



Love and Math: The Heart of Hidden Reality

By Edward Frenkel

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What if you had to take an art class in which you were only taught how to paint a fence? What if you were never shown the paintings of van Gogh and Picasso, weren't even told they existed? Alas, this is how math is taught, and so for most of us it becomes the intellectual equivalent of watching paint dry.

In *Love and Math*, renowned mathematician Edward Frenkel reveals a side of math we've never seen, suffused with all the beauty and elegance of a work of art. In this heartfelt and passionate book, Frenkel shows that mathematics, far from occupying a specialist niche, goes to the heart of all matter, uniting us across cultures, time, and space.

Love and Math tells two intertwined stories: of the wonders of mathematics and of one young man's journey learning and living it. Having braved a discriminatory educational system to become one of the twenty-first century's leading mathematicians, Frenkel now works on one of the biggest ideas to come out of math in the last 50 years: the Langlands Program. Considered by many to be a Grand Unified Theory of mathematics, the Langlands Program enables researchers to translate findings from one field to another so that they can solve problems, such as Fermat's last theorem, that had seemed intractable before.

At its core, *Love and Math* is a story about accessing a new way of thinking, which can enrich our lives and empower us to better understand the world and our place in it. It is an invitation to discover the magic hidden universe of mathematics.



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Editorial Review

From Publishers Weekly

U.C. Berkley mathematician Frenkel reveals the joy of pure intellectual discovery in this autobiographical story of determination, passion, and the Langlands program—a sort of Grand Unified Field Theory of mathematics. As a teenager Frenkel was converted from math hater to eager theorist by a mathematical friend of the family, enough to pursue it despite his struggles against an unapologetically anti-Semitic Soviet educational system. Frenkel writes casually of climbing over the fence to sit in on advanced classes at Moscow State University, a top school that didn't accept Jews. With the help of mentors, he worked hard and eventually found his way to Harvard and the freedom to focus on his research. Frenkel balances autobiographical narrative with enthusiastic discussions of his own work on the Langlands program, a web of algebraic conjectures named after a Canadian mathematician that is noted for its usefulness in organizing seemingly chaotic data into regular patterns full of symmetry and harmony, and its applications to quantum theory. While the math can be heavy going, Frenkel's gusto will draw readers into his own quest, pursuing the deepest realities of mathematics as if it were a giant jigsaw puzzle, in which no one knows what the final image is going to look like. B&w illus. (Oct.)

From [Booklist](#)

After Rick and Isla meet at a dinner party and fall in love, what's next? For Frenkel, it is the mathematical charting of the Rick-Isla relationship as a trajectory on the x-y plane. The surprising notion of a "formula of love" fits into the remarkable understanding of math Frankel unfolds as he recounts his labors on conceptual frontiers where an audacious new master theory, the Langlands Program, is linking geometry, number theory, and algebra. To qualify for a role in those labors, Frenkel defied the anti-Semitism pervading the Soviet academic world in which he came of age and then won appointment to a Harvard professorship. Aware that few of his readers share his academic training, Frenkel pares the technical details to a minimum as he reflects on the platonic transcendence of mathematical concepts and marvels at their mysterious utility in explaining physical phenomena. Not merely dry formulas in textbooks, the math Frenkel celebrates fosters freedom and, yes, even distills the essence of love. A breathtaking personal and intellectual odyssey. --Bryce Christensen

Review

A *New York Times* Science Bestseller

"Powerful, passionate and inspiring."

—*New York Times*

"[Frenkel's] winsome new memoir... is three things: a Platonic love letter to mathematics; an attempt to give the layman some idea of its most magnificent drama-in-progress; and an autobiographical account, by turns inspiring and droll, of how the author himself came to be a leading player in that drama."

—*New York Review of Books*

"With every page, I found my mind's eye conjuring up a fictional image of the book's author, writing by candlelight in the depths of the Siberian winter like Omar Sharif's Doctor Zhivago in the David Lean movie adaptation of Pasternak's famous novel. *Love and Math* is Edward Frenkel's *Lara* poems... As is true for all the great Russian novels, you will find in Frenkel's tale that one person's individual story of love and overcoming adversity provides both a penetrating lens on society and a revealing mirror into the human

mind.”

