

Sinclair Mathnet

April 2000

Volume 6, Issue 5

FROM THE CHAIR



I think that the activities in our department can be divided into three categories. First we have students who take classes as part of a required course of study, and teachers who teach these classes because they like mathematics, they are good at it, and they like to

teach it. Second we have activity that focuses on the improvement of pedagogy, i.e., on finding ways to make the first activity more successful. This includes such things as our Math Lab and technology workshops, the Help Room, and special projects such as the Math 101 Learning Challenge Project, the Math Retention Specialist and lab components in some of our courses. Finally, we have activities that involve pursuing mathematics for the pure pleasure of it and out of a passion for its great beauty and intrigue.

Of course the first activity has always been with us, always will be, and is our primary responsibility. It is our "bread and butter," and we must focus the majority of our energy on it. We are fortunate to have so many good teachers who enable us to do it and, I think, do it well.

In my early years in the Sinclair Mathematics Department, the second activity was not in great evidence. But it seems that, with the emergence of technology in the last decade and a half, the interest in improved pedagogy has blossomed. Much effort has gone into finding ways to use calculators and computers to enhance our teaching. Workshops are held, experiments are tried, programs are instituted, and facilities are built to provide students with outside the classroom assistance. Private conversations between faculty members often focus on discussions about what can or cannot be done for classes with this piece of software or that new calculator.

But what I find most pleasing is the very recent development in our department of the third activity, the

pursuit of mathematics for its own sake. Several recently established initiatives are evidence of the growth of this third activity. They include the following:

- The establishment in 1997 of the quarterly Departmental Colloquium administered by Byung Hahn and Janel Gauby. Each quarter 15-20 faculty members and students have heard from many different speakers from UD, WSU, AFIT, WPAFB and UDRI as well as Sinclair.
- The establishment in Fall 1998 of the AMATYC student mathematics competition administered by David Stott and myself. To date 110 students have participated in this and our team's performance has improved dramatically from 1998-99 to 1999-00.
- The Book Club established in 1999 by David Stott. A number of faculty have read and discussed selected books about mathematics and mathematicians.
- The establishment by Susan Harris of the "Problem of the Week" competition. Just instituted this quarter, a growing number of students are participating in attempting to solve these challenging problems.
- Establishment of a student Math Club also by David Stott. Just starting this quarter, a small group of students are meeting weekly to hone their test taking skills and to investigate other possible activities for the group.

One thing I like about this third type of activity is that it has a certain economy of purpose. Students typically pursue the first activity so they can complete their education, so they can get a good job, so they can derive some pleasure and satisfaction from life. The second activity is to help students more easily and successfully complete their education, get a good job and thus derive pleasure and satisfaction. The third activity goes directly to the part about deriving pleasure and satisfaction without passing through the intermediate steps! I also think that these initiatives inject some excitement and vitality into the department. It is my sincere hope that faculty and students alike will continue to support these kinds of activities.

Al Giambone ■

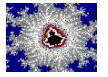
**Teaching Tips**

During the past few quarters I have spent some time developing several short (ten-minute) group activities for my classes. These have been placed on the z-drive under my name, and I invite anyone who would like to try them out to do so. I would

appreciate feedback on how they go in your classes. So far I have the following activities on the z-drive, and I'll be adding more. If you have activities of your own that you would like *Mathnet* to feature, please let me know.

Lyn Keeler ■

Geometry Quiz	This appeared in <i>Mathnet</i> in the Fall of 1999. I use it in 131 - Tech Math I after we have finished the chapter on geometry.
Variation Quiz	I use this in 116 and in 131 when we do variation. This appeared in <i>Mathnet</i> in the January 2000 issue.
Atom's Apple	This application involves solving a ratio equation and calls for lots of unit conversions. I use it in 131 after we have covered ratios.
Right Triangle Application	Here the students must find the volume of a right circular cone and in the process must use right triangle trigonometry. I use it when we do right triangle applications in 131.
Area Worksheet	I use this after we have covered rectangles and triangles in 131. They find a polynomial expression for the area of a region, and it is a good exercise for simplifying polynomials. It would work well in 101 also.
Quadratic Activity	Students are asked to solve a quadratic equation that relates to the area of a rectangle. I use it in 131 after we have covered the quadratic formula. It is also suitable for 102, but involves using a calculator.
Area of Sector	This was last issue's <i>Test Your Skills</i> problem about the area of the gap between three circles, except I give my students a hint to get them started. This is for 131 students at the end of the quarter when we cover area of a sector.
Input/Output	See this issue. A challenge for my 131 and 116 students (or any other class where functions are introduced).
U.S. Population	I give this as a take-home problem, but it is suitable for a class in a room with Internet access. It involves scientific notation and percents, and it incorporates a short writing exercise. I use it in 131.
Fish Estimate	A quickie ratio application - it is suitable for 102 and 131.
Magic Number	Take me out to the ballgame! This is an easy application involving the formula used to compute baseball's magic number. It's good for 101, 102 and 131 when formulas are covered.
Meteorology	This application uses fractional exponents; I give it in 102 and 132.



