THE JOY ABSTRACTION

An Exploration of Math, Category Theory, and Life EUGENIA CHENG

→JOY_{OF} ABSTRACT

An Exploration of Math, Category Theory, and Life

EUGENIA CHENG

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Mathematician and popular science author Eugenia Cheng is on a mission to show you that mathematics can be flexible, creative, and visual. This joyful journey through the world of abstract mathematics into category theory will demystify mathematical thought processes and help you develop your own thinking, with no formal mathematical background needed. The book brings abstract mathematical ideas down to earth using examples of social justice, current events, and everyday life - from privilege to COVID-19 to driving routes. The journey begins with the ideas and workings of abstract mathematics, after which you will gently climb toward more technical material, learning everything needed to understand category theory, and then key concepts in category theory like natural transformations, duality, and even a glimpse of ongoing research in higher-dimensional category theory. For fans of How to Bake Pi, this will help you dig deeper into mathematical concepts and build your mathematical background.

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- ⁴⁶ This book is an educational tour de force that presents mathematical thinking as a right-brained activity.
- KEITH DEVLIN, Stanford University (Emeritus), author of *The Joy of Sets*
- ⁴⁴ Cheng is a brilliant writer, with prose that feels like poetry. Her contagious enthusiasm makes her the perfect quide.
- JOHN EWING, President, Math for America
- 44 ...Eugenia Cheng's latest book will appeal to a remarkably broad and diverse audience, from non-mathematicians who would like to get a sense of what mathematics is really about, to experienced mathematicians who are not category theorists but would like a basic understanding of category theory.
- SIR TIMOTHY GOWERS, Collège de France, Fields Medalist, main editor of *The Princeton* Companion to Mathematics

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