—Keith Devlin, *Huffington Post*

“Frenkel writes that math ‘directs the flow of the universe.’ It’s as elegant as music and as much a part of our intellectual heritage as literature. He strives to awaken our wonder by taking us on [a] tour of his research, in which he reveals a ‘hidden’ world few of us encountered in school... Frenkel aims to make it understandable, even beautiful.”

—*New York Times Book Review*

“Two fascinating narratives are interwoven in *Love and Math*, one mathematical, the other personal... Frenkel deftly takes the reader ... to the far reaches of our current understanding. He seeks to lay bare the beauty of mathematics for everyone. As he writes, ‘There is nothing in this world that is so deep and exquisite and yet so readily available to all.’”

—*Nature*

“Reasoning that some of us are unwilling to engage with maths because we cannot see it, Professor Frenkel relates it tirelessly to things we can. A colourful paean to numbers.”

—*The Guardian*

(UK)

“Edward Frenkel mounts a passionate case against math’s reputation as an arcane and boring field [and] argues for math’s beauty and relevance.”

—*Page-Turner blog, The New Yorker*

“Part ode, part autobiography, *Love and Math* is an admirable attempt to lay bare the beauty of numbers for all to see.”

—*Scientific American*

“The words love and math aren’t usually uttered in the same breath. But mathematician Edward Frenkel is on a mission to change that...[in his] book, ‘Love and Math’ [in which] the tenured professor at the University of California at Berkeley argues that the boring way that math is traditionally taught in schools has led to a widespread ignorance that may have even been responsible for the recession... [the] book tells his personal story and goes on to describe his research in the Langlands program, as well as recent mathematical discoveries that aren’t regularly taught in classrooms.”

—*Wall Street Journal*

“Edward Frenkel’s book *Love and Math* is, quite simply, a love story, one man’s declaration of his love for, and romantic description of, the mistress that destiny assigned him. If I had to sum up the book in one word, that word would be passion. The romantic prose, at times poetic, the broad sweep of deep and profound human ideas, and the eternal nature of fundamental questions that continually re-emerge under new disguises, cannot help but bring to mind the great Russian novels of Dostoyevsky, Pasternak, Sholokhov, and all the rest.”

—*Huffington Post*

“An eye-opening, awe-inspiring, surprisingly accessible testimonial about the journey of one man and the beauty of mathematics.”

—*Barnes and Noble*

“Frenkel pares the technical details to a minimum as he reflects on the platonic transcendence of

mathematical concepts and marvels at their mysterious utility in explaining physical phenomena. Not merely dry formulas in textbooks, the math Frenkel celebrates fosters freedom and, yes, even distills the essence of love. A breathtaking personal and intellectual odyssey.”

—**Booklist**

“Fascinating... By using analogies, [Frenkel] describes concepts such as symmetries, dimensions, and Riemann surfaces in a way that will enable nonmathematicians to understand them. Whether or not readers develop a love for math, they will get a glimpse of the love that Frenkel has for the subject. Recommended for all readers, math whizzes or not, inclined to be interested in the subject.”

—**Library Journal**

“Frenkel reveals the joy of pure intellectual discovery in this autobiographical story of determination, passion, and the Langlands program... Frenkel’s gusto will draw readers into his own quest, pursuing the deepest realities of mathematics as if it were ‘a giant jigsaw puzzle, in which no one knows what the final image is going to look like.’”

—**Publishers Weekly**

“A fascinating peek into the author’s life and work.”

—**Kirkus Reviews**

“If you’re not a mathematician this book might make you want to become one. And if you are a mathematician you will feel better about your profession.”

—**Nassim Nicholas Taleb, author of *The Black Swan* and *Antifragile***

“I don’t know if I’ve ever used the words love and math together, but this book changed that. In the tradition of his heroes Andre Weil and C. N. Yang, Edward Frenkel writes of the objective beauty of numbers. Like musical notes, they exist apart from the mind, daring us to fathom their depths and assemble them in arcane narratives that tell the story of us. Reading this book, one is compelled to drop everything and give math another try; to partake of the ultimate mystery.”

