Basic Gambling Mathematics The Numbers Behind The Neon

The new edition of a favourite, featuring fresh material such as betting in sport and
bluffing in poker.

In the modern world the theory of probability is used extensively in mathematics,
science, engineering, medicine and, of course, gambling. A proposition bet is one that
involves the use of probability –both estimated and actual –where an individual makes
an apparently attractive bet to someone who is easily deceived by the odds, which are
at first glance in his favor. The Book of Proposition Bets gathers together, and reveals
the true mathematics behind, over 50 classic and original proposition bets. From the
famous Three Card Monty (really an exercise in the Monty Hall Paradox), to
probabilities based on rolling dice and pulling playing cards, or whether or not a mark
can guess 3 correct digits of a one dollar bill's serial number (spoiler: the odds are
against it), author Owen O'Shea here compiles a fascinating and engaging survey of
prop bets. In addition, Part 2 of the book contains a brief history of the theory of
probability and some examples of cons and scams perpetrated on the general public to
this day around the world, (plus a few more mathematical proposition bets!). Whether to
learn the intricacies used by hustlers, or borrow a couple of tricks for yourself, we wager

that there is a high probability that readers will enjoy this entertaining and illuminating book!

There are thousands of books relating to poker, blackjack, roulette and baccarat, including strategy guides, statistical analysis, psychological studies, and much more. However, there are no books on Pell, Rouleno, Street Dice, and many other games that have had a short life in casinos! While this is understandable — most casino gamblers have not heard of these games, and no one is currently playing them — their absence from published works means that some interesting mathematics and gaming history are at risk of being lost forever. Table games other than baccarat, blackjack, craps, and roulette are called carnival games, as a nod to their origin in actual traveling or seasonal carnivals. Mathematics of Casino Carnival Games is a focused look at these games and the mathematics at their foundation. Features • Exercises, with solutions, are included for readers who wish to practice the ideas presented • Suitable for a general audience with an interest in the mathematics of gambling and games • Goes beyond providing practical 'tips' for gamblers, and explores the mathematical principles that underpin gambling games

This is not a mathematics book, but a book about mathematics, which addresses both student and teacher, with a goal as practical as possible, namely to initiate and smooth the way toward the student's full understanding of the mathematics taught in school. The customary procedural-formal approach to teaching mathematics has resulted in

students' distorted vision of mathematics as a merely formal, instrumental, and calculatory discipline. Without the conceptual base of mathematics, students develop over time a "mathematical anxiety" and abandon any effort to understand mathematics, which becomes their "traditional enemy" in school. This work materializes the results of the inter- and trans-disciplinary research aimed toward the understanding of mathematics, which concluded that the fields with the potential to contribute to mathematics education in this respect, by unifying the procedural and conceptual approaches, are epistemology and philosophy of mathematics and science, as well as fundamentals and history of mathematics. These results argue that students' fear of mathematics can be annulled through a conceptual approach, and a student with a good conceptual understanding will be a better problem solver. The author has identified those zones and concepts from the above disciplines that can be adapted and processed for familiarizing the student with this type of knowledge, which should accompany the traditional content of school mathematics. The work was organized so as to create for the reader a unificatory image of the complex nature of mathematics, as well as a conceptual perspective ultimately necessary to the holistic understanding of school mathematics. The author talks about mathematics to convince readers that to understand mathematics means first to understand it as a whole, but also as part of a whole. The nature of mathematics, its primary concepts (like numbers and sets), its structures, language, methods, roles, and applicability, are all presented in their

essential content, and the explanation of non-mathematical concepts is done in an accessible language and with many relevant examples.

Contains six sections discussing probability, poker, blackjack, other casino games, sports betting, and general gambling concepts. This book contains some of the most sophisticated gambling ideas that have ever been put into print. Included is perhaps the best discussion of the basic mathematics of gambling, yet it is written so that even the most non-mathematical of readers can understand it. Many of the ideas discussed are those that the author himself has successfully used during his career. Topics include expectation, combinations, Baye's Theorem, the eight mistakes in poker, checking in the dark, playing tight, The Key Card Concept, casinos and their mistakes, crapless craps, betting sports, hedging and middling, knowing what's important, the Law of Averages and Other Fallacies, and much more.

