January 6, 2022

Re: Recommendation for ███████████'s Application to Stanford Online High School

To Whom It May Concern,

It is my great pleasure to write this letter of recommendation for ███████████, an exceptionally talented student who is applying to Stanford Online High School. I have had the privilege of teaching ██████ for the past two years, during which time I have been consistently impressed by her intellectual curiosity, outstanding mathematical abilities, and commitment to excellence.

From the very beginning of her participation in our Online Advanced American Mathematics Competitions (AMC) Prep Class, ██████ demonstrated not only a deep enthusiasm for learning but also a remarkable dedication to mastering complex mathematical concepts. She approaches challenges with unwavering determination and an analytical mindset, consistently producing work that exceeds expectations. Her precision, creativity, and perseverance set her apart from her peers, making her an extraordinary student in every sense.

██████'s ability to grasp advanced mathematical ideas is truly commendable. She is not only an excellent learner but also an active and analytical thinker — always eager to explore new perspectives, engage in thought-provoking discussions, and refine her understanding through rigorous problem-solving. Her capacity for abstract reasoning and logical analysis is far beyond her years, and she possesses an innate ability to apply theoretical knowledge to real-world scenarios.

A testament to █████'s mathematical talent is her independent research on the period length of the reciprocal of a positive integer. Inspired by a number theory problem introduced in my class, she embarked on a meticulous investigation into detecting the periods of reciprocals of integers from 1 to 1,000. Demonstrating both technical proficiency and intellectual curiosity, she developed a computer program capable of performing calculations with a million-decimal precision, allowing her to compute and analyze decimal expansions with remarkable accuracy.

Her findings were both insightful and mathematically rigorous. She discovered that for a prime number, the period of its decimal representation evenly divides into the number minus one, while for a composite number, the period is always less than the number minus one. Using these observations, she ingeniously applied the "divisibility rule of the period" to design an efficient algorithm for identifying prime numbers. Further, she explored the intricate connections between number sequences and decimal expansions, particularly in relation to prime numbers — demonstrating a strong aptitude for mathematical reasoning and independent research.

What distinguishes █████ is not just her technical ability but her intellectual curiosity and creative problem-solving skills. She is adept at formulating original questions, identifying patterns, and pursuing deep mathematical inquiries, a quality that is rare among students her age. Her research reflects not only her keen analytical mind but also her ability to think beyond the classroom and push the boundaries of conventional problem-solving approaches.

Beyond her academic excellence, █████ is a self-motivated and ambitious young woman with a strong desire to make meaningful contributions to the world. Her confidence, perseverance, and innovative mindset make her an outstanding candidate for Stanford Online High School. Given her exceptional abilities in mathematics, her strong work ethic, and her passion for research, I have no doubt that she will thrive in your program and contribute immensely to its academic community.

I strongly and unequivocally recommend █████ for admission, without any hesitation. She is not only an exceptionally gifted student but also a future innovator in fields like mathematics,

science, and technology. She will undoubtedly be a valuable asset to your institution, and I am excited to see the impact she will make in the years to come.

Sincerely,

Henry Wan, Ph.D.

Chief Instructor in Math