Falling in Love with Monster Prime Numbers: A Response to a TED Talk

Armando Cosme

I want to start off by saying that I love TED Talk videos. I feel like every TED Talk video I've ever seen has hit me in some fascinating way. And this was the case when I viewed the TED Talk by Adam Spencer, who talked about why he fell in love with monster prime numbers. I think the concept is absolutely fascinating. I find it so cool that the simple expression 2^n-1 can be such a focal point in the life of many mathematicians. It's funny because these mathematicians strive to find the biggest possible number that is prime knowing that when they do find this number, it will never be the biggest. I really connected with the speaker when he said something along the lines of "It wasn't hard to do, it just took a lot of time and dedication." I feel that all the time with math. Math is extremely simple, you just need to give it time and really try.

It is beautiful to hear that mathematicians all over the world are competing to accomplish the same goal: finding the largest prime number. The largest prime number that we know of to date is 23,249,425 digits long—this is absolutely astonishing, and I totally want to help in this continuous journey to find the largest prime! The fact that humans can code a computer to compute a prime number in such a relatively short time is fascinating. Spencer said the great developments and discoveries will no longer occur in academia, but in people's homes on laptops and desktops—as regular, everyday people manipulate technology to uncover new facts. It's beautiful to see the impact a computer and a human mind can have when working together. It was also intriguing to see the connection between Mersenne primes and perfect numbers. The fact that every even perfect number has a factor that is a Mersenne prime is enthralling. It makes me think, "Do mathematicians also try to find the largest perfect number with its factors as well?" I would love to be in a room where mathematicians talk about their strategies in calculating this.

After watching an interview with Professor Curtis Cooper, who is one of the many thousands GIMPS (Great Internet Mersenne Prime Search) volunteers and found the 49th largest Mersenne prime on January 7th 2016, I want to download the software and instructions and help out as well. I would love to contribute (even just a tiny bit) to the goal of finding the largest prime, and I can see myself getting wrapped in this project in the future. It was kind of funny to me when, during the interview, one of the mathematicians mentioned that the computer had known about the 49th largest Mersenne prime since September, 2015, yet because of a bug in the email notification system, the mathematicians had no clue until January,

2016! As my final note, I beg schools all around the world and people who run GIMPS *not* to print out the whole number! Please don't waste paper! I think $2^{whatever}-1$ is just fine.

Nominating Faculty: Professor Ariane M. Masuda, Mathematics 3021, Department of Mathematics, School of Arts and Sciences, New York City College of Technology, CUNY.