## TexMATYC News

## President's Message

## By Cynthia Martinez, Temple College. TexMATYC

 President.Welcome to a new, exciting semester! So much is going on across Texas. Where shall I begin?

- We are fortunate to have The University of Texas at Austin - Dana Center at the
 forefront of studying ways to accelerate developmental students. Nine co-development partners are beginning year two and plan to pilot Quantitative Reasoning this coming spring. A call for authors is underway for the planning stages of the STEM pathway.
- The ACGM has gone under a second revision for 2014. Be sure to visit the website (http://www.thecb.state.tx.us/AAR/UndergraduateE d/WorkforceEd/acgm.htm) to view courses being recommended for deletion, pre-requisites for some courses that did not have a stated pre-requisite before, as well as course title changes.
- The ACGM advisory board will be forming committee work groups in the near future on math courses which currently do not have stated Learning Outcomes. Let your administration know of your interest in participating.
- If you did not have a chance to participate in a webinar updating the latest information on Texas Success Initiative (TSI) and Developmental Education, feel free to visit www.thecb.state.tx.us/tsi to view the recorded session from September 17, 2014. Topics discussed were TSI Assessment, advising, nontraditional options, funding, HB 5 College Preparatory Courses, and the statewide professional development strategy.
- Engage with fellow colleagues in neighboring areas by attending a math conference, or two, listed on the calendar of events which are occurring throughout the year. Hope you can attend at least one of them this year. Stay abreast on the THECB website for upcoming sessions as they pertain to mathematics.

The executive board for TexMATYC is working diligently to prepare an awesome slate of sessions for this year's upcoming TCCTA annual convention which will be held in Dallas. Hope you can attend and participate in some outstanding sessions regarding mathematics education. Without you, we would not exist. Have a sensational year!

## AMATYC News

By Kathryn (Kate) Kozak, AMATYC Vice President for the Southwest Region

Being a member of AMATYC has some benefits that I would like to outline.


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Mostly, a member receives a discount to the annual conference that actually saves the member more than the cost of membership. So if you are attending a conference, it makes more sense to be a member. However, there are also reasons to be a member even if you do not attend the annual conference. One of the benefits is that you receive information about Webinars before non-members, and can register for the Webinars before they are open to the general public. As a member you can also volunteer to be part of the leadership of the organization. Many of these positions are supported by AMATYC, which includes travel costs to the annual conference. A benefit that was just added is that all issues of the MathAMATYC Educator are now available in a members' only section of the AMATYC.org site. Once you log into the AMATYC site, you can go into Publications and then MathAMATYC Educator, and you will have access to all of the issues. You can set up to renew your membership automatically, so you won't need to think about it every year. If you are not a member, consider joining today by going to AMATYC.org.

AMATYC is updating the Bylaws this year at the Delegate Assembly at the AMATYC Annual Conference in Nashville. Most of the changes are to update wording and duties of officers, but one major change is to reorganize the 8 regions. The Central Region consists of 10 states, which is much larger than any other region. So there is a proposal to reassign some of the states to other regions. Wyoming would move to the Northwest Region, Utah would move to the West Region, and Arkansas would move to the Southwest Region. So if the Bylaw changes are approved, then the Southwest Region will gain a state and the affiliate ARKMATYC. This will be helpful when the SW Region hosts another regional conference. If you are a delegate, please make sure you have read the material for the Delegate Assembly. The material will be emailed to you at the beginning of October.

If you are a member of AMATYC, please consider joining a committee. There are 9 committees, and descriptions and contact information can be found at AMATYC.org in the Get Involved menu and then Join/Participate. Committees in AMATYC are not like the committees on your campus. These are more like special interest groups
that meet to discuss issues pertaining to the committee. Some committees sponsor Webinars, whiles others sponsor themed sessions at the annual conference. An example of some work that committees have taken on is that the Statistics Committee, in conjunction with the AMATYC/ASA Joint Committee, posted a website with resources for statistics teachers. You can find those resources from AMATYC.org under the Quick Links to Popular Pages.

