

# NCMATYC NEWS

## Spring 2010

[www.ncmatyc.matyc.org](http://www.ncmatyc.matyc.org)

### Inside This Issue

<i>The President's Message</i> .....	1
<i>Best Wishes</i> .....	2
<i>New Officers</i> .....	3
<i>2010 NCMATYC conference</i> .....	4
<i>Increasing Student Success</i> .....	5
<i>New Mathematics Instructor</i> .....	6
<i>Teaching Excellence Award</i> .....	7
<i>An Interview with Valerie Melvin</i> ...	7
<i>My First NCMATYC Conference</i> ...	8
<i>Connecting Online</i> .....	9
<i>2009 AMATYC Conference</i> .....	9
<i>Travel Assistance Award</i> .....	9
<i>Math League Competitions</i> .....	10
<i>Faculty Math League Test</i> .....	11
<i>Travel Assistance Award Form</i> .....	13
<i>North Carolina Math Competition</i> ..	14

### The President's Message

Suzanne T. Williams

Central Piedmont Community College



It may seem, based on the weather, that we have skipped Spring this year and gone straight to summer...but I can tell you that we were worried when snow was predicted and actually fell, just a few days before our Conference began! We were determined that weather would not alter our plans, and in the end, our concerns were unfounded. What a great conference it was! Randy Ledford, as Program Chair, Helen Kolman, as Vendor Chair, and Ann DeBoever and her CVCC team really produced an event worthy of accolades.

Of course we all know that no matter the facilities or vendor participation, it is the members, both those who step forward to present and those who attend, who make our conference what it is. The presenters and participants kept the sessions informative, lively and on point with new ideas we can all use to make our teaching better. In fact, Julie Miller, one of the authors who participated, commented that while she had attended many AMATYC affiliate and other conferences around the country, she had never seen a conference as well attended, well presented and informative as the NCMATYC Conference. So kudos to all of you, and start planning now for 2011 conference at Davidson County CC.

As happens every two years, you have elected a new Board. I want to take this opportunity to thank the outgoing Board: Jan Mays, Helen Kolman, Lee Ann Spahr, Sharon Welker, Tina Starling, and Cathey Jordan. Under their leadership, NCMATYC has moved forward in several areas.

*Continued on Page 2*

**The NCMATYC NEWS is an official publication of the North Carolina Mathematics Association of Two-Year Colleges. Articles for publication and comments should be submitted electronically to [dzemanek@email.pittcc.edu](mailto:dzemanek@email.pittcc.edu). The deadline for the fall 2010 issue is October 27, 2010.**

## The President's Message

*Continued from Page 1*

We now offer travel grants to attend NCMATYC and to attend AMATYC. We award Teaching Excellence and Mathematics Excellence Awards; thus, recognizing our own members as well as providing a vehicle for them to be recognized nationally by AMATYC. I know you join me in expressing our appreciation for a job well done.

I would be remiss not to single out Jan Mays for special recognition. Jan has devoted the last six years serving us as President, President Elect, and Past President. As someone who is at the end of three years on the Board, let me assure you that six years is a long time! Yet, Jan has remained committed and enthusiastic. She has never failed to offer new ideas and has been particularly responsible for leading efforts to place our organization in a position to influence state policy regarding issues concerning mathematics. Thank you so much, Jan, for your contributions over many years!

The Board will be meeting at the close of spring semester to do planning and goal setting for next year. We rely on your evaluations and comments to guide us. It is not too late for you to send me observations regarding our conference. We will be strategizing to indentify new initiatives that will keep us growing as an organization, both in terms of membership and influence. If you have suggestions in any area, please email me.

Don't forget to put March 10-11, 2011 on your calendars for our 20th annual conference and have a great summer.

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## Best Wishes by Jan Mays, Past-President, Elon University

As of May 1<sup>st</sup>, my term as president of NCMATYC ends. I want to thank the membership for your faith in me and your support over the last eight years. Every year as I attend conferences, I feel welcome and uplifted.



