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★**The mathematics lover's companion.**

Masterpieces for everyone.

Yale University Press, New Haven, CT, 2017. xx+274 pp. ISBN 978-0-300-22300-2

This delightful book is designed to allow non-mathematicians to share in the joy of mathematical proofs: the square root of two is irrational, the number of primes is infinite, $e^{\pi^2} + 1 = 0$. It includes many famous proofs taught in a first course in mathematical reasoning, written at a level that does not require any college mathematics. What is expected of the reader is a little knowledge of arithmetic, of fractions and decimals, and the ability to read an equation and understand what it means for a number to satisfy an equation.

In addition to the proofs presented purely for the intellectual pleasure they provide, there are a few chapters that illustrate the importance of mathematics in understanding the modern world: "Medical probability", "Chaos", "Social choice and Arrow's Theorem".

I catch mistakes in almost every book I read, but if this remarkable book has any mistakes, I did not catch them. While every mathematician will be familiar with most of the proofs, the clear exposition can be enjoyed for its own sake.

My only caveat is the fear that non-mathematicians may find even the clearest mathematical proofs outside their comfort zone. This book is not for readers who cannot tell if $x = 3$ satisfies the equation $x + 2 = 5$. *Frederick Norwood*