Mathematics is the basis of casino games, which are the bedrock of a $100 billion/year industry. Mathematics of the Big Four Casino Table Games: Blackjack, Baccarat, Craps, & Roulette takes an in-depth look at the four biggest table games in casinos: blackjack, baccarat, craps, and roulette. It guides readers through the mathematical principles that underpin these games and their different variations, providing insights that will be of huge interest to gamblers, casino managers, researchers, and students of mathematics. Features A valuable teaching resource, replete with exercises, for any course on gambling mathematics Suitable for a wide audience of professionals,

researchers, and students Many practical applications for the gambling industry Mark Bollman is Professor of Mathematics and chair of the Department of Mathematics & Computer Science at Albion College in Albion, Michigan, and has taught 116 different courses in his career. Among these courses is "Mathematics of the Gaming Industry," where mathematics majors carefully study the math behind games of chance and travel to Las Vegas, Nevada, in order to compare theory and practice. He has also taken those ideas into Albion's Honors Program in "Great Issues in Humanities: Perspectives on Gambling," which considers gambling from literary, philosophical, and historical points of view as well as mathematically. Mark has also authored Basic Gambling Mathematics: The Numbers Behind the Neon, Mathematics of Keno and Lotteries, and Mathematics of Casino Carnival Games.

Continuing his series of books on the mathematics of gambling, the author shows how a simple-rule game such as roulette is suited to a complex mathematical model whose applications generate improved betting systems that take into account a player's personal playing criteria. The book is both practical and theoretical, but is mainly devoted to the application of theory. About two-thirds of the content is lists of categories and sub-categories of improved betting systems, along with all the parameters that might stand as the main objective criteria in a personal strategy - odds, profits and losses. The work contains new and original material not published before. The mathematical chapter describes complex bets, the profit function, the equivalence

between bets and all their properties. All theoretical results are accompanied by suggestive concrete examples and can be followed by anyone with a minimal mathematical background because they involve only basic algebraic skills and set theory basics. The reader may also choose to skip the math and go directly to the sections containing applications, where he or she can pick desired numerical results from tables. The book offers no new so-called winning strategies, although it discusses them from a mathematical point of view. It does, however, offer improved betting systems and helps to organize a player's choices in roulette betting, according to mathematical facts and personal strategies. It is a must-have roulette handbook to be studied before placing your bets on the turn of either a European or American roulette wheel.

Almost all incidences of cheating, theft, fraud, or loss can be detected through the surveillance of critical transactions, audit observations, and reviews of key metrics. Providing proven-techniques for detecting and mitigating the ever-evolving threats to casino security, this book covers the core skills, knowledge, and techniques needed to protect casino assets, guests, and employees. Drawing on the authors' six decades of combined experience in the industry, Casino Security and Gaming Surveillance identifies the most common threats to casino security and provides specific solutions for addressing these threats. From physical security and security management to table and gaming surveillance, it details numerous best practice techniques, strategies, and

tactics, in addition to the metrics required to effectively monitor operations. The authors highlight valuable investigation tools, including interview techniques and evidence gathering. They also cover IOU patrol, tri-shot coverage, surveillance audits, threat analysis, card counting, game protection techniques, players' club theft and fraud, surveillance standard operating procedures, nightclub and bar security, as well as surveillance training. Complete with a glossary of gaming terms and a resource-rich appendix that includes helpful forms, this book covers everything surveillance and security professionals need to know to avoid high-profile incidents, costly compliance violations and damage to property and revenue. It's professionals like Al and Derk who personify the professionalism that is crucial when establishing and operating modern casino security and surveillance departments. This book will quickly become the Bible for any security and surveillance officer. —Roger Gros, Publisher, Global Gaming Business Magazine

A professional gambler offers his secrets for winning at all major casino games, with tips on betting strategies, successful money management, and self-control under pressure. 64 illustrations.

