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What do mathematicians do?

When I visited Virginia Commonwealth University on my last sabbatical, I spoke at the Sonya Kovalevsky Mathematics Day aimed at young women in Grades 6 to 8. My first question to them was: what do mathematicians do? A student's simple response stuck with me: "you do math." That's almost spot on. As a professional mathematician, I spend my days discovering *new* math. I also mentor the next generation of mathematicians as graduate students and post-docs, and I enjoy teaching the topic to undergraduate and graduate students.



My research expertise is in network science and graph theory, and my two areas of focus are *complex networks* and *graph searching*. Networks are as fundamental as numbers; they quantify interactions between objects and are an essential tool to describe systems in nature.

Why did you choose a career in mathematics?

I'm a believer in following your passion, and mathematics was mine since I was a teenager. Not only was I good at it, but I found mathematics infinitely fascinating: for every question you answer, there are another two questions that appear. You don't need chemistry labs, billion dollar particle colliders, or quantum computers to discover new mathematical vistas. All you need is a pen and paper or board and chalk, and an open mind.

As an openly gay man, I've experienced barriers and discrimination because of my identity inside and outside the academy, and one of my goals is to help make math more inclusive.

LGBTQ+ mathematicians face a scarcity of representation in the academy and the mathematical community, and I'm proud to be making a difference on this front.

What do you do when you are not doing mathematics?

Writing is a passion of mine, and I've authored four books and over 120 research papers. I've maintained a popular blog about math in pop culture for several years. My popular math writing has appeared in places like *The Conversation*, *The Mathematical Intelligencer*, and picked up by various news outlets.

[Read our complete interview with Anthony.](#)

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