Check out CAMT Featured Speakers Inside!

2008 Election Ballot Enclosed

Volunteer at CAMT

Check out our website for scholarship applications and nomination forms

http://www.tctmonline.net/

Texas Council of Teachers of Mathematics
2007-08 Mission and Goals Statements

MISSION

To promote mathematics education in Texas

GOALS

Administration
- Streamline online membership registration through CAMT

Publications
- Survey membership to identify what they want in the *Texas Mathematics Teacher* (TMT)
- Review and refine the TMT journal and the TCTM website
- Improve the review protocol, establish criteria for reviewers
- Provide tips for new teachers in the TMT and on the website

Service
- Increase the donations toward Mathematics Specialist College Scholarships
- Staff CAMT with volunteers as necessary
- Advertise affiliated group conferences on the TCTM website, in the TMT and at CAMT

Communication
- Maintain an e-mail list of members for timely announcements
- Communicate with affiliated groups in a timely manner
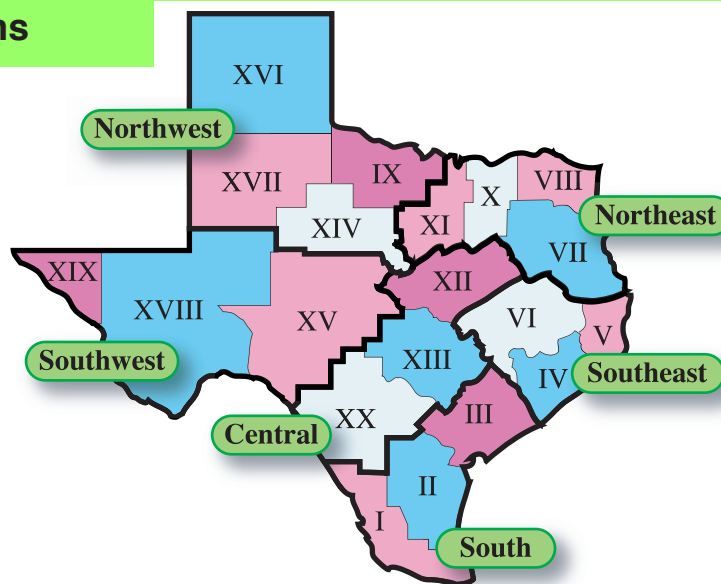
Membership
- Encourage affiliated groups to include TCTM registration on their membership forms

Public Relations
- Sponsor and staff the TCTM booth at CAMT
- Follow NCTM Advocacy Toolkit (2004) for increased voice of TCTM membership on issues relevant to our mission

TCTM Regions

TCTM Past-Presidents

1970-1972	James E. Carson	1982-1984	Betty Travis	1994-1996	Diane McGowan
1972-1974	Shirley Ray	1984-1986	Ralph Cain	1996-1998	Basia Hall
1974-1976	W. A. Ashworth, Jr.	1986-1988	Maggie Dement	1998-2000	Pam Alexander
1976-1978	Shirley Cousins	1988-1990	Otto Bielss	2000-2002	Kathy Mittag
1978-1980	Anita Priest	1990-1992	Karen Hall	2002-2006	Cynthia Schneider
1980-1982	Patsy Johnson	1992-1994	Susan Thomas		
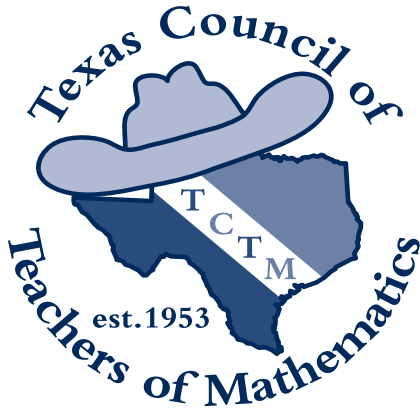
Texas Mathematics Teacher

A PUBLICATION OF THE TEXAS COUNCIL OF TEACHERS OF MATHEMATICS

Volume LV Issue 1   **Spring 2008**

Articles

Features

Departments

TCTM Applications

All applications (including membership) are now available online at the TCTM website *<www.tctmonline.net>*.

Call For Articles

The *Texas Mathematics Teacher* seeks articles on issues of interest to mathematics educators, especially K-12 classroom teachers in Texas. All readers are encouraged to contribute articles and opinions for any section of the journal.

Manuscripts, including tables and figures, should be typed in Microsoft Word and submitted electronically as an e-mail attachment to the editor with a copy to the director. No author identification should appear on or in the manuscript. A cover letter containing author's name, address, affiliations, phone, e-mail address, and the article's intended audience should be included. After refereeing, authors will be notified of a publication decision.

Teachers are encouraged to submit articles for *Voices From the Classroom,* including inspirational stories, exemplary lessons, or management tools. If submitting a lesson, it should include identification of the appropriate grade level and any prerequisites. Items for *Lone Star News* include, but are not limited to, NCTM affiliated group announcements, advertisements of upcoming professional meetings, and member updates.

Businesses interested in placing an **advertisement** for mathematics materials should contact Mary Alice Hatchett. Advertisements do not imply endorsement by TCTM's board, editorial staff or members.

Deadline for submissions: Fall, July 1   Spring, January 1

Letter from the President

Dear TCTM Members,

I hope that your 2007-08 school year has been going well.

There's a lot of talk in Austin these days about "college readiness." I have read several newspaper articles and research reports claiming that increasing numbers of students are entering colleges and universities without the required mathematics skills. Part of the recent House Bill 1 passed by the Legislature included a mandate for public education and higher education teachers to work together to create a comprehensive list of College Readiness Standards.

In January, the Texas Higher Education Coordinating Board (THECB) approved the standards for English/language arts, mathematics, science, and the social sciences. The next steps are to examine the Texas Essential Knowledge and Skills (TEKS) for alignment with these standards. If you haven't done so, I encourage you to take a look at the College Readiness Standards. They are available for download at the THECB website. Mathematics educators at all levels should be aware of these standards – they aren't just for high schools! Many of these student performance descriptors originate in elementary schools and are refined vertically through middle and high school.

I am very excited about CAMT 2008. We are meeting this year in downtown Dallas from July 7 through July 11. This year's Preconference sessions are being held on July 7 and 8, and the conference itself begins July 9 and continues through July 11. Mark your calendars now for this exciting opportunity! There are many remarkable speakers and I know that you will leave with some new ideas that you can use in your classrooms next year. Please visit our CAMT website, <www.camtonline.org>, for more information, including how to register for the conference.

Also, at CAMT this year we are trying a new format for our business meeting. Rather than having a separate business meeting and early Saturday morning breakfast, we are combining the two into a business meeting and reception. On Thursday evening, July 10, we will have light refreshments and a networking opportunity prior to our business meeting. At this reception, we will have our fantastic door prize drawing, as well as acknowledge our TCTM award winners. Check the CAMT program for exact time and location. I look forward to seeing you all there!

Please visit our TCTM website, <www.tctmonline.net>. While you're there, you can browse past issues of the Texas Mathematics Teacher and find contact information for your local councils and TCTM Board members. The local councils are an excellent way to network with colleagues, get involved in a leadership level to make an even bigger

difference, and gather new ideas to energize your own classroom. We have several newly chartered councils that have recently joined the ranks of our more established local councils, so be sure to take a look! There may be an opportunity in your own backyard.

Texas children are very fortunate to be able to learn from some of the finest mathematics teachers in the nation. Thank you for the privilege of representing and leading this organization over the past two years. This summer, I will hand the gavel to our new president, Paul Gray. I have worked with him at Region 4 for almost five years now, and am excited about the energy and passion he will bring to this organization. If you haven't already, be sure to attend our Business Meeting and Reception at CAMT and meet him.

I look forward to continuing our common quest to make mathematics accessible and understandable to every child in our classrooms.

Sincerely,

Jo Ann Wheeler
TCTM President 2006-2008

Lone Star News

Affiliate Groups

These are local affiliated groups in Texas. If you are actively involved with them, please send future meeting and conference information to Cynthia Schneider at <cschneider@mail.utexas.edu> so we may publicize your events. Contact information for each group is available on the NCTM website, <www.nctm.org>. Contact information for regional directors is located on the inside back cover.

SOUTHWEST REGION: *Service Centers 15, 18, 19*

Rita Tellez, Regional Director

Greater El Paso CTM

Annual fall conference wil be held on October 18, 2008 at the El Paso Community College Transmountain Campus. Contact: <gepctm@yahoo.com>.

SOUTHEAST REGION: *Service Centers 4, 5, 6*

Kathy Fuqua, Regional Director

Fort Bend CTM

Holds a short meeting in August, a fall mini-conference, a spring mini-conference and an end-of-year banquet to serve the districts of Alief, Fort Bend, Katy, and Stafford. Contact: Alene McClanahan, <alene.mcclanahan@fortbend.k12.tx.us>.

Houston CTM

1960 Area CTM

This Affiliate is currently reorganizing. It serves the districts of Aldine, Klein, Katy, Humble, Tomball, Spring, and Cypress-Fairbanks. Contact Sheila Cunningham, <scunningham@kleinisd.net>, if you wish to help with the reorganization.

NORTHWEST REGION: *Service Centers 9, 14, 16, 17*

Nita Keesee, Regional Director

Big Country CTM & Science

Will hold their annual conference on January 31, 2009. Contact: Leslie Koske, <lkoske@esc14.net> or 325-675-8661.

Texas South Plains CTM

Fifteenth Annual Panhandle Area Mathematics and Science Conference will be held on September 20, 2008, in Canyon, TX. Contact: Gilberto Antunez, <gantunez@mail.wtamu.edu>, or see <www.wtamu.edu/academic/ess/edu/> for information on 2008.

NORTHEAST REGION: *Service Centers 7, 8, 10, 11*

Shirl Chapman, Regional Director

East Texas CTM

For current information contact the president, Robin McClaran, at <robinmc@etbu.edu>.

