

## FIRST PERSON

# MY JOURNEY IN MATHEMATICS

## Nina Li, Grade 12

*Nina's first MathLly class - delving into math concepts like bijection, injective function, and surjective functions while deciphering note-takers using lines.*

BY NINA LI

*Grade 12 student Nina Li's passion for math, nurtured at York House, unfolds in an exploration of her transformative journey through mathematical inquiry, academic pursuits, and the interdisciplinary nature of STEAM (science, technology, engineering, arts and math) education. Nina reflects on the impact of her experiences and sets her sights on a future where mathematical skills converge with societal challenges.*

My enduring journey with math and STEAM at York House School commenced in the sixth grade, guided by the enthusiastic Ms. Comeau. She introduced captivating math games and puzzles, transforming my perception of math into something more profound than mere numbers and equations. This led me to explore math further and try for math honours in the eighth grade. Under the mentorship of educators like Ms. Black, Ms. Kerr, and Ms. Chang, my mathematical understanding deepened, laying the foundation for my academic pursuits. My passion for math and STEM was stoked



*Grade 12s Jasmine (left) and Nina (right) gearing up for the Youth Datathon at York House School. Jasmine designed the website for the Datathon as part of her Capstone Project.*

by the symbolic thud of Newton's apple, a reminder of the profound influence of mathematical inquiry on scientific breakthroughs. As I advanced to the eleventh grade, I embraced the responsibility of being the Math Head, organizing events such as Pi Week to share my passion with the school community.

Beyond the confines of traditional classrooms, I actively sought additional classes, dedicating twelve hours weekly to prepare for challenging math contests like AMC 8, 10, 12 (American Mathematics Competition) and Gauss. At MIT (Massachusetts Institute of Technology), participating in the AMC competition fueled my competitive spirit and led to an invitation to The Math Prize for Girls competition at MIT. This experience provided an avenue to challenge myself and delve into advanced mathematical concepts. Participating in these contests not only honed my mathematical prowess but also instilled in me a sense of perseverance and resilience in the face of complex challenges.

**Enrolling in the MathLly Summer Program at Bryn Mawr College in Pennsylvania was a pivotal decision that exposed me to advanced math concepts, reinforcing the idea that "math is in everything."**

This transformative experience broadened my appreciation for interdisciplinary math. The program fueled my curiosity, particularly in combinatorics and Discrete Math. Collaborative problem-solving sessions forged unexpected connections

between math and my hobbies, such as origami, inspired by mathematician Sarah Hart's book, *Once Upon a Prime*. The active learning approach at MathLly, with its emphasis on collaboration and analytical discourse, resonated with my learning style. It pushed me out of my comfort zone, introducing challenging concepts like bijectivity functions. The "Week of Chaos" (many short classes with topics suggested by students and instructors) intensified my engagement, especially in origametry, revealing the link between my love for origami and complex molecular structures like carbon nanotubes. MathLly solidified my passion for math by intertwining it with my interests, offering a unique exploration of new frontiers.

My commitment to math education and its practical applications found expression in my Capstone project, organizing the first-ever hybrid Canadian Youth Datathon at York House School aimed to immerse high school students in the dynamic world of data science. The project was a testament to my desire to create a unique space for learning, collaboration, and friendly competition while promoting STEM education and inclusivity.

Looking ahead, my post-secondary plans include a double concentration in Applied Mathematics and Sociology. This academic pursuit aligns with my vision of utilizing mathematical methods to address societal challenges, particularly in the field of education. My experiences, such as developing an AI-supported Python learning tool for children with learning difficulties, have fueled my commitment to contribute to pedagogical reform and advocate for inclusive systems.



*A snapshot of winners and judges at the offline Youth Datathon (L-R): Andrew Dong, Alice Jiang (YHS Grade 11 student), Ray Zhang, Bright Ye, Joyce Huang (YHS Grade 12 student), Jasmine Huang (YHS Grade 12 student), Nina Li (YHS Grade 12 student), YHS teacher Marianne Chang, alongside Rodolfo Lourenzutti, co-director of UBC's Masters of Data Science program.*

In aspiring to become a quantitative sociologist, I aim to leverage my math skills, including mathematical modeling and quantitative methods, to affect positive change in society. The support and diverse courses provided by York House School have played a pivotal role in preparing me for university and the future. The guidance from counselors, teachers, and staff, coupled with the inspiring stories of successful YHS graduates, instills in me the confidence to navigate the challenges that lie ahead with a sense of purpose and determination. 🌟