WSUACTM Award

Lyn Keeler received one of the first WSUACTM (Wright State University Area Council of Teachers of Mathematics) Excellence in Teaching Awards given to recognize outstanding teaching performance. She was one of two recipients of the award. She was presented the award at the WSUACTM spring meeting at Sinclair on April 10. The award consisted of a framed certificate and a gift certificate.



Barbara Carruth, President of WSUACTM, presents the Excellence in Teaching Award to Lyn Keeler at their spring meeting.

Lyn has taught mathematics at the post-secondary level for 21 years, of which 10 years have been in a full-time teaching capacity at Sinclair. During this time, Lyn has received

many compliments from students for her clear, concise manner of presentation. Also, Lyn spends a great deal of time giving each student individual attention through collecting and grading homework each day.

Lyn is active in the Math Department as well, where she serves on a number of committees and co-edits the Department newsletter *Mathnet*. She is also the coordinator for the Lincoln School Mentoring Program, a position she has held for the past five years.

Lyn's contributions to the Department and the College are very valuable, and her receiving this award is a reminder of this. Congratulations, Lyn!

DEPARTMENT COLLOQUIUM



We will have a Department Colloquium on Friday, May 5, 2000 at 2:30 p.m. in Room 1001. All members of our full- and part-time faculty are welcome, as well as students who are interested in mathematics. The speakers and titles are as follows:

1. Dr. Harvey Chew, Professor of Mathematics
Sinclair Community College
"Perfect Numbers"
2. Dr. John S. Crown, Assistant Professor of
Statistics, Air Force Institute of Technology
"Statistics in the Court Room, An Example"

Refreshments will be served.

REMINDERS

- All tests should be approximately one hour in length.
- See the Mathematics Department Part-time Faculty Handbook for department policies on such things as extra credit, take-home exams, multiple-choice exams, cheating, formula lists, and many other important topics you should be aware of.
- Please do not skip sections on the syllabus or revise the number of exams without first consulting with your course coordinator.
- Encourage your students to use the Math Help Room. It is staffed this quarter virtually all day long every day with faculty or student tutors.



Just Thinking

- The colder the x-ray table, the more of your body is required to be on it.
- The hardness of the butter is proportional to the softness of the bread.
- Monday is an awful way to spend 1/7 of your life.
- A clear conscience is usually the sign of a bad memory.
- If you must choose between two evils, pick the one you've never tried before.



The truth about cats and dogs:

Dogs and cats instinctively know the exact moment their owners will wake up. Then they wake them 10 minutes sooner.

Dogs have owners. Cats have staff.

It may be called puppy love, but it's real to the puppy.

Cat's motto: No matter what you've done wrong, always try to make it look like the dog did it.

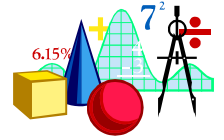
John Pfetzing ■



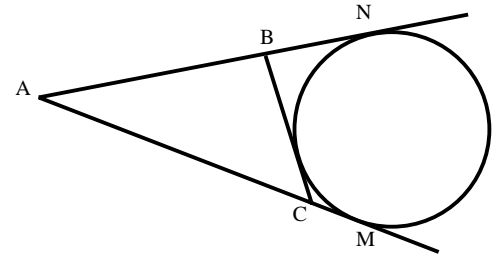
Al Giambrone presents the first-place Winter Quarter AMATYC Student Competition Award and a \$50 check to Joseph Brinkmeier, who is a PSEO student from Beaver Creek High School. Joseph also earned the first-place score at the Spring Quarter Competition. He achieved the highest cumulative score for the 1999-2000 academic year.

Test Your Skills

We hope you have time to investigate these problems, and to offer your solutions to either Lyn Keeler or David Stott.



1. Find a formula that gives the number of terms for the expansion of $(a + b + c + d + e)^n$, where n is a natural number.
2. In the expansion of $(a + b + c + d + e)^{30}$, what is the coefficient C of the term $Ca^4b^7c^2d^{11}e^6$?
3. In the figure below, the lines AN , AM and BC are tangent to the circle, and the length of $AN = 7$. What is the perimeter of triangle ABC ?



Harvey's Cartoon Corner

We're prime twins, but we've been separated for a long time.

3 5

I can't believe you're both my twins!

3 5 7

Sorry, you can't stay with us.

III I

I'll take you!

V

Thanks for your undivided attention.

$1\frac{2}{3}$

$\left\{ \frac{5}{3}, \frac{10}{6}, \frac{15}{9}, \dots \right\}$



Harvey Chew ■