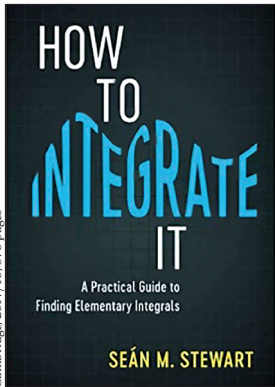




BOOKSHELF

New and Noteworthy Titles on our Bookshelf
November 2019

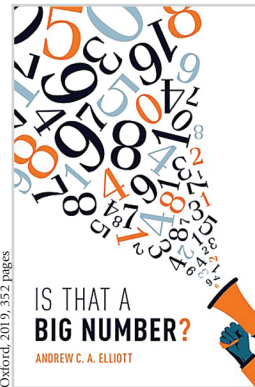


How to Integrate It: A Practical Guide to Finding Elementary Integrals

by Seán M. Stewart

This book is unapologetically about integration for its own sake, which makes it a rarity among new calculus-based releases. Seán Stewart (not *that* Stewart) provides twenty-one short chapters and two appendices on the integration of real-valued functions of a single real variable. Each chapter focuses on a narrow topic, usually a specific integration technique. Each technique is introduced with worked examples and complemented with an array of problems which are divided into three categories: warm-ups, practice questions, and “extension questions and challenge problems.” The first two varieties are conventional and not so different from those that could be found in a typical calculus book. Questions of the third type involve clever applications of integration, such as the irrationality of π and e or the derivation of Wallis’s product. Others introduce obscure integration techniques, such as Gunther’s hyperbolic substitution and Ostrogradsky’s method, which may be new to most readers. Answers are provided in the back of the book for many, but not all, of the problems. Students who are studying for the mathematics subject GRE (where calculus, broadly construed, constitutes 50% of the questions) or who need to pick up a few extra tricks for mathematics competitions might benefit from the book, as will instructors of honors calculus classes who are in search of new problems. While this is not a suitable primary text for most purposes, it could be a valuable source-book for ideas and examples.

Cambridge, 2017/18, 378 pages



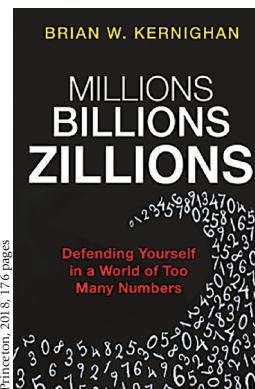
Is That a Big Number?

by Andrew C. A. Elliott

This book aims to train the motivated layperson to comprehend and compare large quantities spread over many orders of magnitude.

Is That a Big Number? will make an excellent addition to the syllabus for a basic numeracy course. Readers will come away from the book with the ability to come to grips with questions like “Is the claim that the Great Pyramid of Giza contains 2.3 million stone blocks reasonable?” Students will learn how to make “back-of-the-envelope” computations that involve orders of magnitude. Readers who are already numerically inclined will delight in the endless stream of unexpected and obscure data that are presented from subjects ranging from economics and astronomy to athletics, history, and electronics.

Oxford, 2019, 352 pages



Millions, Billions, Zillions: Defending Yourself in a World of Too Many Numbers

by Brian W. Kernighan

This book instructs “even die-hard math phobes” how to independently evaluate the credibility of numerical information with a combination of quick estimates, dimensional analysis, and back-of-the-envelope computations. For example, the *New York Times* reported in 2014 that “every day 10,000 baby-boomers turn 65” and in 2016 that “8,000 baby-boomers turn 65 every month.” How does one determine if either of these contradictory figures is trustworthy? Kernighan analyzes an endless supply of “facts” from popular information sources. The examples are often humorous and always enlightening.

Princeton, 2018, 176 pages

Each chapter tackles a specific issue, fallacy, or frequent mistake one often encounters when consuming media in a numerically challenged world. Instructors of basic numeracy courses will find this book both timely and useful.

The Bookshelf is prepared monthly by Notices Associate Editor Stephan Ramon Garcia.

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