classification, topics that are usually relegated to follow-up courses. The reader is presumed to know calculus and a little linear algebra. No previous knowledge of probability and statistics is required.

Statistics, data mining, and machine learning are all concerned with collecting and analysing data.

Part 1: Chapters 1-17

The Logician and the Engineer

A Problem-Solving Approach

The Calculus of Friendship

Negotiating As If Your Life Depended On It

The Mathematical Ideas That Animate Great Magic Tricks

Mythematics

What does quilting have to do with electric circuit theory? The answer is just one of the fascinating ways that best-selling popular math writer Paul Nahin illustrates the deep interplay of math and physics in the world around us in his latest book of challenging mathematical puzzles, Mrs. Perkins's Electric Quilt. With his trademark combination of intriguing mathematical problems and the historical anecdotes surrounding them, Nahin invites readers on an exciting and informative exploration of some of the many ways math and physics combine to create something vastly more powerful, useful, and interesting than either is by

itself. In a series of brief and largely self-contained chapters, Nahin discusses a wide range of topics in which math and physics are mutually dependent and mutually illuminating, from Newtonian gravity and Newton's laws of mechanics to ballistics, air drag, and electricity. The mathematical subjects range from algebra, trigonometry, geometry, and calculus to differential equations, Fourier series, and theoretical and Monte Carlo probability. Each chapter includes problems--some three dozen in all--that challenge readers to try their hand at applying what they have learned. Just as in his other books of mathematical puzzles, Nahin discusses the historical background of each problem, gives many examples, includes MATLAB codes, and provides complete and detailed solutions at the end. Mrs. Perkins's Electric Quilt will appeal to students interested in new math and physics applications, teachers looking for unusual examples to use in class--and anyone who enjoys popular math books.

Following in the tradition of Consider a Spherical Cow, the Cylindrical Cow will help students achieve a whole new level of environmental modeling and problem solving. Featuring a new core set of 25 fully worked-out problems, this book uses real problems in environmental science rather than relying on the more traditional "cookbook" problems found in textbooks. It is organized according to five thematic sections on probability, optimization, scaling, differential equations, and stability and feedback. Each section begins with a general treatment of the relevant mathematical concepts, and concludes with a range of homework exercises to help students sharpen their modeling skills. Like its predecessor, this book will empower students with the mathematical skills needed to cut through the complexity of real-world problems.

No invention has changed war more than the airplane. This well-researched history provides a highly illustrated and accessible account of the development of air warfare, from the first skirmishes in World War I to today's hi-tech netcentric aerial battlespace. Complex computer-generated maps and graphics help explore every major battle fought in the skies, and document the air element of campaigns such as Operation Desert Storm.

Learn to draw in 30 days with Emmy award-winning PBS host Mark Kistler Drawing is an acquired skill, not a

talent--anyone can learn to draw! All you need is a pencil, a piece of paper, and the willingness to tap into your hidden artistic abilities. With Emmy award-winning, longtime PBS host Mark Kistler as your guide, you'll learn the secrets of sophisticated three-dimensional renderings, and have fun along the way--in just 20 minutes a day for a month. Inside you'll find: Quick and easy step-by-step instructions for drawing everything from simple spheres to apples, trees, buildings, and the human hand and face More than 500 line drawings, illustrating each step Time-tested tips, techniques, and tutorials for drawing in 3-D The 9 Fundamental Laws of Drawing to create the illusion of depth in any drawing 75 student examples to help gauge your own progress

And Other Intriguing Stories of Mathematical Physics
A Guided Tour Through Alan Turing's Historic Paper on Computability and the Turing Machine
Or, How to Estimate Damn Near Anything
The Hands-On Method for Solving Complex Problems with Simple Pictures
Mastering the Art of Problem Solving
A Concise Course in Statistical Inference
Back-of-the-Envelope Physics
Existential Risk and the Future of Humanity

