

Standard One: Subject Matter

For the past four years, I have been working toward my Bachelor of Arts degree in mathematics at the University of Minnesota, Morris. The requirements for this major at UMM have provided me with a broad overview of the field of mathematics. Most notably, I have learned that there are two main branches in mathematics today - pure math and applied math; and I have taken courses in each branch. Pure mathematics is the study of mathematical systems and concepts for math's sake, meaning that certain processes and theorems build on one another without necessarily having any relevance in the real world. On the other hand, applied mathematics is appropriately named for what it encompasses - direct connections and applications to real-life problems. In order to further clarify, one might think of proofs when thinking about pure math and about word problems when thinking of applied math. Not only has UMM taught me about several different areas of math within these two branches, but I have learned the importance of research in mathematics through completing my senior seminar. Another aspect that I have learned about math at the college level is the benefit of working on problems with others. By having a broad general knowledge of mathematics, I have had to master concepts at the high school level; and I therefore feel confident in preparing and executing effective lessons for high school students in any grade. I also hope to equip students with the tools they need to succeed in high school math.

In order to demonstrate my competence in this field, I have included an exam that I took in Calculus I. The marks on the exam show my ability to learn new and foreign concepts and then master them. It shows that I am familiar with calculus and would have enough knowledge about the subject to present it at the secondary level. Also, calculus integrates material from all subjects of math taught in high school, such as geometry and algebra. The only way for me to have been proficient in this area is to have had a thorough knowledge of pre-requisites.

Another piece of evidence I have included is an exam from a geometry course I took my junior year of college. The score on this exam also shows my mastery of this material. Geometry at the college level includes the concepts taught at the high school level, but it analyzes them to a further degree by using algebra and even calculus at times. Because of my proficiency in this course, I have a more than adequate knowledge of what should be taught in high school geometry. More than anything, it has bolstered my confidence in performing and presenting tasks in geometry.

Even though I have gained much knowledge and have mastered certain areas in mathematics, I would like to continue my learning in this field. In particular, I would like to strengthen and enhance my skills in trigonometry and calculus. Even though I have shown proficiency in these areas, they are not as routine as my skills in algebra and geometry. I can do this by taking refresher courses and completing independent studies. I would also like to learn more about probability and statistics as my experience with these disciplines was minimal in my course of study. This, too, can be done through more coursework. On a professional level, I would like to pursue graduate work in the area of applied math, such as linear programming and graph theory. Whatever I do, I plan to continue my understanding in the math I already do know and the math that I have yet to learn.