Understand the Math Underlying Some of Your Favorite Gambling Games Basic Gambling Mathematics: The Numbers Behind the Neon explains the mathematics involved in analyzing games of chance, including casino games, horse racing, and lotteries. The book helps readers understand the mathematical reasons why some

gambling games are better for the player than others. It is also suitable as a textbook for an introductory course on probability. Along with discussing the mathematics of well-known casino games, the author examines game variations that have been proposed or used in actual casinos. Numerous examples illustrate the mathematical ideas in a range of casino games while end-of-chapter exercises go beyond routine calculations to give readers hands-on experience with casino-related computations. The book begins with a brief historical introduction and mathematical preliminaries before developing the essential results and applications of elementary probability, including the important idea of mathematical expectation. The author then addresses probability questions arising from a variety of games, including roulette, craps, baccarat, blackjack, Caribbean stud poker, Royal Roulette, and sic bo. The final chapter explores the mathematics behind "get rich quick" schemes, such as the martingale and the Iron Cross, and shows how simple mathematics uncovers the flaws in these systems. 'Football looked at in a very different way' Pat Nevin, former Chelsea and Everton star and football media analyst Football – the most mathematical of sports. From shot statistics and league tables to the geometry of passing and managerial strategy, the modern game is filled with numbers, patterns and shapes. How do we make sense of them? The answer lies in the mathematical models applied in biology, physics and economics. Soccermatics brings football and mathematics together in a mind-bending synthesis, using numbers to help reveal the inner workings of the beautiful game. This

new and expanded edition analyses the current big-name players and teams using mathematics, and meets the professionals working inside football who use numbers and statistics to boost performance. Welcome to the world of mathematical modelling, expressed brilliantly by David Sumpter through the prism of football. No matter who you follow – from your local non-league side to the big boys of the Premiership, La Liga, the Bundesliga, Serie A or the MLS – you'll be amazed at what mathematics has to teach us about the world's favourite sport.

This work is a complete mathematical guide to lottery games, covering all of the problems related to probability, combinatorics, and all parameters describing the lottery matrices, as well as the various playing systems. The mathematics sections describe the mathematical model of the lottery, which is in fact the essence of the lotto game. The applications of this model provide players with all the mathematical data regarding the parameters attached to the gaming events and personal playing systems. By applying these data, one can find all the winning probabilities for the play with one line (for each category in part or cumulatively), and how these probabilities change with playing the various types of systems containing several lines, depending on their structure. Also, each playing system has a formula attached that provides the number of possible multiple prizes in various circumstances. Other mathematical parameters of the playing systems and the correlations between them are also presented. The generality of the mathematical model and of the obtained formulas allows their

application for any existent lottery (including variations like Keno) and any playing system. Each formula is followed by numerical results covering the most frequent lottery matrices worldwide and by multiple examples predominantly belonging to the 6/49 lottery. The listing of the numerical results in dozens of well-organized tables, along with instructions and examples of using them, makes possible the direct usage of this guide by players without a mathematical background. The author also discusses from a mathematical point of view the strategies of choosing involved in the lotto game. The book does not offer so-called winning strategies (proving that the only strategy is that of choosing), but helps players to better organize their own playing systems and to confront their own convictions (so many times based on false perceptions) with the incontestable reality offered by the direct applications of the mathematical model of the lotto game. As a must-have handbook for any lottery player, this book offers essential information about the game itself and can provide the basis for gaming decisions of any kind.

Mathematics was only one area of interest for Gerolamo Cardano ? the sixteenth-century astrologer, philosopher, and physician was also a prolific author and inveterate gambler. Gambling led Cardano to the study of probability, and he was the first writer to recognize that random events are governed by mathematical laws. Published posthumously in 1663, Cardano's Liber de ludo aleae (Book on Games of Chance) is often considered the major starting point of the study of mathematical probability. The

Italian scholar formulated some of the field's basic ideas more than a century before the better-known correspondence of Pascal and Fermat. Although his book had no direct influence on other early thinkers about probability, it remains an important antecedent to later expressions of the science's tenets.