Crossing the River with Dogs: Problem Solving for College Students, 3rd Edition promotes the philosophy that students learn best by working in groups and the skills required for real workplace problem solving are those skills of collaboration. The text aims to improve students' writing, oral communication, and collaboration skills while teaching mathematical problem-solving strategies. Focusing entirely on problem solving and using issues relevant to college students for examples, the authors continue their approach of explaining classic as well as non-traditional strategies through dialogs among fictitious students. This text is appropriate for a problem solving, quantitative reasoning, liberal arts mathematics, mathematics for elementary teachers, or developmental mathematics course. This urgent and eye-opening book makes the case that protecting humanity's future is the central challenge of our time. If all goes well, human history is just beginning. Our species could survive for billions of years – enough time to end disease, poverty, and injustice, and to flourish in ways unimaginable today. But this vast future is at risk. With the advent of nuclear weapons, humanity entered a new age, where we face

existential catastrophes - those from which we could never come back. Since then, these dangers have only multiplied, from climate change to engineered pathogens and artificial intelligence. If we do not act fast to reach a place of safety, it will soon be too late. Drawing on over a decade of research, The Precipice explores the cutting-edge science behind the risks we face. It puts them in the context of the greater story of humanity: showing how ending these risks is among the most pressing moral issues of our time. And it points the way forward, to the actions and strategies that can safeguard humanity. An Oxford philosopher committed to putting ideas into action, Toby Ord has advised the US National Intelligence Council, the UK Prime Minister's Office, and the World Bank on the biggest questions facing humanity. In The Precipice, he offers a startling reassessment of human history, the future we are failing to protect, and the steps we must take to ensure that our generation is not the last. "A book that seems made for the present moment." —New Yorker

How heavy is that cloud? Why can you see farther in rain than in fog? Why are the droplets on that spider web spaced apart so evenly? If you have ever asked questions like these while outdoors, and wondered how you might figure out the answers, this is a book for you. An entertaining and informative collection of fascinating puzzles from the natural world around us, A Mathematical Nature Walk will delight anyone who loves nature or math or both. John Adam presents ninety-six questions about many common natural phenomena--and a few uncommon ones--and then shows how to answer them using mostly basic mathematics. Can you weigh a pumpkin just by carefully looking at it? Why can you see farther in rain than in fog? What causes the variations in the colors of butterfly wings, bird feathers, and oil slicks? And why are large haystacks prone to spontaneous combustion? These are just a few of the questions you'll find inside. Many of the problems are illustrated with photos and drawings, and the book also has answers, a glossary of terms, and a list of some of the patterns found in nature. About a quarter of the questions can be answered with arithmetic, and many of the rest require only precalculus. But regardless of math background, readers will learn from the informal descriptions of the problems and gain a new appreciation of the beauty of nature and the mathematics that lies behind it. Collecting data is relatively easy, but turning raw information into something useful requires that you know how to extract precisely what you need. With this insightful book, intermediate to experienced programmers interested in data analysis will learn techniques for working with data in a business

environment. You'll learn how to look at data to discover what it contains, how to capture those ideas in conceptual models, and then feed your understanding back into the organization through business plans, metrics dashboards, and other applications. Along the way, you'll experiment with concepts through hands-on workshops at the end of each chapter. Above all, you'll learn how to think about the results you want to achieve -- rather than rely on tools to think for you. Use graphics to describe data with one, two, or dozens of variables Develop conceptual models using back-of-the-envelope calculations, as well asscaling and probability arguments Mine data with computationally intensive methods such as simulation and clustering Make your conclusions understandable through reports, dashboards, and other metrics programs Understand financial calculations, including the time-value of money Use dimensionality reduction techniques or predictive analytics to conquer challenging data analysis situations Become familiar with different open source programming environments for data analysis "Finally, a concise reference for understanding how to conquer piles of data."--Austin King, Senior Web Developer, Mozilla "An indispensable text for aspiring data scientists."--Michael E. Driscoll, CEO/Founder, Dataspora
Data Analysis with Open Source Tools
What a Teacher and a Student Learned about Life while Corresponding about Math
Modeling Patterns in the Natural World
The Chicken From Minsk
The Ultimate Prep Guide for Consulting Interviews
Crossing the River with Dogs
X and the City
A Hands-On Guide for Programmers and Data Scientists

The College Physics for AP(R) Courses text is designed to engage students in their exploration of physics and help them apply these concepts to the Advanced Placement(R) test. This book is Learning List-approved for AP(R) Physics courses. The text and images in this book are grayscale.

This book will prepare you for quantitative finance interviews by helping you zero in on the key concepts that are frequently tested in such interviews. In this book we analyze solutions to more than 200 real interview problems and provide valuable insights into how to ace quantitative interviews. The book covers a variety of topics that you are likely to encounter in quantitative interviews: brain teasers, calculus, linear algebra, probability, stochastic processes and stochastic calculus, finance and programming.