Red River CTM

STEAM (Successfully Training Educators As Mathematicians) is held every four years at the campuses of Texas A&M University-Texarkana and Texarkana College, Contact: Debra Walsh, <dwalsh@redwater.esc8.net> or Susie Howdeshell, <showdeshell@pgisd.net> or see <www.tamut.edu/~rrcmath/>.

Greater Dallas CTM

Holds two mathematics contests (W. K. McNabb Mathematics Contests) for students in grades 7 - 12 - one in the fall (early Nov.) and one in the spring (early April). A banquet in May is held for the winners. Contact: Tom Butts, <tbutts@utdallas.edu> .

SOUTH TEXAS REGION: *Service Centers 1, 2, 3*

Barba Patton, Regional Director

Coastal CTM

Holds an annual conference on June 13, 2008 in Corpus Christi. Contact: Elaine Young, <eyoung@sci.tamucc.edu>, or see <www.cctmonline.org>.

CTM @ Texas A&M University at Corpus Christi (Student Affiliate)

CTM @ Texas A&M University at Kingsville (Student Affiliate)

Rio Grande Valley CTM

The 43rd annual conference will be held on Saturday November 15, 2008, at the University of Texas - Pan American, Edinburg, Texas, from 8:00 to 4:00 p.m. Contact: Nancy Trapp <nancy.trapp@lyfordcisd.net> or see <www.rgvctm.org> .

CENTRAL TEXAS REGION: *Service Centers 12, 13, 20*

David Hughes, Regional Director

Austin Area CTM

A spring meeting will be held on May 6, 2008 at ESC 13. The fall conference will be held on October 11, 2008. Contact: Cynthia L. Schneider, <cschneider@mail.utexas.edu>, or see <www.aactm.org>.

Alamo District CTM

Normally holds a fall and spring conference. Contact: Kathy Mittag, <kmittag@utsa.edu>, or see <www.adctm.net>.

Central Texas CTM

CTCTM will hold a fall meeting in 2008 and a spring mini-conference in Febuary 2009, in Waco at the Region 12 Service Center. Contact: Rachelle Meyer <Rachelle_Meyer@baylor.edu> or see <www.baylor.edu/soe/ctctm>.

STATEWIDE

Texas Association of Supervisors of Mathematics (TASM) meets in the fall and spring in Austin. Membership is required to register for this meeting. For membership and registration information, please see <www.tasmonline.net>.

NCTM Regional Meeting, October 2-3, 2008 Oklahoma City, OK. See <www.nctm.org>.

Matrix Multiplication Applied to Encoding

Matrix multiplication is a skill that may be taught in Algebra II in Texas (see TEKS 2A.3(B)). Teachers are always looking for real world connections where this skill may be applied. We shall describe an activity that connects matrix multiplication and the concepts of identity and inverse to the problem of encoding and decoding messages.

Suppose that the secret message 'WEST' is to be transmitted. It is vital that this message be understood only by the reader and the intended recipient, and not by anyone else who may intercept it. One way in which this may be done is to first assign numerical values to the letters in WEST. This, of course, may be done in many intricate ways. Let us, in this example, use the obvious assignment in which each letter is assigned the number of its position in the alphabet. When this is done WEST becomes 23, 5, 19, 20 (W=23, E=5, S=19, T=20).

Next write these numbers as a 2 x 2 matrix:

$$\begin{bmatrix} 23 & 5 \\ 19 & 20 \end{bmatrix}$$

Call this the "message matrix". The final step in the encoding process is to multiply the message matrix on the left by an "encoding matrix". We will use

$$\begin{bmatrix} 3 & 1 \\ 2 & 4 \end{bmatrix}$$

Then, $\begin{bmatrix} 3 & 1 \\ 2 & 4 \end{bmatrix} \times \begin{bmatrix} 23 & 5 \\ 19 & 20 \end{bmatrix} = \begin{bmatrix} 88 & 35 \\ 122 & 90 \end{bmatrix}$

[encoding matrix] × [message matrix] = [camouflaged matrix]

The camouflaged matrix may be broadcast openly. Any unauthorized persons receiving this message would not be able to determine the original message, since they would not know the encoding matrix that had been used.

But how does the recipient decode the message? To do so, the recipient must know the encoding matrix that was used. This information could be supplied by secret courier ahead of time and then used for other subsequent messages.

In order to perform the decoding, the recipient must calculate the inverse of the encoding matrix. Let us review one method of finding inverses for this encoding matrix. Two 2 x 2 matrices are said to be inverses if their product is the identity matrix

$$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

Consequently, we must determine the matrix

$$\begin{bmatrix} a & b \\ c & d \end{bmatrix}$$

which has the property that

$$\begin{bmatrix} a & b \\ c & d \end{bmatrix} \times \begin{bmatrix} 3 & 1 \\ 2 & 4 \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

Proceeding algebraically,

1. $\begin{bmatrix} 3a + 2b & a + 4b \\ 3c + 2d & c + 4d \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$

2. $\begin{cases} 3a + 2b = 1 \\ a + 4b = 0 \end{cases} \rightarrow \begin{cases} a = 0.4 \\ b = -0.1 \end{cases}$

   $\begin{cases} 3c + 2d = 0 \\ c + 4d = 1 \end{cases} \rightarrow \begin{cases} c = -0.2 \\ d = 0.3 \end{cases}$

3. Therefore, $\begin{bmatrix} 0.4 & -0.1 \\ -0.2 & 0.3 \end{bmatrix}$ is the inverse matrix.

Verify each of the products

$$\begin{bmatrix} 0.4 & -0.1 \\ -0.2 & 0.3 \end{bmatrix} \times \begin{bmatrix} 3 & 1 \\ 2 & 4 \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

and

$$\begin{bmatrix} 3 & 1 \\ 2 & 4 \end{bmatrix} \times \begin{bmatrix} 0.4 & -0.1 \\ -0.2 & 0.3 \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

Note that even though the inverse was determined by multiplication on the left, it also can be multiplied on the right of the encoding matrix to yield

$$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

Now that the inverse matrix has been found, it can be used to decode the camouflaged matrix as follows:

$$\begin{bmatrix} 0.4 & -0.1 \\ -0.2 & 0.3 \end{bmatrix} \times \begin{bmatrix} 88 & 35 \\ 122 & 90 \end{bmatrix} = \begin{bmatrix} 23 & 5 \\ 19 & 20 \end{bmatrix}$$

[Inverse of encoding matrix] × [camouflaged matrix] = [message matrix]

The reason this method works is that the camouflaged matrix is the product of the encoding matrix and message matrix. The decoding process can thus be represented as follows:

$$\begin{bmatrix} 0.4 & -0.1 \\ -0.2 & 0.3 \end{bmatrix} \times \begin{bmatrix} 88 & 35 \\ 122 & 90 \end{bmatrix}$$

$$= \begin{bmatrix} 0.4 & -0.1 \\ -0.2 & 0.3 \end{bmatrix} \times \left(\begin{bmatrix} 3 & 1 \\ 2 & 4 \end{bmatrix} \times \begin{bmatrix} 23 & 5 \\ 19 & 20 \end{bmatrix} \right)$$

$$= \left(\begin{bmatrix} 0.4 & -0.1 \\ -0.2 & 0.3 \end{bmatrix} \times \begin{bmatrix} 3 & 1 \\ 2 & 4 \end{bmatrix} \right) \times \begin{bmatrix} 23 & 5 \\ 19 & 20 \end{bmatrix}$$

$$= \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} \times \begin{bmatrix} 23 & 5 \\ 19 & 20 \end{bmatrix}$$

$$= \begin{bmatrix} 23 & 5 \\ 19 & 20 \end{bmatrix}$$

This longer set of steps justifies the procedure actually used by the decoder. The fact that a matrix is commutative with its own multiplicative inverse suggests a second encoding process that could be used with the same encoding matrix, this process using right multiplication by the encoding matrix:

$$\begin{bmatrix} 23 & 5 \\ 19 & 20 \end{bmatrix} \times \begin{bmatrix} 3 & 1 \\ 2 & 4 \end{bmatrix} = \begin{bmatrix} 79 & 43 \\ 97 & 99 \end{bmatrix}$$

[message matrix] x [encoding matrix] = [camouflaged matrix]

Note that this camouflaged matrix is different from the previous camouflaged matrix in spite of the fact that the same encoding matrix is used. This is because matrix multiplication is not generally commutative. To decode this matrix, the recipient must multiply on the right by the inverse matrix:

$$\begin{bmatrix} 79 & 43 \\ 97 & 99 \end{bmatrix} \times \begin{bmatrix} 0.4 & -0.1 \\ -0.2 & 0.3 \end{bmatrix} = \begin{bmatrix} 23 & 5 \\ 19 & 20 \end{bmatrix}$$

Observe that this method also retrieves the original message matrix. Part of the encoding and decoding process might be a secret understanding concerning when each of the two multiplications will be used. For a simplistic example, encode with left multiplication on odd number dates and right multiplication on even number dates.

There are many situations in which secret transmissions are meaningful and few instances where the transmission would be as short as the word WEST. One exciting example involves spy reports and military orders. A less dramatic but perhaps more common use might involve electronic transmissions of financial information in a banking setting.

Challenges:

1. Justify the right multiplication procedure in steps similar to those used for left multiplication.

2. Use a calculator to automatically perform the matrix multiplication and to find inverses.

3. We used the single 2 x 2 matrix. In actual practice, very large matrices may be used. Develop a process for encoding and decoding a 3 x 3 matrix message.

4. When the original message was placed in a matrix, our example simply filled up the rows, one by one, from top to bottom. In fact, the four entries of a 2 x 2 matrix could be positioned in any of 4! ways; the n^2 entries of an n x n matrix could be positioned in any of $(n^2)!$ ways. How might this be used to enhance the encoding process?