—**Chris Carter, creator of *The X-Files***

“Edward Frenkel’s riveting new book made this former math phobe fall for a subject I thought I hated. He worships math with a passion so contagious, you’ll be swept away—by both the subject and Frenkel’s remarkable journey. When the USSR tried to block him from university based on his Jewish surname, he literally scaled twenty-foot fences to steal into classes. Before age 21, a letter from Harvard invited him to teach, launching a career that includes writing and starring in an erotic film paying homage to Yukio Mishima, *Rites of Love and Math*. Frenkel’s charisma is undeniable. A YouTube video of one Berkeley lecture has over 250,000 views. Not since G.H. Hardy’s *Mathematician’s Apology* has one of the field’s finest minds clarified the metaphysical beauty of this misunderstood field of inquiry. Math underpins our culture’s economy, medical and technological advances, and thought itself. Frenkel’s call for math literacy might have staved off our recent economic crisis. This book is not just a love song for a subject and a battle cry for educational reform, it’s literary pleasure at its freshest.”

—**Mary Karr, bestselling author of *The Liars’ Club, Cherry, and Lit***

“*Love and Math* = fast-paced adventure story + intimate memoir + insider’s account of the quest to decode a Rosetta Stone at the heart of modern math. It all adds up to a thrilling intellectual ride—and a tale of surprising passion.”

—**Steven Strogatz, Schurman Professor of Applied Mathematics, Cornell University, and author of *The Joy of x***

“Through his fascinating autobiography, mathematician Edward Frenkel is opening for us a window into the ambitious Langlands Program—a sweeping network that interconnects many branches of mathematics and physics. A breathtaking view of modern mathematics.”

—**Mario Livio, astrophysicist, and author of *The Golden Ratio and Brilliant Blunders***

“This very readable, passionately written, account of some of the most exciting ideas in modern mathematics is highly recommended to all who are curious lovers of beauty.”

—**David Gross, Nobel Laureate in Physics**

“A marvelous and arresting account of the struggles, the joys, the passions of a mathematician. In this thrilling account of how Frenkel overcame the bleak anti-Semitism in his early schooling in Moscow to contribute to the grand goals of his subject, he makes the palette of mathematical ideas vivid to us by calling upon things as diverse as his mother’s recipe for borscht (to explain the flavor of quantum duality) and imagined screenplays (to offer hints of the Langlands Program).”

—**Barry Mazur, University Professor, Harvard University, and author of *Imagining Numbers***

“While you might think of Edward Frenkel as that mathematician who made that erotic film about math, actually you should know him as the guy who’s going to help you see through your anxieties and perceive your world more deeply. *Love and Math* is an autobiography, a portal to understanding previously fearsome math, and the first popular account of the Langlands Program, which is one of the central creative projects of humanity at this time. This book is about knowing reality as fundamentally as possible on every level.”

—**Jaron Lanier, author of *You Are Not a Gadget* and *Who Owns the Future?***

Users Review

From reader reviews:

Mary Edick:

Why don't make it to be your habit? Right now, try to ready your time to do the important action, like looking for your favorite guide and reading a book. Beside you can solve your condition; you can add your knowledge by the e-book entitled *Love and Math: The Heart of Hidden Reality*. Try to make book *Love and Math: The Heart of Hidden Reality* as your pal. It means that it can to get your friend when you feel alone and beside associated with course make you smarter than previously. Yeah, it is very fortuned for you personally. The book makes you considerably more confidence because you can know anything by the book. So , let us make new experience and knowledge with this book.

Frances Carpenter:

Reading can called brain hangout, why? Because if you are reading a book particularly book entitled *Love and Math: The Heart of Hidden Reality* your brain will drift away trough every dimension, wandering in each aspect that maybe not known for but surely might be your mind friends. Imaging every word written in a reserve then become one application form conclusion and explanation this maybe you never get prior to. The *Love and Math: The Heart of Hidden Reality* giving you yet another experience more than blown away your mind but also giving you useful info for your better life in this particular era. So now let us explain to you the relaxing pattern here is your body and mind is going to be pleased when you are finished examining it, like winning a casino game. Do you want to try this extraordinary paying spare time activity?

Barbara Kimmel:

Do you have something that you prefer such as book? The guide lovers usually prefer to opt for book like comic, quick story and the biggest the first is novel. Now, why not trying Love and Math: The Heart of Hidden Reality that give your enjoyment preference will be satisfied simply by reading this book. Reading habit all over the world can be said as the opportunity for people to know world far better then how they react towards the world. It can't be explained constantly that reading addiction only for the geeky individual but for all of you who wants to always be success person. So , for all you who want to start examining as your good habit, you could pick Love and Math: The Heart of Hidden Reality become your own personal starter.

Kyle Reese:

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