Mathematics of Keno and Lotteries is an elementary treatment of the mathematics, primarily probability and simple combinatorics, involved in lotteries and keno. Keno has a long history as a high-advantage, high-payoff casino game, and state lottery games such as Powerball are mathematically similar. MKL also considers such lottery games as passive tickets, daily number drawings, and specialized games offered around the world. In addition, there is a section on financial mathematics that explains the connection between lump-sum lottery prizes (as with Powerball) and their multi-year annuity options. So-called "winning systems" for keno and lotteries are examined mathematically and their flaws identified.

Praise for the First Edition "Luck, Logic, and White Lies teaches readers of all backgrounds about the insight mathematical knowledge can bring and is highly recommended reading among avid game players, both to better understand the game itself and to improve one's skills." – Midwest Book Review "The best book I've found for someone new to game math is Luck, Logic and White Lies by Jörg Bewersdorff. It introduces the reader to a vast mathematical literature, and does so in an enormously clear manner. . ." – Alfred Wallace, Musings, Ramblings, and Things Left Unsaid "The

aim is to introduce the mathematics that will allow analysis of the problem or game. This is done in gentle stages, from chapter to chapter, so as to reach as broad an audience as possible . . . Anyone who likes games and has a taste for analytical thinking will enjoy this book." – Peter Fillmore, CMS Notes Luck, Logic, and White Lies: The Mathematics of Games, Second Edition considers a specific problem—generally a game or game fragment and introduces the related mathematical methods. It contains a section on the historical development of the theories of games of chance, and combinatorial and strategic games. This new edition features new and much refreshed chapters, including an all-new Part IV on the problem of how to measure skill in games. Readers are also introduced to new references and techniques developed since the previous edition. Features Provides a uniquely historical perspective on the mathematical underpinnings of a comprehensive list of games Suitable for a broad audience of differing mathematical levels. Anyone with a passion for games, game theory, and mathematics will enjoy this book, whether they be students, academics, or game enthusiasts Covers a wide selection of topics at a level that can be appreciated on a historical, recreational, and mathematical level. Jörg Bewersdorff (1958) studied mathematics from 1975 to 1982 at the University of Bonn and earned his PhD in 1985. In the same year, he started his career as game developer and mathematician. He served as the general manager of the subsidiaries of Gauselmann AG for more than two decades where he developed electronic gaming machines, automatic payment

machines, and coin-operated Internet terminals. Dr. Bewersdorff has authored several books on Galois theory (translated in English and Korean), mathematical statistics, and object-oriented programming with JavaScript.

[Man] invented a concept that has since been variously viewed as a vice, a crime, a business, a pleasure, a type of magic, a disease, a folly, a weakness, a form of sexual substitution, an expression of the human instinct. He invented gambling. Richard Epstein's classic book on gambling and its mathematical analysis covers the full range of games from penny matching, to blackjack and other casino games, to the stock market (including Black-Scholes analysis). He even considers what light statistical inference can shed on the study of paranormal phenomena. Epstein is witty and insightful, a pleasure to dip into and read and rewarding to study.

Over the past two decades, gamblers have begun taking mathematics into account more seriously than ever before. While probability theory is the only rigorous theory modeling the uncertainty, even though in idealized conditions, numerical probabilities are viewed not only as mere mathematical information, but also as a decision-making criterion, especially in gambling. This book presents the mathematics underlying the major games of chance and provides a precise account of the odds associated with all gaming events. It begins by explaining in simple terms the meaning of the concept of probability for the layman and goes on to become an enlightening journey through the mathematics of chance, randomness and risk. It then continues with the basics of