5. Investigate other coding processes, for instance, study methods by which congruencies can be used to transform data.

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Professor of Mathematics • University of Northern Iowa

Bonnie H. Litwiller, Ed.D.• <litwille@math.uni.edu>
Professor of Mathematics • University of Northern Iowa

TEA Talks

Hot News

For additional information, refer to the websites listed

○ Coming soon! The Texas Math Initiative website is expected to be finalized and activated no later than May 1, 2008. Make sure you sign up for the mathematics listserv at *<www.tea.state.tx.us/list>* to receive this and other notices related to mathematics.

○ The Texas Math Initiative website will be your homepage to links to diagnostic resources such as the Texas Math Diagnostic System (TMDS) and the K-2 math assessments from the Math TEKS Connections (MTC) module series, intervention resources such as Accelerated Math Instruction (AMI) and Intensive Math Instruction (IMI), Student Success Initiative (SSI) resources, as well as training module resources, such as the MTC Geometry, MTC Algebra II, Math TEKS Refinements (MTR), Teaching the Math TEKS Through Technology (TMT3), Mathematics for English Language Learners (MELL), MTC administrator modules and Pre-service teacher modules.

○ The Texas Math Diagnostic System (TMDS) has been populated with new items that were developed and aligned to the refined math TEKS. TMDS provides diagnostic items for Grades 3-8, Algebra I, Geometry, and Algebra II. Spanish trans-adaptations of these items will be available late spring 2008. TMDS is provided free to all public and charter schools. Call the TMDS contact at your local Education Service Center if you have any questions.

○ The College Readiness Standards (CRS) were approved by the Texas Higher Education Coordinating Board (THECB) and are scheduled to be presented to Commissioner Robert Scott for approval and submission to the SBOE for incorporation into the TEKS.

○ The 80th Texas Legislature passed HB 3826, which adds the requirement that students complete the Recommended High School Plan (RHSP) or Distinguished Achievement Plan (DAP) to be considered for admission to any general academic teaching institution. Emergency rules adopted by the THECB permit general academic teaching institutions to continue admitting students who would not qualify under new requirements until August 31, 2009. HB 3826 affects the entering college freshman class of 2009, this year's high school juniors. Please note that community and junior colleges are not classified here as general academic teaching institutions. For more information regarding HB 3826, refer to TEA correspondence website *<www.tea.state.tx.us/taa>*, see the letter dated September 27, 2007, subject: Legislation Affecting P-12/Higher Education/Workforce (P-16) Coordination.

○ The Intensive Mathematics Instruction (IMI) programs assist qualifying districts in increasing the proficiency of their students in Grades 4-8 mathematics and Grade 8 algebra readiness. Campus eligibility for the 2007-2008 and 2008-2009 school years is based on passing rates on the 2007 Grade 5 Mathematics TAKS test. Notification of eligibility will be mailed to superintendents and principals of eligible campuses. Campuses who are awarded grants under this program will be able to select from the Commissioner's List of Approved Programs that is determined through a competitive process. See *<www.tea.state.tx.us/curriculum/iriimi.html>*.

○ During the summers of 2008 and 2009, Texas teachers in grades 6, 7, and 8 will have the opportunity to receive professional development in scientifically based reading instruction (SBRI) for adolescents through the Texas Adolescent Literacy Academies (TALA). The Academies will help prepare middle school teachers to design appropriate instruction for all students, including those who are struggling with reading due to limited English proficiency, learning disabilities, dyslexia, and other risk factors for reading difficulties. There will be a 4-day English Language Arts (ELA) academy for English and reading teachers in grades 6–8 and a two-day content area academy for mathematics, science, and social studies teachers in grades 6–8. Call the TALA contact at your local Education Service Center for registration information. See *<www.tea.state.tx.us/tala/>*.

○ The goal of the student success initiative is to ensure that all students receive the instruction and support they need to be academically successful in math and reading. Starting in spring 2008, 8th graders will be subject to all SSI requirements for both reading and mathematics. TAKS math administrations for grades 5 and 8: April 8, May 13, and July 1, 2008.

○ All TAKS math tests are fully aligned to the refined math TEKS. TAKS grades 6-10 and exit level tests may contain base-test questions that reflect new content/skills. TAKS grades 3-5 tests may contain field-test questions that reflect new content/skills. Revised math charts have the TAKS logo in the top left corner. TAKS Math Information Booklets can be downloaded from *<www.tea.state.tx.us/student.assessment/taks/booklets/>*

○ TAKS Math Study Guides for Grades 6-10 and exit level have been revised and will be sent to districts after spring 2008 administrations. TAKS Math Study Guides for Grades 3-5 are currently being revised and will be sent to districts after spring 2009 administrations. For questions regarding student assessment, email *<math.test@tea.state.tx.us>*.

- TAKS vs. EOC: Coverage of the Algebra I TEKS
  - TAKS grade 9 covers about 74% of Algebra I TEKS
  - TAKS grade 10 and exit level covers about 90% of Algebra I TEKS
  - Algebra I EOC assessment covers about 95% of Algebra I TEKS

- TAKS vs. EOC: Coverage of the Geometry TEKS
  - TAKS grade 9 and grade 10 cover 0% of Geometry TEKS; they include grade 8 geometry skills
  - TAKS exit level covers about 57% of Geometry TEKS
  - Geometry EOC assessment covers about 89% of Geometry TEKS

- Remember, this year's high school seniors are the first class graduating under the required Recommended High School Plan. This year's entering high school freshmen are the first class graduating under the 4×4 Recommended High School Plan. This year's 8th graders are the first 8th grade class affected by SSI grade advancement requirements. This year's 5th graders are the first class to have EOC graduation requirements.

- The application deadline for the Presidential Awards for Excellence in Mathematics and Science Teaching (PAEMST) is **May 1, 2008**. For more information please see <*www.paemst.org*>.

Julie Guthrie • <Julie.Guthrie@tea.state.tx.us>
Director of TAKS Math & Science •
Student Assessment Division • Texas Education Agency

Norma Torres-Martinez •
<norma.torres-martinez@tea.state.tx.us>
Director of Mathematics • Texas Education Agency

Legislative Update and Advocacy

The National Mathematics Advisory Panel recommendations have been in the news since their release on March 13, 2008. See <*www.ed.gov/about/bdscomm/list/ mathpanel/index.html*>. To read NCTM's response please visit <*www.nctm.org/news/content.aspx?id=14241*>.

NCTM has been working on the High School Curriculum Project since the Curriculum Focal Points for Prekindergarten through Grade 8 Mathematics document was released in 2006. The High School Curriculum Project will be available for review and input in September, so look at the NCTM website <*www.nctm.org*> beginning September 1, 2008 for this important opportunity to provide feedback on what are the most important topics for high school mathematics. The time frame for input will be short in order to allow the development process to be completed next fall.

For recent information on the Texas High School Completion and Success Initiative Council's strategic plan, go to <*www.tea.state.tx.us/ed_init/thscsic/StrategicPlan_ ApprovedFINAL.pdf*>. This plan was adopted on March 11, 2008. The goals of this strategic plan are to (1) reduce high school dropout rates, (2) improve postsecondary success, and (3) close achievement gaps among student groups. For example, the action plan calls for the creation of early college high schools, T-STEM academies, and the redesign of under performing high schools.

The 2008 Educator Focus Group on Accountability met on March 3-4, 2008, to discuss state accountability for 2008 and beyond. The public review process concluded on April 4. The Commissioner of Education's final decisions for the state accountability system for 2008 and beyond (for both standard and alternative procedures) have been released and can be viewed at: <*www.tea.state.tx.us/perfreport/ account/2008/*>. The 2008 Accountability Manual is planned to be released by the end of May 2008.

The College Readiness Standards (CRS) were adopted by the Texas Higher Education Coordinating Board (THECB) at their meeting on January 24. 2008. To see the document go to <*www.thecb.state.tx.us/collegereadiness/CRS.pdf*>. The CRS are scheduled to be presented to Commissioner Robert Scott for approval and submission to the State Board of Education (SBOE) for incorporation into the TEKS. The CRS may be on the SBOE agenda at the May 22-23, 2008 board meeting. For more information about SBOE meetings, go to <*www.tea.state.tx.us/sboe/*>.

As part of our support for members, TCTM has included a link to an advocacy website that will help you reach out to your elected officials and state agencies. We encourage all TCTM members to voice their opinion. If you want to contact a SBOE member (or legislator), go to the TCTM website, <*www.tctmonline.net*>, click on Members Only, then click on the link under Legislative Action. For SBOE members, click on View next to TX Officials and Agencies, scroll down to Department of Education. This will open up the list of board members and an envelope next to their name. Click on the envelope to send a message.

Cynthia L. Schneider, Ph.D. • <cschneider@mail.utexas.edu>
Research Associate • Charles A. Dana Center,
The University of Texas at Austin

CAMT 2008 Volunteers

Dear Members of TCTM,

Volunteer to be a VOLUNTEER!

We believe that there is an opportunity for everyone to find their niche in helping CAMT to be a success for everyone involved – here's how you can join in on the efforts (we would love to have over 250 volunteers ready to go!). We are looking for fellow mathematics educators to assist us with supporting participants in areas such as the following: Registration, Exhibits, Speaker Check-In, or Transportation. Come work "behind the scenes." We need you! Please e-mail, telephone or fax your name and contact information (be sure to include contact information for the summer) to Sheryl Roehl, along with which of the following dates you are available to volunteer, Tuesday July 8, Wednesday July 9, Thursday July 10, or Friday July 11. Specify if morning or afternoon is better and which area you prefer. Sheryl will respond via e-mail or home phone with a specific scheduled time and location.

Thank you for making every CAMT a wonderful experience!