I also want to encourage each of you to be active in NCMATYC and encourage your colleagues to do the same. Anyone can join the listserv which is a great way to connect instantly with your peers across the state. Challenge yourself to present at conferences, be a campus representative, or run for office. The organization is only as good as the volunteers who participate.

Working together, we can improve math education for students across the state. I look forward to seeing each of you at NCMATYC next spring.

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**New NCMATYC Officers from left to right: John Bakken, Randy Ledford, Nancy Rivers, Chris Mansfield  
Jeanne McGinnis, Glynis Mullins, Valerie Melvin, Suzanne Williams**

## **New Officers!** by Jan Mays, Past-President, Elon University

The election results are in and we have new officers. **Randy Ledford** (Davidson CC) will serve as President and **Suzanne Williams** (Central Piedmont CC) will serve as Past-President. Their experience and presence on the board is welcome. In addition, we have some new folks joining the board.

**Nancy Rivers** (Wake Tech CC) will serve as President-Elect. She is a familiar face as a frequent presenter and contributor to the NCMATYC newsletter. She served on the conference planning team when Wake Tech CC last hosted the NCMATYC conference. She is an active member of AMATYC presenting at five AMATYC conferences. She is active in the development of distance learning classes. As president-elect of the NCMATYC board she would like to see our organization become more active in education reform, providing more opportunities for cross community college sharing of ideas and concerns as well as professional development.

**John Bakken** (Wake Tech CC) will serve as Treasurer. Since starting at Wake Tech CC five years ago, he has presented at both NCMATYC and NCCCADL conferences. He is a 2007-2008 fellow of AMATYC Project ACCESS, and has continued to work with Project ACCESS. He believes that by showing faculty across the state that we care about them, they will in turn care about NCMATYC.

**Valerie Melvin** (Cape Fear CC) will serve as Secretary. She is a full time mathematics instructor at Cape Fear CC, where she has worked for the past fifteen years. As a member of NCMATYC for more than a decade she has attended many conferences. She has presented at NCMATYC and AMATYC conferences. She was co-coordinator of the 2003 NCMATYC conference held at CFCC. She will assist in communication with members and continue a long history of documenting and preserving the association.

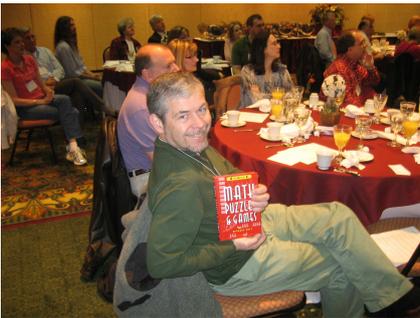
**Jeanne McGinnis** (Catawba Valley CC) will serve as Western Region Vice-President. She has been a mathematics instructor at CVCC for 10 years, six years part-time and four years full-time. She firmly believes in the vital role the community college plays in the education system in NC and the US. She considers herself a lifelong learner and especially enjoys collaborating with colleagues regarding new and innovative ways to present material in the classroom. She would like to take that learning to the state-wide level with NCMATYC to continue to promote the community college through our organization.

**Chris Mansfield** (Durham Tech CC) will serve as Central Region Vice-President. He has been part of the faculty at Durham Tech CC since 2003. He is a member of both NCMATYC and AMATYC. He has presented at several NCMATYC conferences and currently leads the Faculty Math League Test sessions. He would like to encourage more North Carolina community college mathematics instructors to participate in NCMATYC, help our organization to play a more active role in decisions made by the system office, increase NCMATYC's representation at College Transfer Program Association activities, and work to make our organization an even more effective tool for cultivating positive change in North Carolina higher education.

