

## Book Review

# Review of Love and Math by Edward Frenkel

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### Abstract

I have always found that the most engaging books in popular science are the ones written by those who were closest to the discoveries themselves and this book is an excellent example. I cannot say how a complete novice would find it but young math students would surely find inspiration and useful knowledge here and others can skip the details and enjoy the human side of the story.

**Key Words:** Love and Math, Edward Frenkel, mathematics, discovery.

“There is a secret world out there.” This is the beginning of Edward Frenkel’s book about his mathematics and his story of how he fell in love with it. Popular books about mathematics are rare compared to areas of science such as particle physics, cosmology or even biology. It is hard to write a mathematics book that will appeal to the masses. You cannot really play the trick of skipping all the equations or the details because these are really the essence of what makes mathematics so beautiful to those who master it.

Even rarer are such books written by the people who are at the bleeding edge of current mathematical research. There are some great mathematics books by Marcus de Sautoy, Ian Stewart, Simon Singh etc. While some of these authors are mathematics professors their popular books cover stories of mathematical problems solved by others. I have always found that the most engaging books in popular science are the ones written by those who were closest to the discoveries themselves and this book is an excellent example.

In “Love and Math” Frenkel recounts his voyage of discovery with details of the mathematics and the equally fascinating story of his passage through the education system of Russia in the 1980s where he faced ridiculous obstacles placed in his way simply because his family name is Jewish. Despite glowing exam results from high school he was not permitted to attend Moscow University and has to settle for another college more geared to industrial engineering. Luckily such difficulties were compensated for by a system of informal mentoring by some of Russia’s greatest mathematicians that supported the most promising young students like Frenkel.

The tale of his progress from school to Harvard professor is interwoven with potted lessons in group theory as he had to learn it to solve the problems posed by his mentors. These are aimed at non-experts. For someone like myself who is already familiar with the standard methods but not with all the recent progress this is light and enjoyable reading right up to the final chapters where

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he described his work with Ed Witten on geometric Langlands. I cannot say how a complete novice would find it but young math students would surely find inspiration and useful knowledge here and others can skip the details and enjoy the human side of the story.

The book ends with a chapter about his controversial short film “Rites of Love and Math.” This is said to have made Frenkel something of a sex symbol among mathematicians, certainly a new idea. Unfortunately the film is not available through the online rental services I use so I cannot tell you any more about it.

Here is the trailer from his Youtube site: <http://www.youtube.com/watch?v=MOzevd3XbAI>

## References

1. Edward Frenkel, *Love and Math: The Heart of Hidden Reality*, Basic Books (2013).
2. <http://blog.vixra.org/2013/10/20/book-review-love-and-math/>