Volunteer Information

Name:
| Last | First | Middle |

Address:
| Number and street | | Apt. number |
| City | State | Zip Code |

Contact:
| ( ) | ( ) | |
| Home Phone | Cell Phone | Email Address |

Affiliation:
| District or Professional Affiliation | ESC |

Please submit your form to Sheryl Roehl,

by mail: **Sheryl Roehl**   by email:
             129 Eddie St.   **< sheryl.roehl@tamucc.edu >**
             Victoria, TX 77905

TCTM Leader Spotlight

Each year since 1995, TCTM has accepted nominations for two awards for leaders in our professional community. The TCTM Leadership Award is presented to a TCTM member who is nominated by a TCTM affiliate. This person is honored for his/her contributions to the improvement of mathematics education at the local and state level by designing innovative staff development and/or promoting their local mathematics council. The second award, the E. Glenadine Gibb Achievement Award, is presented to someone nominated by a TCTM member for his/her contribution to the improvement of mathematics education at the state and/or national level. The following individuals have been honored and we wish to acknowledge their former and ongoing contributions this year in the leader spotlight. If you wish to nominate someone this year, please see the forms on our website at *<www.tctmonline.net>*. The nomination deadline is April 25, 2008.

Our prior awardees are

Year	Leadership(local/state)	Gibb (state/national)
1995	Mary Alice Hatchett	Iris Carl
1996	Bettye Forte	Cathy Seeley
1997	Diane McGowan	Pam Chandler
1998	----	----
1999	Linda Shaub	Eva Gates
2000	Lloy Lizcano	Bill Hopkins
2001	Susan Hull	Pam Alexander
2002	Janie Schielack	Judy Kelley
2003	Bonnie McNemar	Dinah Chancellor
2004	Dixie Ross	Jacqueline Weilmuenster
2005	Barbara "Basia" Hall	Barrie Madison
2006	Nancy Trapp	Lois Gordon Moseley
2007	Kathy Hale	Cynthia L. Schneider

Puzzle Corner

Sticks #9 Answer

Arrange 12 craft sticks to form the original figure. Rearrange four sticks to form three squares.

Shown is a diagram of a solution.
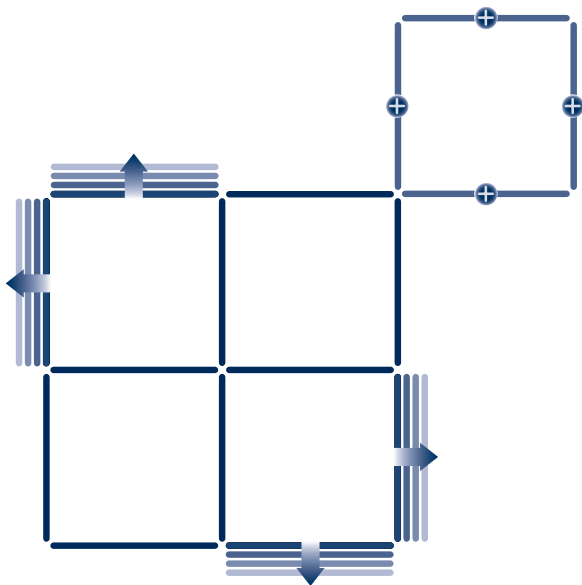
Sticks #10 Puzzle

We are interested in how your students responded to this problem and how they explained or justified their reasoning. Please send copies your students' work to Mary Alice Hatchett, Director of Publications, *Texas Mathematics Teacher* *<mahat@earthlink.net>*. Include your name, grade level, campus name and district name. Selected submissions will be acknowledged and published in subsequent issues.

Please prepare a sketch of your solution

Arrange 12 craft sticks to form the following figure:
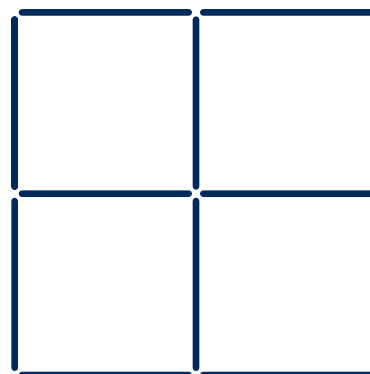
Add four sticks to make five new squares.

Quotes for Thought

"Any fool can know. The point is to understand."
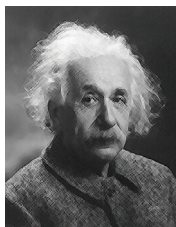
"Perfect numbers like perfect men are very rare."

"The greatest challenge to any thinker is stating the problem in a way that will allow a solution."

- Albert Einstein

- René Descartes

- Bertrand Russell

NCTM Membership

What's an easy way to support TCTM?

Join NCTM or renew your NCTM membership!

NCTM is changing the way you can register as a member and still give a rebate to your state council. Starting June 1, 2008, you may sign up for your NCTM membership and use the link on the web form to indicate the state affiliate you wish to receive the rebate. Go to *<www.nctm.og>.*

The state affiliate you select will receive $5.00 if you are joining NCTM as a new member, and $3.00 if you are renewing. In the past, the state affiliate only received the rebate if the NCTM membership flowed through the state treasurer. Now you can sign up directly with NCTM and

give back to your state affiliate. However, you may only choose one state affiliate for the rebate (it will not be split).

Please remember, you cannot join your local affiliates from the NCTM website. You must join the local affiliates directly by the process they have established. You may join TCTM by either attending the CAMT conference as a paid participant, or by using our membership form. When using the TCTM membership form *<www.tctmonline.net>*, you may join both NCTM and TCTM, and TCTM will receive the rebate after forwarding your NCTM membership. It's as easy as that and TCTM thanks you for your support!

2008-09 TCTM Mathematics Scholarship

There are ten $2000 scholarships available for 2008-09. Any student attending a Texas college or university - public or private - and who plans on student teaching during the 2008-09 school year in order to pursue teacher certification at the elementary, middle or secondary level with a specialization or teaching field in mathematics is eligible to

apply. A GPA of 3.0 overall and 3.25 in all courses that apply to the degree (or certification) is required. Look for the scholarship application online at *<www.tctmonline.net>*. **The application must be received by April 25, 2008.**

Recommended Readings and Resources

Math Olympiad Contest Problems Volume 2
editors Richard Kalman and Grant Duffrin

Math Olympiad Contest Problems Volume 2, edited by Richard Kalman and Grant Duffrin *ISBN: 978-1-882144-11-2*

Learning to reason logically is a key to student success in ALL mathematics. *Math Olympiad Contest Problems Volume 2*, includes 425 non-routine math problems with detailed solutions for grades 4-8, and is a tool students can use toward this end.

You will find this an excellent resource for finding challenging problems that inspire students to develop an innovative and thoughtful approach to solving problems. There are many books available that offer similar collections, but this one is so complete, concise, and well done that it really should be part of your professional library.

Math Olympiad Contest Problems Volume 2 is available online at *<www.moems.org/Books.htm>* for $37.95 plus shipping.

Chasing Vermeer
by Blue Balliett, illustrated by Brett Helquist

Chasing Vermeer by Blue Balliett illustrated by Brett Helquist *ISBN-13:978-0-439-37297-8*

Author Blue Balliett introduces readers to a pair of precocious 6th grade kids, 11 year old Petra and Calder, on an artful quest full of patterns, puzzles, and the power of blue M&Ms. These kids don't quite fit in with their classmates but they become the best of friends while solving the mystery of who stole a valuable Vermeer painting during a class museum field trip. Tracking down the Vermeer isn't easy, as Calder and Petra try to figure out what a set of pentominos, a mysterious book about unexplainable phenomena have to do with a centuries old artwork. This appealing mystery will hold students' interest from beginning to end, as it presents a different way of thinking – instead of always accepting what is obvious – these kids can think on their own!

Mary Alice Hatchett • <mahat@earthlink.net>
Independent K-12 Mathematics Consultant • Georgetown, TX

The Pythagorean Theorem with Jelly Beans

The first two activities presented here allow students in the middle grades to explore the Pythagorean theorem and one extension by first using jelly beans to measure the areas of squares and semicircles. This empirical approach to the theorem will lay the foundation for later analytical proofs and a deeper understanding for problem solving. According to Van Hiele students need opportunities to develop their geometrical thinking through five levels (Van Hiele 1986; Fuys, Geddes, & Tischler 1988). The activities presented here are appropriate to help students make the transition from Van Hiele's Level 1, analysis of properties and empirical verification, to Van Hiele's Level 2, informal deduction. In the third activity, students extend the Pythagorean relationship for squares by using deductive reasoning to verify equivalencies of algebraic expressions to establish the result for semicircles on the sides of the right triangle. Students address the Geometry standards for grades 6-8 by creating inductive and deductive arguments concerning the Pythagorean relationship (NCTM 2000a). The extension activities address high school Algebra and Geometry standards for grades 9-12 by investigating algebraic notions of factoring and other polynomial operations to verify the Pythagorean relationships. In the Texas Essential Knowledge and Skills, the eight grade standards call for students to use indirect measurement to solve problems and to use the Pythagorean Theorem to solve real-life problems.

The tools needed for the first activity are a cardboard mat that is formed by a right triangle and the corresponding squares on its sides (see Figure 1), a cardboard fence that surrounds the three squares (Figure 2), another fence around the central triangle (Figure 3), and enough jelly beans to cover the two smaller squares with one layer.
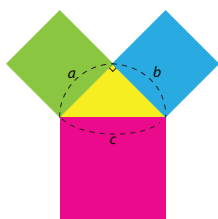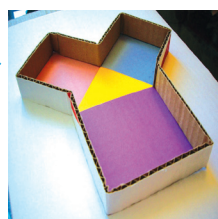

**Figure 1.
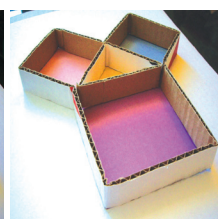The mat.**

**Figure 2.
The outside
fence.**

**Figure 3.
Adding the
triangle fence.**

There are several ways in which the activities could be conducted. Students can work in small groups of four around a mat. Different groups could have different mats based on different kinds of right triangles (Figure 4) and then compare results. Or students could move from one station to the next where the layout of the mat is different and conduct a similar experiment. Alternatively, the teacher can do the first activity as a demonstration and lead a discussion to make the relationship explicit.

Figure 4. A different example of right triangle.