discrete probability (definitions, properties, theorems and calculus formulas), combinatorics and counting arguments for those interested in the supporting mathematics. These mathematic sections may be skipped by readers who do not have a minimal background in mathematics; these readers can skip directly to the Guide to Numerical Results to pick the odds and recommendations they need for the desired gaming situation. Doing so is possible due to the organization of that chapter, in which the results are listed at the end of each section, mostly in the form of tables. The chapter titled The Mathematics of Games of Chance presents these games not only as a good application field for probability theory, but also in terms of human actions where probability-based strategies can be tried to achieve favorable results. Through suggestive examples, the reader can see what are the experiments, events and probability fields in games of chance and how probability calculus works there. The main portion of this work is a collection of probability results for each type of game. Each game s section is packed with formulas and tables. Each section also contains a description of the game, a classification of the gaming events and the applicable probability calculations. The primary goal of this work is to allow the reader to quickly find the odds for a specific gaming situation, in order to improve his or her betting/gaming decisions. Every type of gaming event is tabulated in a logical, consistent and comprehensive manner. The complete methodology and complete or partial calculations are shown to teach players how to calculate probability for any

situation, for every stage of the game for any game. Here, readers can find the real odds, returned by precise mathematical formulas and not by partial simulations that most software uses. Collections of odds are presented, as well as strategic recommendations based on those odds, where necessary, for each type of gaming situation. The book contains much new and original material that has not been published previously and provides great coverage of probabilities for the following games of chance: Dice, Slots, Roulette, Baccarat, Blackjack, Texas Hold em Poker, Lottery and Sport Bets. Most of games of chance are predisposed to probability-based decisions. This is why the approach is not an exclusively statistical one (like many other titles published on this subject), but analytical: every gaming event is taken as an individual applied probability problem to solve. A special chapter defines the probability-based strategy and mathematically shows why such strategy is theoretically optimal." We live in a world of numbers and mathematics, and so we need to work with numbers and some math in almost everything we do, to control our happiness and the direction of our lives. The purpose of Coming Home to Math is to make adults with little technical training more comfortable with math, in using it and enjoying it, and to allay their fears of math, enable their numerical thinking, and convince them that math is fun. A range of important math concepts are presented and explained in simple terms, mostly by using arithmetic, with frequent connections to the real world of personal financial matters, health, gambling, and popular culture.As such, Coming Home to Math is geared to

making the general, non-specialist, adult public more comfortable with math, though not to formally train them for new careers or to teach those first learning math. It may also be helpful to liberal arts college students who need to tackle more technical subjects. The range of topics covered may also appeal to scholars who are more math savvy, though it may not challenge them.

This classic of advanced statistics is geared toward graduate-level readers and uses the concepts of gambling to develop important ideas in probability theory. The authors have distilled the essence of many years' research into a dozen concise chapters. "Strongly recommended" by the Journal of the American Statistical Association upon its initial publication, this revised and updated edition features contributions from two well-known statisticians that include a new Preface, updated references, and findings from recent research. Following an introductory chapter, the book formulates the gambler's problem and discusses gambling strategies. Succeeding chapters explore the properties associated with casinos and certain measures of subfairness. Concluding chapters relate the scope of the gambler's problems to more general mathematical ideas, including dynamic programming, Bayesian statistics, and stochastic processes. Dover (2014) revised and updated republication of the 1976 Dover edition entitled Inequalities for Stochastic Processes. See every Dover book in print at www.doverpublications.com

The hazards of feeling lucky in gambling Why do so many gamblers risk it all when they

know the odds of winning are against them? Why do they believe dice are "hot" in a winning streak? Why do we expect heads on a coin toss after several flips have turned up tails? What's Luck Got to Do with It? takes a lively and eye-opening look at the mathematics, history, and psychology of gambling to reveal the most widely held misconceptions about luck. It exposes the hazards of feeling lucky, and uses the mathematics of predictable outcomes to show when our chances of winning are actually good. Mathematician Joseph Mazur traces the history of gambling from the earliest known archaeological evidence of dice playing among Neolithic peoples to the first systematic mathematical studies of games of chance during the Renaissance, from government-administered lotteries to the glittering seductions of grand casinos, and on to the global economic crisis brought on by financiers' trillion-dollar bets. Using plenty of engaging anecdotes, Mazur explains the mathematics behind gambling—including the laws of probability, statistics, betting against expectations, and the law of large numbers—and describes the psychological and emotional factors that entice people to put their faith in winning that ever-elusive jackpot despite its mathematical improbability. As entertaining as it is informative, What's Luck Got to Do with It? demonstrates the pervasive nature of our belief in luck and the deceptive psychology of winning and losing. Some images inside the book are unavailable due to digital copyright restrictions.

