

# Sinclair Mathnet

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## FROM THE ACTING CHAIR



To begin my final "From The Chair" article, I would like to express my thanks for the words of encouragement that many of those both in and outside the department have expressed as I groped my way through the last six months. Not only have I thoroughly enjoyed my "reign" as acting chair, but I am very grateful that a coup was not staged while Al was on sabbatical. I believe this time has been well spent. I also believe that I have a much better understanding of how both the department and the college operates. Without a doubt, Sinclair is populated by top-notch faculty, staff, students, and administrators. I especially must express my thanks to the faculty, staff, and student workers of Sinclair's Math Department. EVERYONE has been extremely helpful, patient, kind, and understanding during my brief tenure as acting department chair; that's not going to change, right? There is no doubt in my mind that Al greatly appreciates the support he receives from everyone in the department; because without that support, he would still be in his office answering emails, phone calls, and dealing with other problems. Finally, I would like to apologize to Lyn Keeler for being two days late with this article due to excessively agonizing and "pondering" over this creative writing assignment.

I wanted to spend a few moments reviewing what the department has accomplished in the last six months. During fall quarter, the department continued to advocate that the

college impose a two-year time limit on pre-requisites. To date, the proposal has been sent to an ad-hoc sub-committee of the Curriculum Committee; it is possible that some form of the proposal may be incorporated as part of either the AQIP Study or the Achieving the Dream initiative. Also during fall quarter, the department met to discuss the creation of a new three quarter algebra sequence (Math 197, 198, & 199). This new sequence should begin implementation Fall Quarter 2006. Another initiative strongly endorsed by the math department is the administrative withdrawal of students who have not satisfied a pre-requisite. This initiative has been approved by the Academic Policies Committee and is currently before Instructional Council. Finally, the Math 141, 142, and 143 sequence



has completed the CMT process and all three courses are being offered this spring, the Math Help Room has been moved to its new and larger home adjacent to the Math Lab in room 1315, and the computer-equipped classroom will again be operational (and able to accommodate more students) by the beginning of Spring Quarter in its new location in 10-327.

As evidenced by the above, the math department has made good progress on several initiatives that directly relate to student success. More, however, must be done. At a recent meeting between the interim Vice President of Instruction Mr. Frank DePalma, Dick Jones, Dean of Liberal *(Continued on Page 2)*



## Faculty Feature – Gwen English

The Mathematics Department will be saying good-bye to longtime faculty member Gwen English at the end of this quarter. Gwen has announced her retirement after teaching for the Mathematics Department on and off since 1977.



Gwen moved to Dayton in 1969, where most of her four generations of family presently live. She started teaching at Sinclair following teaching stints in Delaware, OH, and then in the Mad River Township city school systems. When I asked Gwen what brought her to Sinclair, she said, "After leaving full-time employment to stay home with my sons, I finished a Master's degree. I came to Sinclair because it offered part-time opportunities. I'm glad I stayed!" Although initially part-time, Gwen has held an ACF position for many years. She has a B.S. degree from Michigan State University, and earned her M.Ed. degree from Wright State.

Gwen has enjoyed working with the Tech Prep program while at Sinclair, and adds, "I regret that I wasn't able to do more with the Appalachian Outreach Committee." She says that she has "several small things" planned for after retirement, but mostly she just plans to "go with the flow," a reference perhaps, to her love of kayaking.



Congratulations, Gwen. We wish you many happy years of retirement!

Susan Harris ■

## TEST YOUR SKILLS

Here's another teaser from the *Introduction to Mathematical Proofs* course.

Using mathematical induction, prove that if  $n$  is a natural number,  $n \geq 1$ , then  $(x - y)$  is a factor of  $x^n - y^n$ .

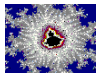
## REMINDERS

- Tests should not exceed one hour in length.
- Please make sure all students attending our class are on your roster. If you allow them to attend unregistered, it creates problems for them and for the college.
- Please do not skip material on the syllabus or modify the number of tests without consulting with your course coordinator.
- Please remember that students should memorize the course formulas (the ones included with the department syllabi) and should not be permitted to use formula sheets for them or store them on their calculators.

## Harvey's Joke Corner

Metric system holdouts:  
Inchworms, foot-long  
hotdogs, 50-yard lines, and  
English pounds.





## "The essence of mathematics is freedom."

Georg Cantor, 1878

One of the mathematicians who was most influential in setting the stage for the modern era of mathematics was **Georg Cantor** (1845-1918). His theory on infinite sets revolutionized nearly every area of mathematics research, but his ideas also aroused a great deal of animosity among many of his colleagues, some of whom considered his work blasphemous.