To construct the mat, use a drawing or geometry computer program or the drawing tools included with word processors, print the colored figures, and paste them on cardboard about the size of a shoebox. To make the fences, cut strips about 2 cm wide of corrugated cardboard, with the cuts perpendicular to the corrugates so that the strips can be bent into the desired form. Paste the strips on the mat along the outside figures with instant glue. Make the fence for the inner right triangles separately. Jelly beans work better than black beans or grains of rice. With jelly beans it is easier to make just one layer, and guarantee that any empty spaces are very small compared with the jelly beans. In addition, students prefer the colorful jelly beans rather than the black beans. Of course, students should abstain from eating any jelly beans they use to fill the shapes.

Although jelly beans are three-dimensional objects, by using only one layer, we can use them as a non-standard unit to measure area. If all the jelly beans are on one layer, the more jelly beans we need to fill a two dimensional shape, the larger its area will be. By using one layer only of jelly beans we are essentially using

the cross section of the jelly beans, which is two-dimensional, to approximately cover the area. In this activity students do not have to count the number of jelly beans to compare areas; they use only the total amount. As they move jelly beans from one section of the mat to another, they will see whether all the jelly beans fit into the new shape or not. Because we are not counting jelly beans, it does not matter whether the jelly beans are all exactly the same size. Also, we are not comparing collections of jelly beans from one group of students to another. Each group will work with its own set, and determine only whether or not the total amount that fits in one section fits into a second shape.

Extension of the Pythagorean theorem.

Students can also use jelly beans to explore the relationships between areas when similar shapes are constructed on the sides of a right triangle. A mat with three semicircles around a right triangle and the corresponding fences is shown in Figure 5. The diameters of the semicircles are congruent to the corresponding sides of the right triangle. Students can describe the relationship they see by using the jelly beans among the areas of the three semicircles on the sides of the right triangle. They will see that the sum of the areas of the two semicircles on the legs is equal to the area of the semicircle on the hypotenuse.

Figure 5.
Extension of the Pythagorean theorem for semicircles.

Connections with algebra.

High school students can derive the extension of the Pythagorean theorem with semicircles by using some algebraic skills such as factoring and simplifying algebraic expressions. They can do this activity working in pairs or small groups. Using algebraic properties within a geometric context is an excellent way to integrate algebra and geometry in one activity.

Other extensions.

Students can also experiment with different shapes constructed on the sides of the right triangle, as long as all three shapes are similar to each other and so that their corresponding sides are placed on the sides of the right triangle (see Figure 6). Of course these extensions to the Pythagorean theorem in terms of similar shapes on the sides of a right triangle are not new (Euclid Book 6, Prop. 31; Polya 1948; Flores Peñafiel 1992; see Green 2004 for some whimsical examples), but usually students are surprised that the relationship holds also for shapes other than squares. The Pythagorean theorem plays such an important role in geometry that students would benefit from several approaches. Interactive applets (NCTM 2000b) can also lay a foundation for later formal proofs.
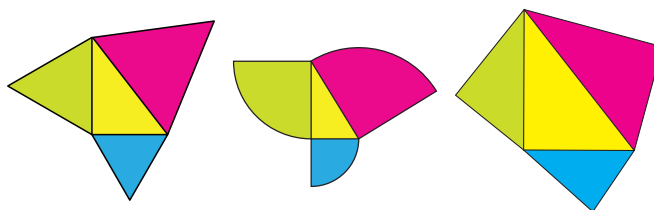

Figure 6.
Other extensions of the Pythagorean theorem.

These activities with jelly beans are beneficial not only for students. Prospective and in-service teachers also enjoy doing the activity, removing the fence and sliding the jelly beans from the smaller shapes on the legs of the triangle to the bigger shape on the hypotenuse and verifying that indeed the shape gets filled (Yun 2007). Thinking about the Pythagorean theorem in a variety of ways helps teachers provide richer mathematical experiences for their students.

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Activities for students

Activity 1. The Pythagorean theorem.

For this activity you will use the mat that consists of a right triangle with squares on each of the sides of the triangle. Don't eat any of the jelly beans you use to fill the squares!

1. Assemble the cardboard fence around the three squares, and insert the triangular fence around the central triangle.

2. Pour jelly beans in the two smaller squares along the legs of the right triangle and make sure that those jelly beans completely cover the two squares, and so they form just one layer leaving the smallest gaps possible (Figure 7a).

Figure 7a. Two squares on the legs are filled.

Figure 7b. Removing the inside fence.

3. Remove the cardboard triangle which was inside the frame (Figure 7b).

4. Incline the bottom cardboard to slide the jelly beans into the largest square along the hypotenuse (Figure 7c).

5. Insert the triangle fence in its original place again (Figure 7d).

Figure 7c. Slide the jelly beans.

Figure 7d. Reinsert the triangle fence.

6. Be sure the jelly beans are only one layer deep. Do the jelly beans fit in and completely cover the square on the hypotenuse with one layer (Figure 7e)?

Figure 7e.

Jelly beans fill the square on the hypotenuse.

7. What can you say about the sum of the areas of the squares on the legs of the right triangle compared to the area of the square on the hypotenuse?

_____
_____
_____

8. Label the two legs of the right triangle as a and b, and the hypotenuse as c.

9. Express the area of each of the squares using these letters.

Area of square on side a _____

Area of square on side b _____

Area of square on side c _____

10. Write an algebraic expression to describe the relationship you described in step 7.

_____

_____

Activity 2. Extension of the Pythagorean theorem.
For this activity you will use the mat that consists of a right triangle with semicircles on each of the sides of the triangle (Figure 8).

1. Assemble the cardboard fence around the three semicircles, and insert the triangular fence around the central triangle.

2. Pour jelly beans in the two smaller semicircles along the legs of the right triangle and make sure that those jelly beans completely cover the two semicircles, without leaving gaps, and that they form just one layer.

3. Remove the cardboard triangle which was inside the frame.

4. Incline the bottom cardboard to slide the jelly beans into the largest semicircle along the hypotenuse .

5. Insert the triangle fence in its original place again.

6. Flatten out the jelly beans into one layer. Do the jelly beans fit in and completely cover the semicircle on the hypotenuse with one layer?

7. What can you say about the sum of the areas of the semicircles on the legs of the right triangle compared to the area of the semicircle on the hypotenuse? Express your findings in your own words.

_____

_____
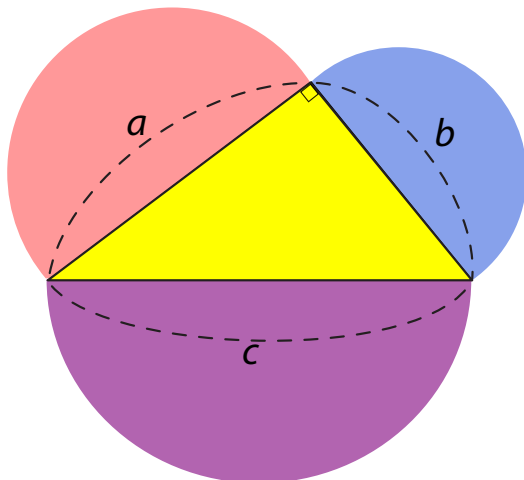
Figure 8. Three semicircles around a right triangle.

Activity 3. The areas of the semicircles
We will denote the two shorter sides of the first triangle as a and b, and the hypotenuse as c (Figure 8). In Activity 1, you discovered that you can express the relationship among the areas of the squares on the sides of a right triangle as $a^2 + b^2 = c^2$. In Activity 2, you discovered that the sum of the areas of the semicircles on the legs of the right triangle was equal to the area of the semicircle on the hypotenuse. Now, let's write expressions for the areas of the semicircles, and for their relationships.

1. In terms of *a*, *b*, and *c*, what is the diameter of each of the semicircles on the sides of the right triangle? What is the radius of each of the semicircles? Provide your responses in the table below.

Attribute	Semicircle on side *a*.	Semicircle on side *b*.	Semcircle on side *c*.
Diameter			
Radius			
Area			

2. What is the area of a circle with radius $\frac{a}{2}$?

_____

3. What is the area of a semicircle of radius $\frac{a}{2}$?

_____

4. Write an algebraic expression for each of the areas of the semicircles. Provide your responses in the table.

5. Use algebraic notation to express the sum of the areas of the two semicircles of radius $\frac{a}{2}$ and $\frac{b}{2}$

_____

Now, let's algebraic notation to show that the sum of the areas of the semicircles on the legs *a* and *b* of the right triangle is equal to the area of the semicircle on the hypotenuse *c*. To do this, we will factor then simplify both sides of the equation

$$\frac{1}{2} \times \left(\frac{a}{2}\right)^2 \pi + \frac{1}{2} \times \left(\frac{b}{2}\right)^2 \pi = \frac{1}{2} \times \left(\frac{c}{2}\right)^2 \pi$$ to show that it is

equivalent to the equation $a^2 + b^2 = c^2$. You can do this in several steps.

6. First, multiply both sides by 2, and divide both sides by π. Write the simplified equation.

7. Next, expand the square terms. Write the corresponding equation.

8. Finally, multiply both sides by 4

Verify that you can reverse all the steps. That is, start with the equation $a^2 + b^2 = c^2$ and show step by step how you would obtain from this equation the relation between semicircles

$$\frac{1}{2} \times \left(\frac{a}{2}\right)^2 \pi + \frac{1}{2} \times \left(\frac{b}{2}\right)^2 \pi = \frac{1}{2} \times \left(\frac{c}{2}\right)^2 \pi.$$

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Announcement

Mathematics Assessment for College-Bound Students
College Ready Texas - Mathematics

The Mathematics Department at Texas A&M University (TAMU) has recently released a mathematics test for placement in college math courses. This test is now available for any high school student that wants to gauge how his or her math skills. The contents of the test cover a relatively comprehensive array of Algebra II skills. There is an emphasis on problem solving and algebraic manipulation skills. The specific topics include algebraic simplification, exponents, solving equations, word problems, quadratics, linear inequalities, domains, intercepts, asymptotes, logarithms, and absolute value. The use of a calculator for this assessment should be based on what you know is allowed at the college or university the student may attend.