Early in his rise to enlightenment, man invented a concept that has since been variously

viewed as a vice, a crime, a business, a pleasure, a type of magic, a disease, a folly, a weakness, a form of sexual substitution, an expression of the human instinct. He invented gambling. Recent advances in the field, particularly Parrondo's paradox, have triggered a surge of interest in the statistical and mathematical theory behind gambling. This interest was acknowledge in the motion picture, "21," inspired by the true story of the MIT students who mastered the art of card counting to reap millions from the Vegas casinos. Richard Epstein's classic book on gambling and its mathematical analysis covers the full range of games from penny matching to blackjack, from Tic-Tac-Toe to the stock market (including Edward Thorp's warrant-hedging analysis). He even considers whether statistical inference can shed light on the study of paranormal phenomena. Epstein is witty and insightful, a pleasure to dip into and read and rewarding to study. The book is written at a fairly sophisticated mathematical level; this is not "Gambling for Dummies" or "How To Beat The Odds Without Really Trying." A background in upper-level undergraduate mathematics is helpful for understanding this work. o Comprehensive and exciting analysis of all major casino games and variants o Covers a wide range of interesting topics not covered in other books on the subject o Depth and breadth of its material is unique compared to other books of this nature Richard Epstein's website: www.gamblingtheory.net

With the immediacy of today's NASDAQ close and the timeless power of a Greek tragedy, The Quants is at once a masterpiece of explanatory journalism, a gripping tale of ambition and

hubris, and an ominous warning about Wall Street's future. In March of 2006, four of the world's richest men sipped champagne in an opulent New York hotel. They were preparing to compete in a poker tournament with million-dollar stakes, but those numbers meant nothing to them. They were accustomed to risking billions. On that night, these four men and their cohorts were the new kings of Wall Street. Muller, Griffin, Asness, and Weinstein were among the best and brightest of a new breed, the quants. Over the prior twenty years, this species of math whiz--technocrats who make billions not with gut calls or fundamental analysis but with formulas and high-speed computers--had usurped the testosterone-fueled, kill-or-be-killed risk-takers who'd long been the alpha males the world's largest casino. The quants helped create a digitized money-trading machine that could shift billions around the globe with the click of a mouse. Few realized, though, that in creating this unprecedented machine, men like Muller, Griffin, Asness and Weinstein had sowed the seeds for history's greatest financial disaster. Drawing on unprecedented access to these four number-crunching titans, The Quants tells the inside story of what they thought and felt in the days and weeks when they helplessly watched much of their net worth vaporize--and wondered just how their mind-bending formulas and genius-level IQ's had led them so wrong, so fast.

Many experiments have shown the human brain generally has very serious problems dealing with probability and chance. A greater understanding of probability can help develop the intuition necessary to approach risk with the ability to make more informed (and better) decisions. The first four chapters offer the standard content for an introductory probability course, albeit presented in a much different way and order. The chapters afterward include some discussion of different games, different "ideas" that relate to the law of large numbers,