**Glynis B. Mullins** (Pitt CC) will serve as Eastern Region Vice-President. She is currently the Developmental Math Coordinator at Pitt CC in Greenville where she has worked since 2003. She is also a member of the North Carolina Association for Developmental Education (NCADE) and the National Association for Developmental Education (NADE). She would like to help NCMATYC grow in two ways: providing professional development to more adjunct instructors and continuing to build the bridge between curriculum-level and developmental math programs.

Of course, we would also like to thank the outgoing board members: Tina Starling, Cathey Jordan, Helen Kolman, Lee Ann Spahr, Sharon Welker, and Jan Mays for their dedicated service as their terms come to an end. Please feel free to contact any of the new or returning officers if you have concerns or issues you would like to see addressed. This organization continues to be great due to the support of its members.

*Images from 2010 NCMATYC Conference  
Catawba Valley Community College, Hickory, NC*



## **Increasing Student Success: What do you think should be done?**

**by Rob Kimball, Wake Technical Community College**

A session at this year's annual conference was held in order to provide feedback to the system office on the developmental mathematics program. *Achieving the Dream* has prompted the NCCCS to examine the barriers that are preventing students from succeeding and graduating. Mathematics is one of those barriers – a big one.

*StatWay* and *MathWay* are two new national projects that focus on creating new pathways for students through developmental mathematics. I have been involved in these projects as well as the *New Life* project that AMATYC is undertaking. These projects are being funded by the Gates Foundation as well as the Carnegie Foundation. AMATYC and the Dana Center are partnering to implement these projects.

In light of those experiences, I would offer the following suggestions regarding the developmental program in NC:

### **Flexibility**

Colleges and departments should be free to test new ideas and methods, understanding that a formal procedure for implementing and assessing them should be in place. Programs should offer students more or less time to gain the competencies required to move on. Colleges should be able to adjust curriculum to meet the changing needs of students as evidenced by research on the needs of the workplace.

### **Content**

The mathematical needs of STEM students differ from non-STEM students; this is the reason we offer options for students to obtain credit in mathematics. Therefore, it makes sense to adjust the content and focus of developmental mathematics based on a student's future plans and upon their selection of a major. The focus of developmental mathematics needs to change from a focus on procedural competency to a focus on conceptual competency. Courses need to incorporate realistic applications that require investigation and reasoning – as a focus, not an add-on.

The fact that some four-year institutions may require pre-calculus for admission into a major does not make it reasonable to teach *all* students at a community college as if they were going to take pre-calculus. The goals of the two institutions are completely different and the motive for requiring pre-calculus is inconsistent with the goals of North Carolina community colleges.

The study of mathematics can strengthen the ability of students to solve problems, think critically, and reason scientifically. However, the memorization of procedures will not obtain those lofty goals. By adjusting the curriculum to focus on the investigating, the modeling, and the solving of more non-routine problems, we can obtain those goals.

### **Methods**

In order to promote understanding over procedure, instructional methods need to change. Students must be engaged in non-routine problems that require them to communicate, reason, and inquire. Faculty must promote an active learning environment in which students are encouraged to utilize all the skills and tools available; that is, technology must be allowed and encouraged and be one of the tools students use to investigate problems and/or data.

### **Placement**

Students should begin at a level at which they have an opportunity to succeed. Placement tools must demonstrate that placement is accurate relative to the content of the courses into which students place. Placement tools must also provide students in need of remediation with a prescription for success by identifying their areas of weakness.

*Continued on Page 6*

**Student Support**

Systems must be in place to support students as they learn to “do college.” This support structure begins with in-depth and required orientation classes and continues with a support structure that helps students with time management, study skills, and with problems they encounter at school and in life.

**Data Collection and Analysis**

The System and Colleges must collect data and use that data to make informed decisions about future directions.

**Stakeholders**

Representatives from universities must be part of the discussion and solution. The different requirements at various state universities and colleges compound the problems counselors have with advising students about pathways to success in mathematics.

Representatives from K-12 systems must be part of the discussion and solution. More needs to be done to decrease the number of students in need of remediation and decrease the gap between what a high school graduate has acquired and what a college student requires.