A practice test, including online help, is available for the various topics. Indeed, the help is in the form of a comprehensive algebra textbook – all online. Technically, the test relies on a selection code to randomly select questions from a test bank for each test taker.

The College Ready Texas - Mathematics web page gives guidelines on how to interpret your score vis-à-vis the array of entry-level collegiate level mathematics courses available. This test is available at no charge to all students in Texas, and all results remain confidential. Students may take the test as often as they wish. However, TAMU will need to work with schools and colleges if they desire to use the test campus wide. The link to the test website is *<www.math.tamu.edu/collegereadymath/>* and serves the portal to the test and to all supplementary materials mentioned above. For more information you may contact *<collegereadytexas@math.tamu.edu>*.

G. Donald Allen, Ph.D., <dallen@math.tamu.edu>,
Professor of Mathematics, Texas A&M University

CAMT 2008 - Featured Speakers

Steering Mathematics Towards Excellence
July 9 – 11, 2008   **Dallas, TX**

CAMT 2008

Dallas, TX   **July 9 –11**

steering mathematics towards excellence
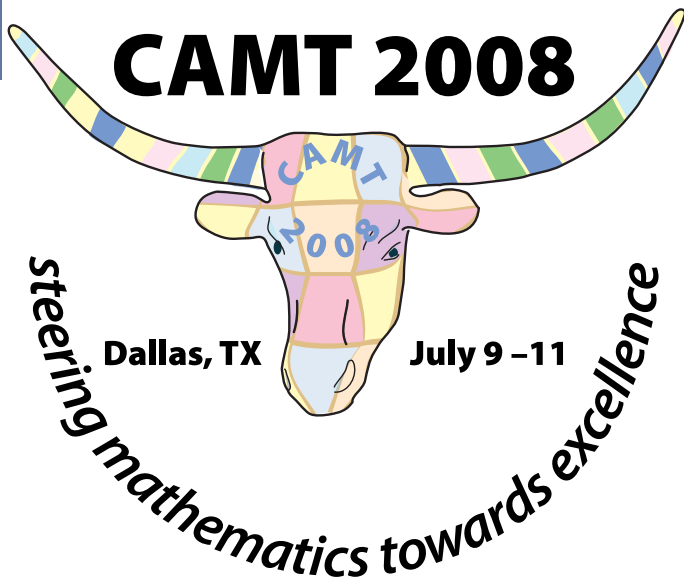
CAMT 2008 Steering Mathematics Towards Excellence has rounded up 'boss' national/state featured speakers for this year's conference. No need to 'hang around' waiting to get into a session – skedaddle on over to one of these LARGE ROOM, HANDS-ON, sessions. You'll be PROUD you attended – and don't forget some of them are our own TCTM members! Look for the TCTM brand 🐂 on the following cattle tags.

CAMT 2008 will be held July 9-11, 2008, at the Sheraton Dallas Hotel in Dallas, Texas. The Program Top Wranglers are Linda Shaub of the Charles A. Dana Center and Mary Valamides of Eagle Mountain-Saginaw ISD.

TCTM Recognition Reception at CAMT 2008

Thursday, July 10, 2008, 5:00 p.m. - 7:00 p.m.
Sheraton Dallas Hotel, Houston Ballroom A & B

This year at CAMT, in lieu of the traditional breakfast, the TCTM Board has decided to combine the TCTM Business Meeting with an informal reception. At the Business Meeting and Reception, we will acknowledge the TCTM Scholarship recipients as well as other TCTM award recipients. There will be door prize drawings! The Business Meeting and Reception are open to all TCTM members. However, we regret that children or other guests cannot be accommodated. There is no registration fee or need to preregister.

2008 CAMTerships Available

There are twelve $500 CAMTerships available for 2008. The CAMTership is intended to encourage beginning teachers to attend CAMT by helping cover part of the expenses associated with attending the annual state conference. If you have been teaching five or fewer years in Texas and are attending CAMT, look for the CAMTership application online at *<www.tctmonline.net>*. **The application must be received by April 25, 2008**. If selected, you will also volunteer two hours at CAMT and attend the TCTM Recognition Reception as a guest of TCTM.

CAMT 2008 - Featured Speakers
Wednesday, July 9

8:00-9:30 Lone Star B
SECONDARY
Paul Agranoff, *Creative Mathematics*
Developing Algebraic Thinking through a Problem of the Week

8:00-9:30 Lone Star A4
GENERAL INTEREST
Kathy Kenfield, *ESL Trainer*
Working with Words: Easy-to-Implement Ways to Help All Students Learn Academic Vocabulary

8:00-9:00 Dallas C
SECONDARY
Pamela Weber Harris, *Consultant*
Fractions with Power

9:45-11:15 Lone Star Ballroom
GENERAL INTEREST
Lee Stiff, *Houghton-Mifflin*
Run Tell Dat!

9:45-11:15 * Lone Star A4
ELEMENTARY
Dinah Zike, *Dinah-Might Adventures*
Using 3-D Graphic Organizers (Foldables) as Communication and Assessment Tools in Mathematics *(* repeat on Thursday)*

9:45-11:15 Dallas B
SECONDARY
Bea Moore Luchin, *NUMBERS Professional Development*
Steering Students' Thinking in the RIGHT Direction!

9:15-10:15 Dallas C
GENERAL INTEREST
Robyn Silbey, *Montgomery Co Public Schools, Maryland*
Developing Algebraic Thinking through a Problem of the Week

9:15-10:15 Houston B
GENERAL INTEREST
Sam Zigrossi, *Charles A. Dana Center*
Moving Mathematics Teaching into the Networked World

10:30-11:30 Dallas C
SECONDARY
Bettye Forte, *Independent Consultant*
Teaching All Students Algebra – They Must Discover It

11:30-1:00 Lone Star Ballroom
ELEMENTARY
Kim Sutton, *Creative Mathematics*
Using Concrete Materials for the Understanding of Fractions for Grades 3-5

11:30-1:00 Lone Star A4
ELEMENTARY
Brian Mowry, *Macmillan McGraw-Hill*
Let's Play Mathematics: The Role of Scaffolded Play in Developing Children's Formal Mathematical Knowledge

1:15-2:45 Lone Star Ballroom
ELEMENTARY
Marcy Cook, *Marcy Cook Math*
Engage All in Meaningful Number Sense Activities

1:15-2:45 Lone Star A4
ELEMENTARY
Mary Alice Hatchett, *Educational Consultant*
'Round Up' Those COMPUTATIONAL FLUENCY Skills!

1:15-2:45 * Dallas B
ELEMENTARY
Lois Moseley, *NUMBERS Professional Development*
Steering Students' Thinking About Measurement *(* repeat on Thursday)*

1:15-2:45 Dallas C
ELEMENTARY
Herb Ginsburg, *Columbia University*
Assessing What Children Know About Mathematics

1:00-2:00 Houston B
ELEMENTARY
Donna Long, *Macmillan McGraw-Hill*
This Can't Be Problem Solving: There Aren't Any Numbers!

1:00-2:00 City View 4
SECONDARY
William Hadley, *Hadley Consulting*
Are We Really Serious About Secondary Mathematics for ALL?

2:15-3:15 City View 4
SECONDARY
William Hadley, *Hadley Consulting*
Are We Really Serious About Secondary Mathematics for ALL?

3:00-4:30 Dallas B
ELEMENTARY
Douglas Clements, *University at Buffalo, State University of New York*
Lessons from Research: 7 Successful Strategies

3:00-4:30 Dallas C
ELEMENTARY
Kathy Richardson, *Math Perspectives*
Assessing Math Concepts: How Do We Know They're Learning?

3:30-4:30 Houston B
ELEMENTARY
Donna Long, *Macmillan McGraw-Hill*
This Can't Be Problem Solving: There Aren't Any Numbers!

CAMT 2008 - Featured Speakers
Thursday, July 10

8:00-9:30 Lone Star Ballroom	8:00-9:30 Lone Star A1	8:00-9:30 Lone Star A4	8:00-9:30 Dallas B	8:00-9:30, Dallas C	8:00-9:30 Houston C
SECONDARY	*ELEMENTARY*	*ELEMENTARY*	*ELEMENTARY*	*GENERAL INTEREST*	*ELEMENTARY*
Bea Moore Luchin, *NUMBERS Professional Development* **Let's Talk Math: Ideas for Secondary Math Tutorials and More**	Dinah Chancellor, *Educational Consultant* **Using Higher-Order Thinking to Develop Number and Operation Sense**	Juanita Copley, *University of Houston* **The Process of Measuring**	Greg Tang, *Author* **Algebraic Thinking – More Than Just a Buzzword**	David Eschberger, *ESC Region 4* **Questioning for Understanding**	Herb Ginsburg, *Columbia University* **What Children Know About Mathematics: New Research Findings**

9:45-11:15 Lone Star Ballroom	9:45-11:15 Lone Star A2	9:45-11:15 Lone Star A4	9:45-11:15 Dallas B	9:15-10:15 Austin 2	9:15-10:15 City View 8
ELEMENTARY	*ELEMENTARY*	*ELEMENTARY*	*GENERAL INTEREST*	*ELEMENTARY*	*SECONDARY*
Kim Sutton, *Creative Mathematics* **Building Conceptual Understanding with "Hands-On" Opportunities for PreK-2**	Greg Tang, *Author* **An Algebraic Approach to Teaching Place Value**	Mary Alice Hatchett, *Educational Consultant* **'Round Up' Those COMPUTATIONAL FLUENCY Skills!**	Julie Guthrie and Norma Torres-Martinez, *Texas Education Agency* **TEA Update**	Pamela Weber Harris, *Consultant* **Student-Generated Strategies or Algorithms**	Richard Parr, *Rice University School Mathematics Project* **Exploring Conics with Graphing Technology**

