A Mathematics Major's Musings

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The New York City College of Technology opened its doors on October 19, 2008, to welcome everyone to the New York State Mathematics Association of Two Year Colleges Region IV Conference. The conference covered the theme, "Promoting Student Success in Mathematics." Although open to everyone who wished to attend, this conference was mostly meant for educators and others in the field. Different ways to foster student learning and success in mathematics were presented at the conference. Professors from different colleges, as well as students and representatives of various organizations, were among the speakers.

Top-Down Trinomial Factoring: This subject was presented by Professor Ida Klikovac of Nassau Community College. Top-down trinomial factoring is a method that has been developed to help in the solving of different polynomials by using the so-called Bridge Method. This method is very useful in my opinion because it helps students in solving polynomials by using this method only, taking away the hassle of having to remember all the different cases of factoring.

A Brief History of Cryptography: Professor Jack Lubowsky of Nassau Community College presented this topic. He spoke about how various methods of cryptography had already been used for centuries to transmit messages in some sort of code that could, hopefully, only be deciphered by their intended receivers. Different types of cryptography known today were used at some time in history. Steganography, Transposition Cipher and Substitution Cipher are some known examples of the different types of cryptography. In Steganography, the messages are hidden in some way, using invisible ink, for example. In Transposition Cipher, words in messages are written in odd orders; a code for this method provided beforehand will allow the receiver to reorder the message in the correct way. In Substitution Cipher, the alphanumeric message is conveyed with substituted letters, or in some cases numbers, contained in a code book.

Teaching Graphing Techniques through the Composition of Functions: This subject was covered by Professor Marina Dedlovskaya of LaGuardia Community College. Prof. Dedlovskaya demonstrated how, by reading and interpreting changes of composition of functions, we would be able to know how their graphs would behave given different changes. The shift functions would shift or change the position of the graph up, down, left or right. The reflection functions would reflect the graph on either side of the X or Y-axis. Other functions

would have an affect on the graph size, by either compressing or stretching it vertically and horizontally.

Student Success Using MyMathLab: This presentation was given by Mr. Theo Lieber of Pearson Addison-Wesley Benjamin Cummings Prentice Hall. MyMathLab is a web-based software, similar to blackboard in its user interface, that offers online help and assessment for professors using the Pearson's database. It allows professors to assign homework and give exams to students using the material stored in the MyMathLab database. The program has video tutorials for all lessons seen in the course, in addition to examples, to guide the students through the process of solving the assigned problems. This database and tutorials can be easily accessed at any moment by students who wish to review their material, unless time restrictions are set beforehand by the professor. Free accounts were offered for the term of one year to the students who attended this part of the conference, myself included. I can say from personal experience that this is a very useful tool; it does help to promote student success in mathematics. Using MyMathLab, students can see their problems being explained from a different perspective than that of their professor, which can help think through difficulties encountered while going over a lesson.

The Power of Differential Equations in the Financial Market: The speaker for this presentation was Professor Zhao Chen of New York City College of Technology. Prof. Chen explained how differential equations are helpful in the financial market because they help us get an approximation of the price of a stock at a given time in the future. This approximation can be calculated by using the Ito Lemma process. In using this process one takes into consideration the current price of a stock, its volatility and its expected return, to get the probability that the stock has of reaching the desired percent increase in a given time. The Ito Lemma process can suggest the risks that any transaction would represent.

Conjuring Calculus in the Realm of Transformations as it Casts its Spell on Non-Singular Matrices: This part of the conference had two familiar faces for speakers: my current calculus Professor Satyanand Singh, and Mr. Javier Joya, both of the New York City College of Technology. I believe this part of the conference tried to show how we can find derivatives and anti-derivatives by using matrices. This theme got me a little confused as it was hard to follow and understand. I now know that this is because this subject is over my current level of studies in mathematics, and that I would need to take linear algebra in order for me to better understand what was being discussed.

Flying by the Numbers: Professor Chris Roethel of Nassau Community College said it's important for a person to be comfortable with numbers because a lot of careers require this skill. In aviation, for example, all flight information (height, wind speed, etc.) is provided in a numeric fashion. Global Positioning Systems, or GPSs as they are better known, are the devices being used today to navigate the skies, but will be replaced by a more modern system called Wide Area Augmentation System or WAAS. This system makes use of ground stations, as well as satellites, to remove errors; GPSs only use satellites to provide information.

WAAS makes the data being provided more accurate than that of the GPSs, besides costing less.

Initially, I thought that by attending this conference I would be learning to apply different techniques, as well as how to use other software, such as MyMathLab or WileyPLUS. Later I realized that this was not the purpose of the conference, but rather to help educators improve their techniques to better help the students' learning process. Attending this conference was a very pleasant experience overall. For me as a student, learning that things are being done to help educators share different techniques with each other, techniques they believe will help students succeed in mathematics, was the best part of being at this conference. Also I see educators are able to keep up to date by taking a look at various software programs to help students succeed. I am happy to have attended this conference: (1) because I learned about the Bridge Method to help me factor polynomials, as well as some Cryptography techniques and history, and (2) because of the fact that we were given free student accounts for MyMathLab, which I am already taking advantage of and will hopefully use until I no longer need it. I would like to thank my professor for inviting us to the conference and I hope that more students will be given a chance to experience this form of presentation and see mathematics in its beauty as it is applied to various applications.