Three New Puzzle Books

GAMEBITS

IMPOSSIBLE? SURPRISING SOLUTIONS TO COUNTERINTUITIVE CONUNDRUMS

By Julian Havil Princeton University Press, ©2008, 236 pages hardcover, \$27.95

iven two different medications for the same illness—we'll call the two drugs A and B—how is it possible that A works on a higher percentage of men than B, A also works on more women than B, and yet B works better than A on the population as a whole? Or how can it be that building more roads can increase traffic congestion, while closing a road may make traffic move more smoothly? And what should poker players do about the seeming paradox that adding even one wild card to a deck makes three of a kind easier to get than the normally less valuable two pairs?

This thought-provoking book analyzes many such counterintuitive situations and examines them mathematically. The discussions are always very clear, although many of the chapters do require some familiarity with logarithms, trigonometry, and basic calculus. The author has taught mathematics for more than 30 years at Winchester College, England, and is the author of *Nonplussed! Mathematical Proof of Implausible Ideas*.

Here's a hint at the answer to the first question asked above—which, as the book explains, is an example of Simpson's Paradox: If a/b > c/d and e/f > g/h, it is not necessarily true that (a+e)/(b+f) > (c+g)/(d+h).

-R.W.S.



The Simple Book of Not-So-Simple Puzzles

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GUESSTIMATION: SOLVING THE WORLD'S PROBLEMS ON THE BACK OF A COCKTAIL NAPKIN

By Lawrence Weinstein and John A. Adam Princeton University Press, ©2008, 302 pages softcover. \$19.95

f all the pickles sold in the U.S. were placed end to end, what distance would they cover? How much domestic trash is collected each year in the U.S. (in cubic meters or tons)? How many molecules of Alexander the Great's last breath do you inhale with each breath?

Problems like these may seem unsolvable at first, but the authors break them down logically, first determining what quantities need to be known in order to make the calculations, then estimating those quantities as rationally as possible. The goal is not to answer each question exactly, but to get a reasonable ballpark figure—any answer that is within a factor of 10 of the actual answer is considered a success.

More than 70 questions are presented. They range from the practically important to the absurdly whimsical, but are all entertaining. Some knowledge of physics is useful, but the mathematics is limited to algebra and simple geometry.

-R.W.S.

THE SIMPLE BOOK OF NOT-SO-SIMPLE PUZZLES

By Serbiy Grabarchuk, Peter Grabarchuk, and Serbiy Grabarchuk, Jr. A K Peters, ©2008, 112 pages softcover, \$19.95

his outstanding collection of more than 100 brainteasers is derived from *Puzzle Miniatures*, three small volumes published from 1998 to 2005. The authors use the term "puzzle miniatures" to mean puzzles that appear simple but have harder-than-expected solutions. Each puzzle in the book makes use of a diagram; puzzle types include moving matchsticks or coins to create a new pattern, dividing shapes into a certain number of parts of equal area, maneuvering pieces through unusual grids, and completing logical patterns. At right is a relatively straightforward sample.



The Matchstick Needle

Move three matchsticks so that three triangles of the same shape and size appear.

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