11:30-1:00 Lone Star Ballroom	11:30-1:00 Dallas B	10:30-11:30 * Houston B
ELEMENTARY	*GENERAL INTEREST*	*GENERAL INTEREST*
Kim Sutton, *Creative Mathematics* **Building Conceptual Understanding with "Hands-On" Opportunities for PreK-2**	Julie Guthrie and Norma Torres-Martinez, *Texas Education Agency* **TEA Update**	Sam Zigrossi, *Charles A. Dana Center* **Moving Mathematics Teaching into the Networked World** (* repeat of Wednesday)

1:15-2:45 Lone Star Ballroom	1:15-2:45 * Lone Star A4	1:15-2:45 * Dallas B	1:15-2:45 Dallas C	2:15-3:15 Houston B
SECONDARY	*ELEMENTARY*	*ELEMENTARY*	*GENERAL INTEREST*	*GENERAL INTEREST*
Marcy Cook, *Marcy Cook Math* **Mathematics Spoken Here: Motto for the Live Math Classroom**	Dinah Zike, *Dinah-Might Adventures* **Using 3-D Graphic Organizers (Foldables) as Communication and Assessment Tools in Mathematics** (* repeat of Wednesday)	Lois Moseley, *NUMBERS Professional Development* **Steering Students' Thinking About Measurement** (* repeat of Wednesday)	David Molina, *Consultant* **Our TAKS Data: What Does It Say About Our Mathematics Performance?**	Ted H. Hull, *Hull Educational Consulting* **Effective Instructional Practices**

3:00-4:30 Lone Star Ballroom	3:00-4:30 Lone Star A1	3:00-4:30 Lone Star A4	3:30-4:30 * Dallas C	3:30-4:30 Houston B
GENERAL INTEREST	*SECONDARY*	*ELEMENTARY*	*GENERAL INTEREST*	*GENERAL INTEREST*
Frank Wang, *Wang Education LLC* **Keys to Successful Teaching – Five Simple but Powerful Tips for Improving Teaching Effectiveness**	Anne Papakonstanti-nou, *Rice University* **Is There Life after Linear Functions?**	Juanita Copley, *University of Houston* **Teaching for Conceptual Understanding**	Robyn Silbey, *Montgomery Co Public Schools, Maryland* **Differentiate Instruction with Higher-Order Thinking Questions** (* repeat of Wednesday)	Ted H. Hull, *Hull Educational Consulting* **Effective Instructional Practices**

CAMT 2008 - Featured Speakers
Friday, July 11

8:00-9:00 Lone Star Ballroom	8:00-9:30 Lone Star A3
GENERAL INTEREST	*SECONDARY*
Robyn Silbey, *Montgomery Co Public Schools, Maryland* **The Math Coach: Great Learning through Great Teaching**	Anne Papakonstantinou, *Rice University* **A Potpourri of Problems from the Press**

9:45-11:15 Lone Star Ballroom	9:45-11:15 Lone Star A3	9:45-11:15 Dallas B	9:45-11:15 Dallas C
ELEMENTARY	*SECONDARY*	*SECONDARY*	*GENERAL INTEREST*
Marcy Cook, *Marcy Cook Math* **Relationship Thinking & Geometric Thinking with Pattern Blocks as a Valuable Tool**	Paul Agranoff, *Creative Mathematics* **Data Are Marbleous!**	Paula Moeller, *Texas Instruments* **MathForward: A Model for Mathematics Improvement**	David Eschberger, *ESC Region 4* **Get Your Ducks in a Row**

9:15-10:15 Seminar
SECONDARY
Sam Zigrossi, *Charles A. Dana Center* **What Is This T-STEM Initiative and How Can Mathematics Teachers Become Part of It?**

11:30-1:00 Lone Star Ballroom	11:30-1:00 Lone Star A4	11:30-12:30 Dallas B
GENERAL INTEREST	*ELEMENTARY*	*SECONDARY*
Frank Wang, *Wang Education LLC* **A Mathematical Roadtrip for Youngsters – Successfully Teaching Higher Math to Elementary and Middle School Students**	Brian Mowry, *Macmillan McGraw-Hill* **Assessing Counting Strategies: How Preschoolers Demonstrate Understanding of Number Concepts**	Uri Treisman, *Charles A. Dana Center* **The Texas Mathematics Story: Where We Are, Where We Want to Be, and How to Get There**

10:30-11:30 Seminar	10:30-11:30 Houston B
SECONDARY	*SECONDARY*
Sam Zigrossi, *Charles A. Dana Center* **What Is This T-STEM Initiative and How Can Mathematics Teachers Become Part of It?**	Paul Kennedy, *Colorado State University* **Discovery Learning or Direct Teaching: Where is the Balance?**

1:15-2:45 Lone Star A3
ELEMENTARY
Dinah Chancellor, *Educational Consultant* **Math + Science = Motivational Relevance**

About this Publication

Since 1971, the Texas Council of Teachers of Mathematics (TCTM) has produced the journal *Texas Mathematics Teacher* for our members. Our mission is to promote mathematics education in Texas. In the journal we accomplish this by publishing peer-reviewed articles by leading authors, state updates from the Texas Education Agency, and local news from around the state. TCTM is committed to improving mathematics instruction at all levels. We place an emphasis on classroom activities that are aligned to the Texas Essential Knowledge and Skills and the NCTM *Principles and Standards for School Mathematics.*

The *Texas Mathematics Teacher* seeks articles on issues of interest to mathematics educators, especially K-12 classroom teachers in Texas. All readers are encouraged to contribute articles and opinions for any section of the journal. Teachers are encouraged to submit articles for Voices From the Classroom, including inspirational stories, exemplary lessons, or management tools. More specific guidelines for submissions may be found on page 3.

In 2004-05, our publication took on a new look with a four-color cover and one-color interior. Original artwork on the cover is another appealing change for our readers. We publish the journal twice each school year, in the fall and spring semesters. Our current website archives the more recent journals in PDF format. Please see *<www.tctmonline.net>* if you wish to view prior issues.

Our current publications committee consists of Cynthia Schneider, Mary Alice Hatchett, Geoffrey Potter, Larry Lesser and James Epperson. Larry and James serve as expert advisors; Cynthia is the editor. Mary Alice does many jobs, including requesting articles, serving as an elementary expert, and communicating with authors. Geoff is the layout and graphic designer; he manages to fit all the text into the limited number of pages we have to work with. The TCTM Board wishes to thank them for their leadership in improving the *Texas Mathematics Teacher*.

Advertising Guidelines for the Texas Mathematics Teacher

All advertising is subject to the approval of the publisher. The journal staff shall be responsible for ascertaining the acceptability of advertisements. All advertisements should be sent "copy-ready" by the closing dates of September 1 for the fall issue and January 15 for the spring issue. Position preference, such as right-hand pages or first half of issue will be honored on a first-come basis. All advertisements must be pre-paid by the closing date with a check made payable to TCTM, and mailed to our current treasurer, Rebecca Ontiveros. Rates for the *Texas Mathematics Teacher* per issue are: full page $500.00, half page $300.00, quarter page $200.00.

All advertisers must adhere to the following guidelines:

- Advertisements should focus on marketing products and services that pertain to the teaching and learning of mathematics.

- The design of all advertisements should be in harmony with the artistic appearance and technical level of the publication.

- Those placing an advertisement must be able to verify their claims.

- Advertising copy should be dignified and professional. Derogatory and inflammatory statements should be avoided, and all advertising copy should be nondiscriminatory with regard to national origin, gender, marital status, race, or creed.

- The journal staff shall be responsible for placement in the publication.

Advertising that elicits significant reader complaints will not be rerun before the complaints have been investigated by the journal staff and the advertiser.

2007-08 Scholarship Donors

The Texas Council of Teachers of Mathematics recognizes the contribution to our college scholarship fund for 2007-08 from the Texas High School Project (THSP) and the Communities Foundation of Texas. THSP is dedicated to ensuring that all Texas students graduate high school ready for college and career success and be contributing members of the community. THSP is a public-private alliance that includes the Texas Education Agency, Office of the Governor, Texas Legislature, Bill & Melinda Gates Foundation, Michael & Susan Dell Foundation, and others.

TCTM Candidates

for Vice-President Secondary

Dollie Mayeux

Dollie Mayeux is a native of Lake Charles, Louisiana. She graduated from McNeese State University with a degree in Elementary Education in 1986 and a Masters in Mathematics Education from the University of Houston in 1995. She has been employed with the Galena Park Independent School District for the past twenty years and has served as the district's Program Director for Mathematics for the past ten years. She is also an adjunct professor at the University of Houston. Dollie is a member of the National Council of Supervisors of Mathematics, Texas Council of Teachers of Mathematics, Texas Association of Supervisors of Mathematics, and Association for Supervision and Curriculum Development. Dollie currently resides in the Mont Belvieu area with her loving husband, Tony Mayeux and beautiful daughter, Lillie Mayeux.

Sheryl Roehl

Sheryl Roehl has a Doctorate in Education Leadership with a specialization in Mathematics, a BS degree in Mathematics, and a MS in Education. She taught high school math, science and computer programming for twelve years and taught mathematics at the junior college level for 3 years. While teaching in Victoria, she was selected as a Danforth Leadership Fellow. She then served as the math/science, TAAS and curriculum specialist for Region III Education Service Center in Victoria for nine years. She joined the staff of the South Texas Rural Systemic Initiative in April of 2002 as the Assistant Project Director where she worked with 30 rural school districts in South Texas to improve student performance in math and science. Sheryl previously served as co-chair of the CAMT exhibits for two years and also served as the Government Relations Representative for the Texas Association of Supervisors of Mathematics (TASM). Sheryl has served as the South Regional Director for TCTM for six years and is the current Vice President-Secondary for TCTM. Sheryl is currently working as a private educational consultant.

for Secretary

Barba Patton

Barba Patton has been active in math education for many years. She has taught Kindergarten, 4th – 8th grade math and science, math at the community college, math at Texas State Technical College, community college and University level. She earned a doctorate in mathematics education at the University of Houston. Her interest in math education is working with pre-service and in-service teachers, dyscalculia, and visual representations.