**Conclusion**

The spotlight on the mathematics that students need in order to be successful in mathematics courses, in their other courses, and as citizens is an opportunity for us to improve our program. It is more than an opportunity, it is an obligation.

*(Note: In other states, Tennessee for example, the legislature has attempted to mandate change with little input from faculty. The explanation is that Tennessee made these changes in order to qualify for the Race to the Top funding.)*

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***New Mathematics Instructor***

**Benjamin Falero by Melissa Staley, Central Carolina Community College**

Benjamin Falero became the newest full-time member of the Central Carolina CC Math Department in January 2010. Born and raised in Brooklyn, NY, he had three years of electrical engineering education at Pratt Institute. He received his B.A. in Secondary Education from Brooklyn College, and a M.S. in Secondary Education from the College of Staten Island. He also has 24 credits in School Administration.

Ben started teaching high school math in September 1995 at Oceanhill Brownsville Secondary School. After four years, he transferred to Franklin Delano Roosevelt HS in Brooklyn, where he was a successful mathematics teacher for seven years.

In August 2006, Ben moved to Fuquay Varina, NC and began teaching HS math. He decided to pursue a career path at the college level. After teaching for two semesters as an adjunct in the evenings at CCCC, he realized that he had found his calling in teaching at Central Carolina Community College, where the joy and love of teaching has been rekindled in him.



## **NCMATYC 2010 Teaching Excellence Award Winner, Valerie Melvin** **by Sharon Welker, VP Eastern Region, Wake Technical Community College**

Valerie Melvin, Cape Fear Community College, received the 2010 Teaching Excellence Award from NCMATYC. This award honors mathematics educators who have made outstanding contributions to mathematics or mathematics education at a two-year college. Teaching excellence is the main focus of the award.

The NCMATYC Award Selection Committee had an overwhelming job to select one award recipient from the outstanding nominees as we followed the AMATYC criteria. We appreciated learning about Mrs. Melvin's commitment to students and her colleagues and her passion for lifelong learning. She enjoys exploring new ways of teaching and learning, as evidenced by her contributions to distance education.

Congratulations, Valerie!

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## **An Interview with Valerie Melvin, the Recipient of the NCMATYC Teaching Excellence Award** **by Daniela Zemanek, Pitt Community College**

**DZ:** What special significance does this award have for you?

**VM:** I consider the NCMATYC Teaching Excellence award to be the highlight of my sixteen year teaching career. I would like to thank the committee and NCMATYC for the honor of being chosen as their award recipient. I know the decision had to be difficult given the large number of qualified and deserving nominees. I would like to especially thank my colleague Laura Taylor for initiating the nomination process. This award is the ultimate 'at a boy' to me. It represents acknowledgement of hard work and dedication. None of us do what we do for recognition which makes it difficult to adequately communicate how special receiving this award really is.



As I contemplate on how in the world I got here I have concluded that this is, without a doubt, an accumulation, summation if you will, of a multitude of support and opportunity.

My support has come from a President who recognizes what works, a Vice President of Instruction and Dean that welcome new ideas, and a Department Chair that literally makes it all happen. From the logistics to the finances, from the technology to the maintenance, if you can dream it Kenneth Hufham can make it happen. It is truly a great time to be at CFCC!

The opportunities include travel from coast to coast and from north to south to attend various conferences and publisher's symposiums and an association with NCMATYC and AMATYC which provides a wealth of exposure to cutting edge, proven successful teaching methods and techniques specific to what we do every day. NCMATYC and AMATYC presenters really cut the learning curve and make it exhilarating to share. If you've ever presented at either of these conferences, you are part of my summation. Thank you, my mathematics community, for all you do. Professionally, I am what I am because of you!

*Continued on Page 8*

## **An Interview with Valerie Melvin, the Recipient of the NCMATYC Teaching Excellence Award**

*Continued from Page 7*

**DZ:** In May you will start your term as Secretary of NCMATYC. Why did you find it important to get involved? What rewards do you expect from this position?