and many more mathematical topics not typically seen in such a book. The use of games is meant to make the book (and course) feel like fun! Since many of the early games discussed are casino games, the study of those games, along with an understanding of the material in later chapters, should remind you that gambling is a bad idea; you should think of placing bets in a casino as paying for entertainment. Winning can, obviously, be a fun reward, but should not ever be expected. Changes for the Second Edition: New chapter on Game Theory New chapter on Sports Mathematics The chapter on Blackjack, which was Chapter 4 in the first edition, appears later in the book. Reorganization has been done to improve the flow of topics and learning. New sections on Arkham Horror, Uno, and Scrabble have been added. Even more exercises were added! The goal for this textbook is to complement the inquiry-based learning movement. In my mind, concepts and ideas will stick with the reader more when they are motivated in an interesting way. Here, we use questions about various games (not just casino games) to motivate the mathematics, and I would say that the writing emphasizes a "just-in-time" mathematics approach. Topics are presented mathematically as questions about the games themselves are posed. Table of Contents Preface 1. Mathematics and Probability 2. Roulette and Craps: Expected Value 3. Counting: Poker Hands 4. More Dice: Counting and Combinations, and Statistics 5. Game Theory: Poker Bluffing and Other Games 6. Probability/Stochastic Matrices: Board Game Movement 7. Sports Mathematics: Probability Meets Athletics 8. Blackjack: Previous Methods Revisited 9. A Mix of Other Games 10. Betting Systems: Can You Beat the System? 11. Potpourri: Assorted Adventures in Probability Appendices Tables Answers and Selected Solutions Bibliography Biography Dr. David G. Taylor is a professor of mathematics and an associate dean for academic affairs at Roanoke

College in southwest Virginia. He attended Lebanon Valley College for his B.S. in computer science and mathematics and went to the University of Virginia for his Ph.D. While his graduate school focus was on studying infinite dimensional Lie algebras, he started studying the mathematics of various games in order to have a more undergraduate-friendly research agenda. Work done with two Roanoke College students, Heather Cook and Jonathan Marino, appears in this book! Currently he owns over 100 different board games and enjoys using probability in his decision-making while playing most of those games. In his spare time, he enjoys reading, cooking, coding, playing his board games, and spending time with his six-year-old dog Lilly.

This book presents not only the mathematical concept of probability, but also its philosophical aspects, the relativity of probability and its applications and even the psychology of probability. All explanations are made in a comprehensible manner and are supported with suggestive examples from nature and daily life, and even with challenging math paradoxes. (Mathematics) With wit and clarity, the authors progress from simple arithmetic to calculus and non-Euclidean geometry. Their subjects: geometry, plane and fancy; puzzles that made mathematical history; tantalizing paradoxes; more. Includes 169 figures.

This is a book about a gambling system that works. It tells the story of how the author used computer simulations and mathematical modeling techniques to predict the outcome of jai-alai matches and bet on them successfully - increasing his initial stake by over 500% in one year! His results can work for anyone: at the end of the book he tells the best way to watch jai-alai, and how to bet on it. With humour and enthusiasm, Skiena details a life-long fascination with computer predictions and sporting events. Along the way, he discusses other gambling

systems, both successful and unsuccessful, for such games as lotto, roulette, blackjack, and the stock market. Indeed, he shows how his jai-alai system functions just like a miniature stock trading system. Do you want to learn about program trading systems, the future of Internet gambling, and the real reason brokerage houses don't offer mutual funds that invest at racetracks and frontons? How mathematical models are used in political polling? The difference between correlation and causation? If you are curious about gambling and mathematics, odds are this book is for you!

Mathematics in Games, Sports, and Gambling: The Games People Play, Second Edition demonstrates how discrete probability, statistics, and elementary discrete mathematics are used in games, sports, and gambling situations. With emphasis on mathematical thinking and problem solving, the text draws on numerous examples, questions, and problems to explain the application of mathematical theory to various real-life games. This updated edition of a widely adopted textbook considers a number of popular games and diversions that are mathematically based or can be studied from a mathematical perspective. Requiring only high school algebra, the book is suitable for use as a textbook in seminars, general education courses, or as a supplement in introductory probability courses. New in this Edition: Many new exercises, including basic skills exercises More answers in the back of the book Expanded summary exercises, including writing exercises More detailed examples, especially in the early chapters An expansion of the discrete adjustment technique for binomial approximation problems New sections on chessboard puzzles that encourage students to develop graph theory ideas New review material on relations and functions Exercises are included in each section to help students understand the various concepts. The text covers permutations in the

two-deck matching game so derangements can be counted. It introduces graphs to find matches when looking at extensions of the five-card trick and studies lexicographic orderings and ideas of encoding for card tricks. The text also explores linear and weighted equations in the section on the NFL passer rating formula and presents graphing to show how data can be compared or displayed. For each topic, the author includes exercises based on real games and actual sports data.