Often you will find her in a classroom helping prepare students for TAKS tests. She is an advocate of teaching all students by developmentally appropriate methods. Barba's interest has been/and is diagnosing error patterns in various math concepts. She enjoys working with special needs children in math and teaching others to use manipulatives with the methodology.

She has presented at local, state, regional, national and international conferences. She has also published several math articles as well as a study guide to accompany a child development text. She was honored to be in Who's Who in American Teachers 2005, 2006 and 2007 and to be awarded the 2008 UHV Distinguished Service Award. Barba currently is Chair of Initial Certification programs University of Houston-Victoria. She is also the advisor for the Master Math program.

On the personal side, she is married to Burson, who is a pre-stress concrete engineer, and they have 3 sons, 1 grandson, 3 granddaughters and one poodle (Beignet). Barba's hobbies include photography, crocheting and math research.

Linda Shaub

Linda Shaub serves as a senior program coordinator at the Charles A. Dana Center. Before joining the Dana Center, she was a mentor for new teachers in The University of Texas UTeach/Dell Center for New Teacher Success. She has also been a mathematics specialist for Region XIII Education Service Center in Austin, TEXTEAMS trainer, conference coordinator, and co-author of online courses. She was a middle school and high school teacher for eighteen years. She has been president of the Austin Area Council of Teachers of Mathematics and Secondary Vice-President of the Texas Council of Teachers of Mathematics.

Linda Shaub holds a Bachelor of Science degree in mathematics from the University of Houston and a K-12 Mathematics teacher certification from the University of California at Irvine. She is currently working on a Ph.D. in mathematics education at The University of Texas at Austin.

TCTM Candidates

for Northeast Regional Director
vote only if you live in Service Center Regions 7, 8, 10, or 11

George Christ

Currently the Elementary Mathematics Coordinator for McKinney ISD, **George Christ** has been involved in mathematics education for the last 19 years. For the 11 years before joining the staff in McKinney, he was the elementary mathematics consultant for Region 10 Education Service Center. Before that he served as Assistant Professor of Education at the University of Dallas for 7 years where he taught courses and supervised student teachers in mathematics and science education. He has also taught at the elementary and secondary levels in Garland ISD and Lancaster ISD.

While at UD and Region 10, he was involved with writing and implementing many staff development projects, including the Probability K-2 Module, the TEXTEAMS Mathematics Institute for K-2, Rethinking Elementary Mathematics Part I and Part II, Texas Mathematics Initiative Math Academy for Grades 5 and 6, and Math TEKS Connections K-2. These projects gave him the opportunity to provide teachers with the tools and support they need to build their capacity to teach mathematics to children.

Karen Spalding

Karen Spalding has been in education for eleven years. She has taught both primary and intermediate grades. For eight of those years, she provided staff development for teachers in Denton ISD. In May of 2007, she was hired to serve as their elementary mathematics coordinator. Her responsibilities include coordinating, developing, and implementing staff development for teachers and administrators, as well as continually working to improve the district's curriculum documents. Karen received her bachelor's degree in elementary education and her master's degree in curriculum and instruction from the University of North Texas. She continues to grow by participating in local, state, and national professional development. She believes that organizations such as TCTM provide important opportunities for Texas educators to work together to make a difference in the lives of children.

for Northwest Regional Director
vote only if you live in Service Center Regions 9, 14, 16, or 17

Nita Keesee

Nita Keesee is a member of our local affiliate, the Big Country Council of Math and Science Teachers (BCCTMS) and sees firsthand, everyday, the impact of high quality instruction for our students. She has twenty-one years of experience in public schools as a secondary math teacher and most recently as an instructional specialist-- with a curriculum emphasis in mathematics. She has been fortunate to work with struggling students as well as the gifted. She believes we can make a difference!

Nita would like to have the opportunity to continue to represent mathematics teachers in Region 9, 14, 16, and 17 while serving a third term as the Northwest Region Director for the Texas Council of Teachers of Mathematics. TCTM does important work to promote the advancement of mathematics teaching throughout Texas! She would appreciate your vote.

Leslie Patrick

After being in education for 18 years, **Leslie Patrick** has worked at Region 9 Education Service Center as an education specialist for the past six years. For most of these six years, she has been responsible for elementary mathematics and elementary science professional development in the Region 9 area. As part of this position, she was project director for the Texas Regional Collaborative Mathematics Grant for K-12 during its first year. In the second year of the mathematics collaborative, Leslie is responsible for the trainings for K-5 teachers. She has been trained to deliver the Mathematics TEKS Refinements (MTR) for K-5, Mathematics TEKS Connections (MTC) for 3-5, and the TEXTEAMS Rethinking Elementary Mathematics 1 and 2. She remains project director for the Region 9 Collaborative for Excellence in Science Teaching with K-12 teachers as members. Prior to Region 9 ESC employment, Leslie worked as a classroom teacher for twelve years, teaching elementary mathematics and science. While a classroom educator, she served on curriculum committees and textbook committees and was named Teacher of the Year (99) for her district. Currently, she is a member of TCTM, TASM, TSELA, STAT, and NSTA.

for Central Regional Director
vote only if you live in Service Center Regions 12, 13, or 20

David Hughes

David Hughes serves as a senior program coordinator for mathematics at The Charles A. Dana Center. In his position, he works with mathematics teachers and leaders in The Partnership for High Achievement, a program dedicated to student success through meaningful change in district structures and practice. Prior to joining the Dana Center, David worked as a prekindergarten to fifth grade campus mathematics facilitator and as an elementary teacher. Additionally, he has taught mathematics methods at The University of Texas at Austin and has extensive experience leading professional development for elementary mathematics teachers. He holds a B.S. in Education from The University of Texas at Austin and a M.Ed. in Elementary Education from Southwest Texas State University.

Pam Johnson

Pam Johnson is currently a Middle School Mathematics Specialist for Austin I.S.D. She has previously served as Mathematics Coordinator for Hays CISD and Lockhart ISD. In the very near future, she anticipates completing a Ph.D. from Texas State University - San Marcos and her research interests include constructivist leadership, job-embedded professional development, and professional learning communities.

Melanie Syma

Melanie Syma serves as an elementary mathematics curriculum specialist with Southside ISD. Melanie's responsibilities include creating and facilitating professional development for elementary mathematics educators, and working with teachers toward data-driven decision making and research-based instruction. She holds a bachelor's degree and masters degree from the University of Texas and a masters degree from Texas State University. She is an active member of the Bexar County Mathematics Collaborative, TASM, and NCTM. Melanie has also served on the Program Committee for CAMT and the Local Arrangements Committee for the NCTM annual meeting in 2003. She looks forward to the opportunity to represent and serve mathematics educators in the central region!

TCTM Ballot

Circle your choices below. Write-in candidate names are acceptable.
Copy and mail your ballot to Janet Vela at the address below.
Your ballot must be received by June 1, 2008.

for Vice-President Secondary

☐ Dollie Mayeux   ☐ Sheryl Roehl   ☐ _____

write in candidates

for Secretary

☐ Barba Patton   ☐ Linda Shaub   ☐ _____

write in candidates

for Northeast Regional Director
vote only if you live in Service Center Regions 7, 8, 10, or 11

☐ George Christ   ☐ Karen Spalding   ☐ _____

write in candidates

for Northwest Regional Director
vote only if you live in Service Center Regions 9, 14, 16, or 17

☐ Nita Keesee   ☐ Leslie Patrick   ☐ _____

write in candidates

for Central Regional Director
vote only if you live in Service Center Regions 12, 13, or 20

☐ David Hughes   ☐ Pam Johnson   ☐ Melanie Syma

☐ _____

write in candidates

Mail your ballot to: Janet Vela
TCTM Vice-President Elementary
7145 West Tidwell
Houston, TX 77092

Janet Vela
TCTM Vice-President Elementary
7145 West Tidwell
Houston, TX 77092

Texas Council of Teachers of Mathematics
Executive Board 2007 - 2008

Mark your calendar for these important dates

Coastal CTM	Corpus Christi, Texas	June 13, 2008
Texas South Plains CTM	Canyon, Texas	September 20, 2008
NCTM Regional	Oklahoma City, Oklahoma	October 2-3, 2008
Austin Area CTM	Austin, Texas	October 11, 2008
Greater El Paso CTM	El Paso, Texas	October 18, 2008
Rio Grande Valley CTM	Edinburg, Texas	November 15, 2008
Big Country CTMS	Abilene, Texas	January 31, 2009
Central Texas CTM	Waco, Texas	*To Be Determined*
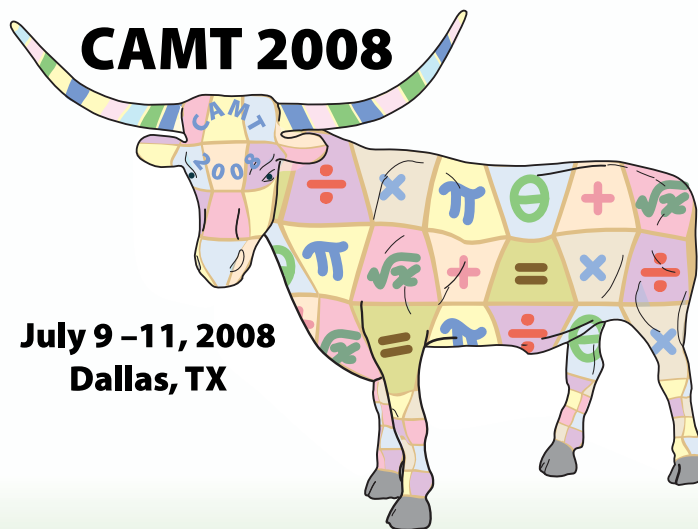
CAMT 2008

July 9 –11, 2008
Dallas, TX

Steering Mathematics Towards Excellence

CAMT 2008 will be held July 9-11, 2008, at the Sheraton Dallas Hotel in Dallas, Texas. See pages 16-20 for more details, or visit the website at

<www.camtonline.org>

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