**VM:** Actually, due to the early arrival of Tina Starling's darling little girl, I have already taken over as secretary. Getting involved at the state level seemed like a natural progression for me after being an active member for twelve years. A better question might be "what took you so long?" I also believe that larger schools have an obligation to become involved, if at all possible. Generally speaking, we have more resources and personnel to share the wealth of responsibilities. Currently CFCC has 15 full-time math instructors; and, we will be adding no less than three and as many as six new positions for the fall. I also hope that my involvement will facilitate greater participation from my colleagues as well. I expect the professional networking that results from serving on the board will be a tremendous reward for me.

**DZ:** How do you see NCMATYC in the future?

**VM:** I see NCMATYC continuing to be a major influence in the Common Course Library and articulation decisions. I also expect the organization to grow its membership. We currently enjoy a great relationship with our University system. I would love to see a stronger relationship with industry. I attended the *Statistics Information Exchange* session led by Gregg Miller at our latest conference and it was mentioned that several schools have a Math Advisory Committee made up of local industry employees. This might be a good idea for NCMATYC in terms of informing us of their mathematical needs as well as potentially providing monetary donations. I am reminded of the budget item "donations" in which we had \$0. I find that disheartening considering the influence our subject matter has in so many different areas.

**DZ:** Why did you choose a career in teaching and why mathematics?

**VM:** Prior to teaching, I spent five years working as an office manager in the financial aid office at UNCW. I took great pride in my job and knew what I was doing was making a difference in people's lives. However, I wanted to contribute more personally and professionally. I had always achieved success in my mathematics courses and felt I could effectively communicate the concepts myself. Most people struggle with mathematics. I considered it a challenge to reduce the anxiety and negativity associated with those beginning mathematics courses. Students with math anxiety need a great deal of positive reinforcement. We have to tell them they are doing a good job and we must communicate that they are totally capable of successfully completing their math course. Evident in the recommendation from my former student, we never really know the magnitude of our impact on others. The influence of an instructor can literally change a person's life; that is why I choose a career in teaching and that is why I start everyday with a prayer.

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## **My First NCMATYC Conference**

**by Tina Lee, the recipient of 2010 NCMATYC Travel Assistance Award, Haywood Community College**

I attended the 2010 NCMATYC Conference last month in Hickory, NC. The conference was well-organized and extremely informative. I have been able to apply the information from the conference in my classes. I learned new teaching techniques and received valuable information that was directly related to the courses that I teach. I was also able to share information with other instructors in similar positions. I really enjoyed the conference and hope to make this conference an annual event for my professional development. This was my first NCMATYC Conference, but definitely not my last. I am very grateful that I had the opportunity to attend the conference. Thanks to everyone who made this conference a huge success.

## **Connecting Online** by Laura Taylor, Cape Fear Community College

This semester I started teaching a MAT 175 class completely online. One of my students, who lives several hours from our campus, was in need of more interaction than a Camtasia video would allow. I began doing some research into web-conferencing. Even though I have attended several webinars in the past, I thought the technology would be very expensive and in the current budget crunch, had no expectation of expanding my technological repertoire. However, to my surprise, I found several free or very inexpensive tools that would allow me to hold online office hours. I schedule an hour every week now for each of my online classes. It has been enormously helpful for my students to get some one-on-one tutoring and for me to feel I am offering all I can to help them succeed.

After hearing Michael Sullivan speak at the NCMATYC conference this spring my desire to find the best platform for my online and hybrid classes was reinforced. I think there are some wonderful opportunities on the horizon in online instruction as long as we keep in mind that technology should never replace the interaction you can have with your students. Here are some suggestions for software: dimdim(free), wiziq(free) and webex (\$50/mo). I am currently using webex but will most likely switch to wiziq in the summer. You can do a google search for online meeting programs and find what works best for you.