Between 1874 and 1897 Cantor published a series of papers on the theory of sets. These papers contained some remarkable proofs: that the set of integers and the set of even integers both have the same number of members, but that



there are more irrational numbers than rational numbers; that the number of points on a line segment is the same as the number of points on the entire number line, that



the number of points on the number line is the same as the number of points in the plane, and that the number of points on the plane is the same as the number of points in all of three dimensional space.

Although many of Cantor's contemporaries recognized his works as profound and spectacularly important, it brought him many enemies as well, including Leopold Kronecker, one of the men under whom he had studied while earning his degree in mathematics.

Since the time of the ancient Greeks, mathematicians had avoided the topic of

infinity, a concept that was equated with the Divine, and Cantor's work on analyzing infinity was seen by Kronecker and others as an irreverent attempt to analyze God.

Cantor tried to respond to the criticisms of his work in an essay in which he described three types of infinity: *Absolute Infinity*, the theological notion of God, *physical infinity*, as in infinite space or infinite time, and *mathematical infinity*, which describes the number of objects within certain mathematical sets. He emphasized that his work referred only to mathematical sets, but it wasn't enough; his critics were unrelenting.

Using his influence as a professor at the University of Berlin, Kronecker did all he could to suppress Cantor's ideas and to ruin his life. He delayed or suppressed completely Cantor's publications, waged personal attacks against him, belittled his ideas in front of his students, and blocked Cantor's attempt at gaining a position at the University of Berlin.

Stuck in a third-rate institution, stripped of well-deserved recognition for his work and under constant attack by Kronecker, Cantor suffered the first of many nervous breakdowns in 1884. The rest of his life was spent in and out of mental institutions. Much too late for him to really enjoy it, his theory finally began to gain recognition by the turn of the century. In 1904, he was awarded a medal by the Royal Society of London and was made a member of the London Mathematical Society. He died in a mental institution in 1918. ■

"No one can expel us from the paradise Cantor has created."

David Hilbert, 1926



(Continued from page 1) Arts and Sciences, and the faculty of the math department, Mr. DePalma expressed his concern over the success rates of Sinclair students in “gateway” courses such as Math 101 and 102. Speaking on behalf of the math department, I emphatically state that my fellow colleagues and I are equally concerned about the success of our students in these courses. In fact, it is our zeal to improve these measures of student performance that motivates the math department to institute many of the measures mentioned earlier.

This same zeal motivates departmental faculty to manually check our class rosters using Colleague, to insure that students have satisfied our pre-requisites, despite numerous, and unsuccessful, attempts to automate this process. Zeal for student success motivates the math department’s faculty associated with the Retention Program to make personal phone calls to students at the beginning of each quarter notifying them that they have not satisfied the course pre-requisite and as a result must qualify to remain in the course, since a student is more likely to be successful in a given course if they have satisfied the pre-requisite. Of course, if a student elects to remain in a course even though he or she has not satisfied the course pre-requisite, there is little a faculty member can do; unless of course the Administrative Withdrawal policy currently before Instructional Council is approved. These same faculty members also provide tutoring to those students who are willing to “buy out” the time from their busy schedules. But how can the math department assist those students who have satisfied the pre-requisite for Math 101 or Math 102, but are still unsuccessful?

To this end, a comment made by the VPI that I really appreciated was that if a student takes Math 101 three times and is not successful, then perhaps “we” need to be doing something different! Fortuitously, the math department started development of a new three quarter

algebra sequence, Math 197, 198 and 199, Spring Quarter 2005. This new sequence will take the same content contained in Math 101 and 102 and spread it out over three quarters. The new sequence will also incorporate a study skills component similar to the EXL sections currently offered in conjunction with selected sections of Math 102. The math department is very excited about offering both the Math 101/102 sequence (9 credit hours) and the Math 197, 198, and 199 (12 credit hours) to our students, and “we” feel that together the two sequences will improve the success of our students in these “gateway” courses. Before this new sequence can be implemented this fall, however, a number of questions will need answered. For example, what impact will the new sequence have on programs offered by other departments? Should students be allowed to choose which sequence to take? Questions such as these are currently being discussed by the math department. Furthermore, I have no doubt that those departments or divisions whose programs will be impacted will also be included in our discussion.

### **Business Not As Usual!**

The addition of the Math 197/198/199 sequence is an example of “Business Not As Usual” for the math department; in fact many of the initiatives sponsored by the department fall into this category. Although the math department will continue to offer the Math 101/102 as an accelerated sequence, it is hoped that the new sequence will better serve the needs of those students who struggle with mathematics. The addition of this sequence also underscores the math department’s zeal in assisting our students to succeed in mathematics. Perhaps there are other ways that a policy of “Business Not As Usual” can be applied throughout Sinclair to improve the success of our students?

Tony Ponder ■