If you are not a member of AMATYC, consider joining and being a part of this important community. I hope to see you all at the $40^{\text {th }}$ AMATYC Annual Conference in Nashville, TN. It will be a great conference.

## Membership

## By Becky Heiskell, TexMATYC President-Elect.

The membership drive for 2014 has begun! With dues at $\$ 10$ a year, I can't think of a better bargain. Please consider not only renewing (or joining), but also
 talking to a colleague (or two) and informing them about our professional organization, the Texas Mathematical Association of Two-Year Colleges. Here are just a few of the benefits of membership.

- Newsletters in fall, winter, and spring to keep you informed of what is happening with mathematics education in Texas.
- Annual meeting with guest speakers and professional development opportunities held in conjunction with TCCTA (this year at the Sheraton in Dallas February 1921). This is a great opportunity to network with other educators from around the state.
- Representation to AMATYC
- Allows you input into statewide and national discussions concerning the development of effective mathematics programs



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By increasing our membership numbers, we strengthen our voice and the ability to influence the future of mathematics education in Texas. If every current member would convince just one of her colleagues to join we could double our membership! And if we did it again next year...... think about it, exponential growth!

Joining is easy, just go to http://texmatyc.org and look for the big green button in the upper right side of the page, with the words: "Join Now"! From there you can pay online with a credit card or PayPal. Alternatively, you can print out a form to fill out and give to your campus representative or mail it directly to TexMATYC.

Please join us and help to influence the future of mathematics education in Texas!

# Student Math League: Some Insights from the Texas and Southwest Regional Winner 

By Vu Phan, Collin College Student.



First of all, I would like to express my appreciation toward individuals and organizations that significantly supported me in the AMATYC SML. I thank Professor Edward Bock for administering the competition at Collin College and communicating with me on behalf of the TexMATYC. I am grateful to Professor Susan Strickland of the College of
Maryland, representing the AMATYC, for the
academically challenging Student Mathematics League. I appreciate Professor Kay Weiss of the University of Oklahoma supporting me on Mu Alpha Theta's behalf.

To future AMATYC SML participants, I would like to provide you some information on a particular method to prepare for the competition. Firstly, I practiced with a past contest's questions. I made everything similar to a real session, such as the specific uninterrupted period of time. This helped me test my ability and determined how well I did comparing to others if it had been a real competition. After that, I tried to solve all the math problems in a rigorous, full-proof fashion (timing was unnecessary here). Doing so let me formally justify my spontaneous assessments in the previous timed session (in such a short-time contest, I inevitably needed to make reasonable guesses without rigorously analyzing them). This process improved my general problemsolving skill, speeding up my reasoning when dealing with future questions. Finally, I utilized the Internet to find others' methods of resolving the contest's problems. This step allowed me to evaluate my proofs' efficiency and learn innovative, effective approaches.

The AMATYC SML academically benefited me in several ways. For instance, it considerably enhanced my overall reasoning capability. To solve such challenging problems in a short time, I needed to improve my critical thinking strategies to identify the most efficient solutions. The competition also gave me much enjoyment in my attempts so solve the problems. In my opinion, the questions are based on common mathematical knowledge, but it is the creative application of such knowledge that leads to the correct answers.

I had the privilege to attend Collin College, which provided me abundant academic support. In detail, Professor Alan Graves has been the advisor during my original research project regarding the extension of quasiarithmetic mean comparability. Currently, my paper is in the revising-resubmitting process with the RoseHulman Undergraduate Mathematics Journal. Additionally, Professors Valeria Antohe, Cyrus Malek, William Murray, Hushang Poorkarimi, Steven Sikes, and Barry Piazza offered me great courses in respectively Calculus I-IIIIII, Differential Equations, Linear Algebra,

and Discrete Mathematics. In addition, I have recently finished all requirements for my Associate of Science's degree at the college.

For Fall 2014, I am transferring to Texas Tech University to pursue a Bachelor's degree in pure mathematics with their generous Proven Achievers Scholarship. About the future, I plan to accomplish a doctoral program in the same field and become a professor to research and lecture on this academically aesthetic sphere.