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## **2009 AMATYC Conference** by Daniela Zemanek, Pitt Community College

John Bakken from Wake Technical Community College was the recipient of the NCMATYC Travel Assistance Award to attend the 2009 AMATYC Conference in Las Vegas.

If you did not attend this conference you should check out the AMATYC's website.

<http://www.amatyc.org/Events/conferences/2009LV/proceedings.html>



This site houses the electronic proceedings from the conference, and contains many of the handouts and slide shows from the conference. A few of the presentations were recorded and posted too. John was particularly fond of presentation S76 by Maria Andersen.

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## **Travel Assistance for AMATYC Conference** by Suzanne Williams, President, Central Piedmont Community College



Hundreds of mathematics instructors come together to share ideas and network at AMATYC each fall. In an effort to support and promote faculty involvement and leadership in NCMATYC, we will offer a grant to attend the 2010 AMATYC conference, Bridging Past to Future, in Boston, November 11-14. If you want further information about the conference, go to <http://www.amatyc.org/Events/conferences/2010Boston/>.

NCMATYC will offer travel assistance of up to \$1250 for one North Carolina community college instructor to attend this national conference. Criteria for selection include NCMATYC membership of at least two years, previous attendance at an NCMATYC conference, and an appropriate letter of support from an NCMATYC member. Those who receive the award are expected to share ideas gained at AMATYC by leading a session at the spring NCMATYC conference and contributing an article to NCMATYC news letter.

The board of NCMATYC understands the importance of developing the leaders of tomorrow today. If you want to get more involved in shaping math education for the future, check out the application form enclosed in this newsletter. The form must be postmarked by August 31st, 2010.

## **Central Piedmont Shines in Student Math League Competition** **by Chris Mansfield, Durham Technical Community**

Central Piedmont Community College swept both state and regional honors in this year's Student Math League Competition. CPCC finished first not only in the state of North Carolina but also in the Southeast Region of the United States! Other North Carolina schools performed well also, with Wake Tech Community College and Catawba Valley Community College cracking the Southeast Region top five as well, finishing third and fifth respectively. This is the second consecutive year Wake Tech CC has accomplished this feat.

This is the third year in a row that a North Carolina school has won the Southeast Region of the U.S., which includes schools from Florida, Georgia, South Carolina, Mississippi and Tennessee. Durham Tech took home the honors in each of the previous two years. Additionally, six of the top eleven schools in the Southeast Region were from here in North Carolina.

Central Piedmont dominated the field this year, finishing first in both the fall and spring tests and winning the overall competition by 18 points. The school was also the home of the top-scoring student, Brendan Fletcher, whose 68.5 not only paced the SE field but also earned him third place among all students in the country! Other students distinguishing themselves this year include Wake Tech compatriots Joel Gray and Kenneth Syharath, who finished 2<sup>nd</sup> and 3<sup>rd</sup> respectively among N.C. students. NCMATYC awards cash prizes to the top three scorers in the state and so Fletcher will receive \$300, Gray \$200, and Syharath \$100.

Thanks to the record twelve North Carolina schools that participated in the Student Math League this year. As a state, we accounted for almost half of the competing schools in the Southeast Region! I'm sure your students appreciate the work you do to give them the opportunity to compete against their peers from around the country. If your school is not involved in the competition, please consider joining—it's easy to administrate and helps foster community within the math discipline. Simply send me an email at [mansfieldc@durhamech.edu](mailto:mansfieldc@durhamech.edu) for information.



## **Nguyen takes first place at 6<sup>th</sup> Faculty Math League Competition** **by Chris Mansfield, Durham Technical Community**

The 6<sup>th</sup> Faculty Math League competition was held at the NCMATYC conference at Catawba Valley CC in March. Congratulations to winner Cao Nguyen of Central Piedmont CC. Though this was the third consecutive time Cao has finished first, it is the first year he did not share the top spot. Tim Beaver of Isothermal CC, the winner of the inaugural Faculty Math League Competition back in 2004, finished in second place. Mary Pearce of Wake Tech CC, Emma Borynski of Durham Tech CC, and first-time entrant Nena Babb of Catawba Valley CC finished in a three-way tie for third place.