A comprehensive introduction to statistics that teaches the fundamentals with real-life scenarios, and covers histograms, quartiles, probability, Bayes' theorem, predictions, approximations, random samples, and related topics.

Want to calculate the probability that an event will happen? Be able to spot fake data? Prove beyond doubt whether one thing causes another? Or learn to be a better gambler? You can do that and much more with 75 practical and fun hacks packed into Statistics Hacks. These cool tips, tricks, and mind-boggling solutions from the world of statistics, measurement, and research methods will not only amaze and entertain you, but will give you an advantage in several real-world situations-including business. This book is ideal for anyone who likes puzzles, brainteasers, games, gambling, magic tricks, and those who want to apply math and science to everyday circumstances. Several hacks in the first chapter alone-such as the "central limit theorem,", which allows you to know everything by knowing just a little-serve as sound approaches for marketing and other business objectives. Using the tools of inferential statistics, you can understand the way probability works, discover relationships, predict events with uncanny accuracy, and even make a little money with a well-placed wager here and there. Statistics Hacks presents useful techniques from statistics, educational and psychological

measurement, and experimental research to help you solve a variety of problems in business, games, and life. You'll learn how to: Play smart when you play Texas Hold 'Em, blackjack, roulette, dice games, or even the lottery Design your own winnable bar bets to make money and amaze your friends Predict the outcomes of baseball games, know when to "go for two" in football, and anticipate the winners of other sporting events with surprising accuracy Demystify amazing coincidences and distinguish the truly random from the only seemingly random--even keep your iPod's "random" shuffle honest Spot fraudulent data, detect plagiarism, and break codes How to isolate the effects of observation on the thing observed Whether you're a statistics enthusiast who does calculations in your sleep or a civilian who is entertained by clever solutions to interesting problems, Statistics Hacks has tools to give you an edge over the world's slim odds.

For decades, the highest level of poker have been dominated by players who have learned the game by playing it, 'road gamblers' who have cultivated intuition for the game and are adept at reading other players' hands from betting patterns and physical tells. Over the last five to ten years, a whole new breed has risen to prominence within the poker community. Applying the tools of computer science and mathematics to poker and sharing the information across the Internet, these players have challenged many of the assumptions that underlay traditional approaches to the game.

A readily understandable exploration of how figures are badly reported or deliberately misrepresented everywhere from political arguments and briefings to business presentations and shopping offers. Praise for Hugh Barker's Million Dollar Maths: 'Great fun. A clear, original and highly readable account of the curious relationship between mathematics and money.'

Professor Ian Stewart - author of Significant Figures 'A lively crash course in the mathematics of gambling, investing, and managing. Hugh Barker makes deep ideas fun and profitable.' William Poundstone - author of How to Predict the Unpredictable Politicians, economists, scientists, journalists . . . all of them have been known to bend the truth and to twist the facts from time to time. But surely the numbers and statistics they rely on are cold, hard objective facts that tell the real story? Of course the truth is much murkier than that. Figures can be misinterpreted, misunderstood, misconstrued and misused in hundreds of different ways. This book takes a look at the many ways that statistical information can be badly reported or deliberately misused in all walks of life, from political arguments, to business presentations, to more local concerns such as shopping offers and utility bills. A polemical guide to how numbers are used to mislead, which is intended to help the reader through the minefield of dubious stats and lying numbers.

"An elegant and amusing account" of how gambling has been reshaped by the application of science and revealed the truth behind a lucky bet (Wall Street Journal). For the past 500 years, gamblers-led by mathematicians and scientists-have been trying to figure out how to pull the rug out from under Lady Luck. In The Perfect Bet, mathematician and award-winning writer Adam Kucharski tells the astonishing story of how the experts have succeeded, revolutionizing mathematics and science in the process. The house can seem unbeatable. Kucharski shows us just why it isn't. Even better, he demonstrates how the search for the perfect bet has been crucial for the scientific pursuit of a better world.

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