## Conferences 2014-2015

CBMS Forum on The First Two Years of College Math: Building Student Success - Reston VA
October 5-7, 2014,
http://www.cbmsweb.org/
TAAAMS Fall Meeting - Waco TX
October 17-18, 2014
FMI: Frank Maldonado, President;
jmaldonado64@alamo.edu
$40^{\text {th }}$ AMATYC Annual Conference- Nashville TN
November 13-16, 2014
www.amatyc.org
NCTM Regional Conference - Houston TX
November 19-21, 2014
www.nctm.org
MAA/AMS Joint Mathematics Meeting - San Antonio TX Holiday Inn on the Riverwalk
Celebrating 100 Years!
January 10-13, 2015
www.maa.org
TCCTA/TexMATYC Annual Convention-Dallas, TX
February 19-21, 2015
www.tccta.org
NADE Annual Conference - Greenville SC
February 25-28, 2015
www.nade.net

ICTCM Annual Conference - Las Vegas NV
March 12-15, 2015
http://ictcm.pearsontc.net/
MAA - Texas Section Meeting - San Antonio
April 9-11, 2015
www.maa.org
NCTM Annual Conference - Boston MA
April 15-18, 2015
www.nctm.org
NISOD's $37^{\text {th }}$ Annual International Conference on Teaching and Leadership Excellence - Austin TX May 23-26, 2015
www.nisod.org

## AMATYC Conference:

The $40^{\text {th }}$ Annual AMATYC Conference begins on Thursday, November 13, 2014, at the headquarters hotel, the Gaylord Opryland Resort and Convention Center, located at 2800 Opryland Drive, Nashville, TN. In addition to Thursday's keynote address and Saturday's breakfast presentation, the program includes two outstanding featured speakers, a group of sessions providing a follow up to the Developmental Math Summit held last year in Anaheim, and two themed sessions: Innovative Teaching and Learning; and Math Intensive. Celebrate our $40^{\text {th }}$ Annual Conference by attending the free Friday evening musical show "Country Music Through the Decades"

Register today at www.amatyc.org.


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# What is Happening in Developmental Mathematics? 

By Jack Rotman, Lansing Community College and AMATYC Developmental Math Committee

I would like to summarize some national and profession trends related to developmental mathematics as of this writing, and then I would like to discuss the most important characteristic of the current work in the field.


Due to the work of funding sources (foundations) and influencing groups (like Complete College America), policy issues related to developmental mathematics are in the minds of both lawmakers and college leaders. In some cases, the changes implemented are designed in collaboration with professional groups; more often, however, we are informed of the new policies at the point where implementation begins. The rising stature of AMATYC results in increasing probabilities that professional involvement will begin earlier. There is reason to be optimistic.

Parallel to these policy developments is the growing use of new curricular models, which have been developed with deep engagement from our professional organizations. The great 'conspiracy' of AMATYC New Life, Dana Center New Mathways, and Carnegie Pathways provides a steadying force in a time of change; these models are saying "Yes, basic change is needed ... and here is a professional approach to what that change should look like." We are leaving the period when efforts in developmental mathematics are either a micro-level (individual components of pedagogy or technology) or focused on the delivery system (NCAT redesign models). The experience with those efforts will
be used as we move in to a period of broad change at the macro level. Those wishing to find out more about the three curricular models (New Life, New Mathways, Carnegie Pathways) can see information at my blog (http://www.devmathrevival.net).

A mistake commonly made both within and outside of the mathematics community is to focus exclusively on the need to change developmental mathematics, as opposed to the mathematics curriculum in general. We need to extend our progress and successes, and build better college mathematics courses, whether mathintensive or other (service courses and general education). Change in one segment of a system will not equate with long-term progress unless consistent changes are made in other segments of the system. We need to increase the professional engagement of all mathematics educators involved in college mathematics. As a start, all full-time mathematics faculty should be members of both their affiliate (like TexMATYC) and national organizations (AMATYC); long-term adjuncts should be members of at least the affiliate. Leaders of the state affiliates need to accept some responsibility for helping their mathematics faculty and institutions create a better system, built upon the broad progress made in developmental mathematics.