Everyone who took the test did well, answering a majority of the questions in the allotted 45 minutes and getting a majority of those answers correct. The actual test is printed on page 11. Give it a try and consider taking it when you come out to Davidson County CC next year for the 2011 NCMATYC Conference.



## 2010 NCMATYC Faculty Math League Test

- If  $\frac{a}{b} = 2$ , then  $\frac{a^{2n}}{b^n} = ?$   
A.  $2^n$       B.  $(2a)^n$       C.  $a^n$       D.  $2^n a$       E.  $2a^n$
- $[3, 7) \cup \{(-8, 4] \cap (-2, 5)\} =$   
A.  $[-8, 7)$       B.  $[3, 5)$       C.  $[3, 4]$       D.  $(-2, 7)$       E. none of these
- If the diameter of each tire is 26 inches, approximately how many revolutions per second are made by each wheel when the car's speed is 60 mile per hour?  
A. 6      B. 7      C. 12      D. 13      E. 24
- Which of the following statements are sufficient to prove that  $a < b$ ?  
I.  $a^2 < b^2$   
II.  $a^3 < b^3$   
A. I only      B. II only      C. both are necessary      D. either is sufficient  
E. both taken together are not sufficient
- If a figure has  $90^\circ$  rotational symmetry, which of the following must be true?  
I. The figure is a regular polygon.  
II. The figure has reflective symmetry about some axis.  
III. The figure has  $180^\circ$  rotational symmetry.  
A. II only      B. III only      C. I and II only      D. II and III only      E. I, II, and III
- $\sin^2 \theta \cdot \cos^2 \theta$  is NOT equal to which of the following?  
A.  $\cos^2 \theta - \cos^4 \theta$       B.  $\sin^2 \theta - \sin^4 \theta$       C.  $\frac{1}{4}(1 - \cos^2 2\theta)$       D.  $\frac{\tan^2 \theta}{\sec^4 \theta}$       E.  $2\sin \theta \cos^3 \theta$
- The statement  $f(a) \cdot f(b) = f(a + b)$  holds true for which one of the following functions?  
A. polynomial      B. trigonometric      C. logarithmic      D. inverse trigonometric      E. exponential
- An isosceles triangle is drawn on the x-y plane such that its equal sides lie along the lines  $x = 0$  and  $y = x$ . Find the slope of its third side.  
A.  $1 - \frac{\sqrt{2}}{2}$       B.  $\sqrt{2} - 1$       C.  $1 - \sqrt{2}$       D.  $\frac{\sqrt{2}}{2} - 1$       E.  $-\sqrt{2}$

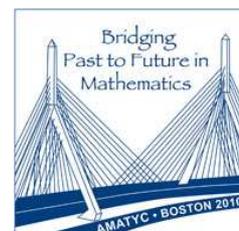
9. In the following correctly worked out multiplication problem, where a, b, c, d, and e each stand for specific, distinct digits, find the value of  $a + b + c + d + e$ .

$$\begin{array}{r} abc \\ \times bb \\ \hline bdc \\ \text{bdcc} \\ \hline \text{bedc} \end{array}$$