A collection of math and physics problems ranging from tricky to extremely difficult includes clues, answers, and stories about a problem's origin or how it was first solved

How many licks to the center of a Tootsie Pop? How many people are having sex at this moment? How long would it take a monkey on a typewriter to produce the plays of

Shakespeare? For all those questions that keep you up at night, here's the way to answer them. And the beauty of it is that it's all approximate! Using Enrico Fermi's theory of approximation, Santos brings the world of numbers into perspective. For puzzle junkies and trivia fanatics, these 70 word puzzles will show the reader how to take a bit of information, add what they already know, and extrapolate an answer. Santos has done the impossible: make math and the multiple possibilities of numbers fun and informative. Can you really cry a river? Is it possible to dig your way out of jail with just a teaspoon and before your life sentence is up? Taking an academic subject and using it as the prism to view everyday off-the-wall questions as math problems to be solved is a natural step for the lovers of sudoku, cryptograms, word puzzles, and other thought-provoking games.

The Art of Insight in Science and Engineering

How George Boole and Claude Shannon Created the Information Age

Maths on the Back of an Envelope: Clever ways to (roughly) calculate anything

College Physics for AP® Courses

Street-Fighting Mathematics

The Annotated Turing

A Brief History of the Twenty-first Century

The Art of Educated Guessing and Opportunistic Problem Solving

This book (intended for beginning analysts, students, and the people training them) bridges general business problem solving and mathematics for improved effectiveness in work and life. Full of tools for solving real-world problems, this new edition is an ideal training manual for those who are intimidated by quantitative analysis and an excellent refresher for those looking to improve the quality of their data, the clarity of their graphics, and the cogency of their arguments. In addition to numerous updates -- references, URLs, and reading lists -- this third edition includes revised chapters and many new and updated examples. Mastering the art of problem solving takes more than proficiency with basic calculations; it requires understanding how people use information, recognizing the importance of ideology, learning the art of storytelling, and acknowledging the important distinction between facts and values. This beginner's guide addresses these and other essential skills.

An original workbook companion to the acclaimed business bestseller The Back of the Napkin Dan Roam's The Back of the Napkin, a BusinessWeek bestseller, taught readers the power of brainstorming and communicating with pictures. It presented a new and exciting way to solve all kinds of problems-from the boardroom to the sales floor to the cubicle jungle. The companion workbook, Unfolding the Napkin, helps readers put Roam's principles into practice with step-by-step guidelines. It's filled with detailed case studies, guided do-it-yourself exercises, and plenty of blank space for drawing. Roam structured the book as a complete four-day visual-thinking seminar, taking readers step-by-step from "I can't draw" to "Here is the picture I drew that I think will save the world." The workbook teaches readers how to: •Improve their three "built-in" visual problem solving tools. •Apply the four-step visual thinking process (look-see-imagine-show) in any business situation. •Instantly improve their visual imaginations. •Learn how to recognize the type of

*problem to choose the best visual solution. If The Back of the Napkin was
a guide to fine dining, Unfolding the Napkin is the cookbook that will
soon be heavily marked up and dogeared.*

*"Magical Mathematics reveals the secrets of amazing, fun-to-perform
card tricks--and the profound mathematical ideas behind them--that will
astound even the most accomplished magician. Persi Diaconis and Ron
Graham provide easy, step-by-step instructions for each trick, explaining
how to set up the effect and offering tips on what to say and do while
performing it. Each card trick introduces a new mathematical idea, and
varying the tricks in turn takes readers to the very threshold of today's
mathematical knowledge. For example, the Gilbreath principle--a
fantastic effect where the cards remain in control despite being
shuffled--is found to share an intimate connection with the Mandelbrot
set. Other card tricks link to the mathematical secrets of combinatorics,
graph theory, number theory, topology, the Riemann hypothesis, and
even Fermat's last theorem. Diaconis and Graham are mathematicians as
well as skilled performers with decades of professional experience
between them. In this book they share a wealth of conjuring lore,
including some closely guarded secrets of legendary magicians. Magical
Mathematics covers the mathematics of juggling and shows how the I
Ching connects to the history of probability and magic tricks both old and
new. It tells the stories--and reveals the best tricks--of the eccentric and
brilliant inventors of mathematical magic. Magical Mathematics exposes
old gambling secrets through the mathematics of shuffling cards,
explains the classic street-gambling scam of three-card monte, traces the
history of mathematical magic back to the thirteenth century and the
oldest mathematical trick--and much more"-*
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