We are wise to be aware of two historical features. First, the new curricular models are based on earlier work in the profession; there is a basic continuity involved. Second, there have been prior attempts to change developmental mathematics. Our current work shares some conceptual similarities with these prior efforts; the differences, however, are what have enabled our efforts to succeed. A basic difference is the collaborative efforts over a period of time between the three consistent models. Another basic difference is how broadly immersed the reform work exists within the professional communities; instead of a handful of people in isolation, we have hundreds of people engaged in the work. As we extend our work into gateway college mathematics, these necessary conditions for long term progress need to be incorporated in our planning.

The historical isolation of mathematics faculty is ending; our professional organizations are being recognized for


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playing a leading role in creating progress. You will continue to hear about AMATYC's role in improving our curriculum and our own professional development. The fact that the Conference Board of Mathematical Sciences (CBMS) is holding a Forum (October 2014) on the first two-years reflects the expertise and influence seen in our organization; see http://cbmsweb.org/Forum5/. AMATYC is becoming known as a key player in college mathematics, working collaboratively with the MAA and AMS (and others). Within AMATYC, we are also beginning a process to write new standards for the field; the new standards might be an update to Beyond Crossroads or the original Crossroads, although my own preference is that we develop a new set of standards.

The comments above are related to the most important characteristic of the current work. Concisely stated, our profession is maturing; we have directionality for the changes being implemented that can be traced back to earlier work of our groups and projects forward to further changes. Our curriculum is becoming more intentional, and less of a historical accident; our pedagogies are becoming more complex and multidimensional, and less based on a search for miracle methods. This is the period of time when active participation in our professional organizations results in high levels of benefits, both for individuals and our collective work.

Clearly, I am convinced that the new models for developmental mathematics are worthy of our efforts and will help thousands of students reach their goals. However, what is really important ... and what will enable these models to become parts of long-term solutions ... is our increased levels of collective work. The work of each of the three models (AMATYC New Life, Dana Center New Mathways, Carnegie Pathways) involves faculty and colleges from multiple states. Prior reform efforts have been highly localized, and tended to be short lived. Our work together is creating real progress that can be continued and developed. It is noteworthy that Texas colleges and faculty have been involved with each of the new models from the beginning.

I hope that you will continue your work to improve mathematics. Just as importantly, I urge you to reach out to any of your colleagues who have not yet become active professionally. Encourage them to become active in TexMATYC and AMATYC.

I welcome your comments and questions.
Jack Rotman
rotmanj@lcc.edu http://www.devmathrevival.net/

## New Mathways Project

The New Mathways Project (NMP) is an ongoing collaboration between the Texas Association of Community Colleges (TACC) and the Charles A. Dana Center at the University of Texas to change how Mathematics is taught in higher education institutions. The NMP has many upcoming events:

## Quantitative Reasoning Course

Development of the NMP's Quantitative Reasoning course is wrapping up and will be in classrooms Spring 2015!

## STEM-Prep Pathway

The NMP's STEM-Prep Pathway development is ramping up. Lesson authoring for the first of two courses (STEMPrep I and STEM-Prep II) begins October $6{ }^{\text {th }}$. Implementation of STEM-Prep I is scheduled for Spring 2016. For more details, please visit the STEM-Prep Pathway webpage.

## Curriculum Adoption Workshops

Thinking about adopting an NMP Curriculum? Institutions interested in adopting any of the NMP's curricula have the opportunity to attend a Curriculum Adoption Workshop in early February. Start making plans to attend!


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## Faculty Workshops

The NMP will be offering a Faculty Workshop on Friday, November $7^{\text {th }}$ and Saturday, November 8th. This Workshop is for new NMP faculty members teaching this spring 2015 who have not attended a previous workshop. Location will be announced soon.

## TexMATYC

NMP staff is looking forward to seeing you at TexMATYC this spring 2015. For a project overview and data, make plans to attend our pre-session.