- A. 13                  B. 16                  C. 19                  D. 22                  E. 25
10. The number of injury claims per month against a certain insurance company is modeled by a random variable  $N$  with  $P(N = n) = \frac{1}{(n+1)(n+2)}$ , where  $n \geq 0$ . Determine the probability of at least one claim during a particular month, given that there have been at most four claims during that month.
- A.  $\frac{1}{3}$                   B.  $\frac{2}{5}$                   C.  $\frac{1}{2}$                   D.  $\frac{3}{5}$                   E.  $\frac{5}{6}$
11. An equilateral triangle is inscribed in a circle. What percentage of the area of the circle is covered by the triangle?
- A. 53%                  B. 47%                  C. 44%                  D. 41%                  E. 385
12. Which one of the following numbers is the sum of the first  $n$  integers for some  $n$ ?
- A. 4965                  B. 5025                  C. 5050                  D. 5085                  E. 5130
13. A toy factory generates cubes with a randomly chosen color (red or blue) on each face. You buy seven of the cubes and all your cubes have a different number of blue faces. You select one of your cubes at random and happen to pull up a cube showing only one side, which is red. What is the probability that at least two other faces are also red?
- A.  $\frac{4}{7}$                   B.  $\frac{2}{3}$                   C.  $\frac{5}{7}$                   D.  $\frac{5}{6}$                   E.  $\frac{6}{7}$
14. Let  $C$  be the portion of the graph of  $y = 1 - x^2$  over the interval on the  $x$ -axis  $[0, 1]$ . Let  $D$  be the reflection of  $C$  about the line  $y = x$ . Find the sum, rounded to the nearest whole number, of the  $x$ -values of all the points in the intersection of  $C$  and  $D$ .
- A. 0                  B. 1                  C. 2                  D. 3                  E. 4
15. Consider the digit string 123456. You may put  $+$  signs in between any of the digits (you can use more than one  $+$  sign). Which of the following cannot be the resulting sum?
- A. 21                  B. 66                  C. 75                  D. 132                  E. 291

**Answers:** 1b, 2d, 3d, 4b, 5b, 6e, 7e, 8c, 9a, 10b, 11d, 12c, 13e, 14c, 15d

**Application for NCMATYC Travel Assistance Award  
to attend the  
2010 AMATYC Conference**



NCMATYC will offer travel assistance of up to \$1250 for a North Carolina community college instructor to attend the AMATYC conference in Boston November 11-14, 2010. The travel assistance is intended to support and promote faculty involvement and leadership in NCMATYC. Criteria include NCMATYC membership of at least two years, previous attendance at an NCMATYC conference, and an appropriate letter of support from an NCMATYC member. Those who receive the award are expected to share ideas gained at AMATYC by leading a session at the spring NCMATYC conference and contributing an article to the NCMATYC newsletter.

**Form must be POSTMARKED by August 31st, 2010.**

[A] Print or type the following information.

Name: \_\_\_\_\_  
School: \_\_\_\_\_  
E-mail Address: \_\_\_\_\_  
Preferred mailing address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

[B] Are you an AMATYC member? \_\_\_ Yes \_\_\_ No

[C] Please attach a letter of support from an NCMATYC member.

[D] Please write a brief statement (50 words or less) explaining ways you have supported NCMATYC.

**Mail form to:**

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## **Assistance Needed for Potential North Carolina Math Competition** by Chris Mansfield, Durham Technical Community

At present, there are very few opportunities for community college students interested in competing in math tournaments, particularly in the southeastern area of the country. As such, several NCMATYC members plan to look into the possibility of starting up a math competition for community college students in North Carolina. It is a big job, and we need your help. Areas we would need assistance with include:

- Creating and/or proofing questions for the competition
- Being one of the schools that host the competition on a rotating basis
- Advertising/public relations
- Administrative help

If you are interested in volunteering for any of the above jobs, please contact either Vasilica Marhao or Chris Mansfield at [vmarhao@cvcc.edu](mailto:vmarhao@cvcc.edu) and [mansfieldc@durhamtech.edu](mailto:mansfieldc@durhamtech.edu) respectively.

Those who have sponsored students in math competitions can attest to what a fun, fulfilling experience it is. Even if you are unable to get directly involved, please let us know if your students would be interested in attending such a competition to help us gauge the general interest level.

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***Articles for publication and comments should be submitted electronically to Daniela Zemanek at [dzemanek@email.pittcc.edu](mailto:dzemanek@email.pittcc.edu)  
The deadline for the fall 2010 issue is October 27, 2010.***

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