## AMATYC

The NMP will be participating in the following sessions at AMATYC this November:

- The Right Math at the Right Time: Implementing Mathematics Pathways

Thursday, November 13
11:30 am - 12:20 pm
Amy Getz

- National Summit on Developmental Mathematics:

Continuing the Dialogue
Thursday, November 13
9:10 am - 11:10 am
Amy Getz - Panelist

- An Introduction to the New Mathway Project's STEMPrep Pathway

Saturday, November 15
11:55 am - 1:55 pm
Frank Savina

# Visual Multiplication with Lines 

## By Cynthia Martinez, Temple College

Here's a way to multiply numbers visually!

$22 \times 13=28$

Figure 1
Suppose you want to multiply 22 by 13 . Draw 2 lines slanted upward to the right, and then move downward to the right a short distance and draw another 2 lines upward to the right (see the magenta lines in Figure 1). Then draw 1 line slanted downward to the right, and then move upward to the right a short distance and draw another 3 lines slanted downward to the right (the cyan lines in Figure 1).

Now count up the number of intersection points in each corner of the figure. The number of intersection points at left (green-shaded region) will be the first digit of the answer. Sum the number of intersection points at the top and bottom of the square (in the blue-shaded region); this will be the middle digit of the answer. The number of intersection points at right (in the yellowshaded region) will be the last digit of the answer.

This will work to multiply any two two-digit numbers, but if any of the green, blue, gold sums have 10 or more points in them, be sure to carry the tens digit to the left, just as you would if you were adding.

## Presentation Suggestions:

First do simple examples like the one above; then try a problem that involves a carry, such as $21 \times 34$.

The Math Behind the Fact:
The method works because the number of lines are like placeholders (at powers of $10: 1,10,100$, etc.), and the number of dots at each intersection is a product of the number of lines. You are then summing up all the products that are coefficients of the same power of 10 . Thus the in the example

$$
\begin{gathered}
22 \times 13=(2 * 10+2) *(1 * 10+3)=2 * 1 * 100+2 * 3 * 10+ \\
2 * 1 * 10+2 * 3=286 .
\end{gathered}
$$

The diagram displays this multiplication visually. In the green-shaded region there are $2 * 1=2$ dots. In the blueshaded region there are $2 * 3+2 * 1=8$ dots. In the goldshaded region there are $2 * 3=6$ dots. This method does exactly what you would do if you wrote out the multiplication the long way and added the columns!

The method can be generalized to products of three-digit numbers (or more) using more sets of lines (and summing the dot groupings vertically and remembering to carry when needed). It can also be generalized to products of three-numbers using cubes of lines rather than squares! (Of course, it gets pretty unwieldy to use the method at that point.)

By the way, for the specific problem $22 \times 13$ there is actually another way to do it; can you figure out how? Answer on last page.

## Citation:

Su, Francis E., et al. "Visual Multiplication with Lines."
Math Fun Facts. [http://www.math.hmc.edu/funfacts](http://www.math.hmc.edu/funfacts).

## Financial Report:

TexMATYC Mid-Year Financial Report for 2014

| Description | Expenses | Income |
| :--- | ---: | ---: |
| Previous Balance |  | $\$ 10,867.57$ |
| Membership (Cash) |  | $\$ 90.00$ |
| Membership (PayPal) |  | $\$ 262.86$ |
| Interest |  | $\$ 4.59$ |
|  |  |  |
| Balance |  | $\$ 11,225.02$ |

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## Joke

Adam went to Wimpy's Hamburger Restaurant. He asked the waitress, "Do you really serve the meanest burgers in town?"
She said, "That's what our motto is, sir! And we are very true to it."
Adam ordered a hamburger and ate it. While collecting the check, the waitress asked him, "How did you like our burger, sir?"
Adam said, "Mmmeh! It was about average." Waitress beamed with joy and exclaimed, "You see! We are so true to our motto..."


Answer (Visual Multiplication with Lines): Another way to multiply $22 \times 13$ is to rewrite the product as $11 \times 2 \times$ $13=11 \times 26$, then use the rule to multiply by 11 .

## Got News?

If you know of any exciting news in mathematics, have it published in your TexMATYC newsletter. Submit articles to Heather Gamber at heather.a.gamber@lonestar.edu.

Visit us at www.texmatyc.org

