TexMATYC News

Texas Mathematical Association of Two –Year Colleges
Affiliate to the American Mathematical Association of Two-Year Colleges

Winter 2006 **www.texmatyc.org**

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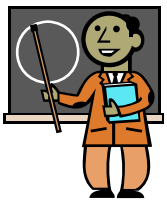
Innovative Teaching Idea on Page 4— Some Irrationals from a Geometric Perspective

Plan now to attend the TCCTA/TexMATYC conference February 23-25, 2006

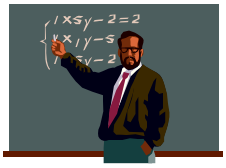
Together with TCCTA Math Section chair Teresa Smith, the TexMATYC board has lined up presenters from around the country to once again provide you with a full and wide-ranging program for this year's conference at the Westin Galleria in Houston.

Our keynote speaker on Friday will be Dr. George "Pinky" Nelson from Western Washington University, and a veteran of three space shuttle flights. Dr. Nelson will present the case for Quantitative Literacy from his perspective as an education reformer, scientist, and former astronaut.

The rest of the program is packed with presentations ranging from topics in developmental mathematics through calculus. Our visitors from out-of-state include Steve Krevisky, who will leave wintry Connecticut for sunny Houston to entertain us with the history and statistics of the Houston Astros. Join him and share your recollections of Joe Morgan, Rusty Staub, JR Richards, and other favorites. John Coburn joins us from St. Louis to talk about Humor in Mathematics as an effective teaching tool. He promises an enjoyable and instructive time for all who attend! Michael Holtfrerich from Glendale CC in Phoenix will discuss Bright Ideas to Retain Math Students, and Ron Larson from Penn State University will talk about Slope Fields and Calculus.



From Texas, we have a talented group of presenters. TexMATYC 2004 Teaching Excellence Award winner, Shirley Thompson from North Lake College, will lead a discussion of the role of active learning in the mathematics classroom. Sandra Villas from South Texas College shares her views on a personal mission statement, and Mary Kay Best from Coastal Bend College will show us how her college has used an Achieving the Dream grant to implement the SACS mandated Quality Enhancement Plan. In the area of technology, Patty Zachary from Tomball College will show us how to personalize distance learning classes through the use of the software program Camtasia, and Kristen Stoley from Binn College will showcase a Quadratic Project for all Levels from Algebra through Calculus II.



So, come on down to Houston and spend your weekend with us at the Galleria!

There is still time to register for the TexMATYC pre-conference workshop on Thursday Feb. 23, 2006… lunch is included!

Visit our website for details and application form.

President's Message Linda Zientek, Blinn College

The TexMATYC Board would like to welcome everyone to a new semester. We are very excited about the variety of presenters and believe everyone will find a topic of interest to them. The **TexMATYC/TCCTA conference** is scheduled for **February 23 –25, 2006** in Houston and the program schedule is located on the TexMATYC website at www.texmatyc.org. This year's featured speaker will be **Dr. George "Pinky" Nelson** who was a NASA astronaut from 1978 to 1989 and is a veteran of three space flights on the Challenger, Discoverer, and Columbia. Currently, Dr. Nelson serves as the director of Science, Mathematics and Technology Education at Western Washington University. He has also served as the director of Project 2061 and as a senior staff member of the American Association for the Advancement of Science.

Plan to attend the pre-conference workshop prior to the TCCTA/TexMATYC conference. **Dr. Don Allen** from Texas A&M University will be presenting material on visual methods for teaching algebraic ideas entitled "**Visual Algebra and Pre-calculus**". A free CD with software and materials will be distributed to all participants. Participants are welcome to bring their laptop and follow along. The workshop will be held at the Westin Galleria Hotel in Houston on Thursday Feb. 23, 2006. Registration forms are available on the TexMATYC website.

The conference board has been busy planning the 2007 Southwest Regional Conference to be held in San Antonio on Friday and Saturday June 15-16 (2007). We realize that this is more than a year away but we are pleased to announce that our invited speakers will be **Dr. Joseph Gallian** and **Dr. Gloria White.**

Joseph Gallian is a Distinguished Professor of Teaching and Professor of Mathematics at the University of Minnesota Duluth and is the 2006 President-elect for MAA. He has received many honors throughout his career including the 2003 CASE and The Carnegie Foundation for the Advancement of Teaching Minnesota Professor of the Year Award.

Gloria White is the managing director for the Charles A. Dana Center at the University of Texas in Austin. Dr. White has also served as deputy assistant commissioner and director of Teacher Quality Grants at the Texas Higher Education Coordinating Board as well as a mathematics faculty member and dean at Oberlin College in Ohio.
We look forward to seeing everyone in February.

Linda Zientek

MATH HUMOR

Contributed by
Rita Marie O'Brien
Navarro College

After explaining to a student through various lessons and examples that:

$$\lim_{x \to 8} \frac{1}{x-8} = \infty$$

I tried to check if she really understood that, so I gave her a different example. This was the result:

$$\lim_{x \to 5} \frac{1}{x-5} = \text{ɯ}$$

Here We Grow Again!

Paula Wilhite, Vice President

Why are you a member of TexMATYC? Many of you joined TexMATYC because you wanted to be affiliated with a professional organization that promotes mathematics education in Texas. For others, you wanted the opportunity to participate in the professional development activities at the annual conference or in one of the recent online sessions. I believe that all of you will agree that an annual fee of $5 is a reasonable amount for membership in our organization. In order to continue to provide the services and benefits of membership in TexMATYC, we will be conducting a survey this Spring to find out why you are a member of TexMATYC. We will compile and report the results in our next newsletter issue.

Our goal is to provide opportunities for both part-time and full-time faculty who teach mathematics. Currently, we have 193 members which represents an increase of 250% over the Fall 2004 membership count. We have several colleges with over 10 TexMATYC members, and the first prize goes to Montgomery College in Conroe, with 15 members!

Here are our top colleges, along with the number of TexMATYC members:

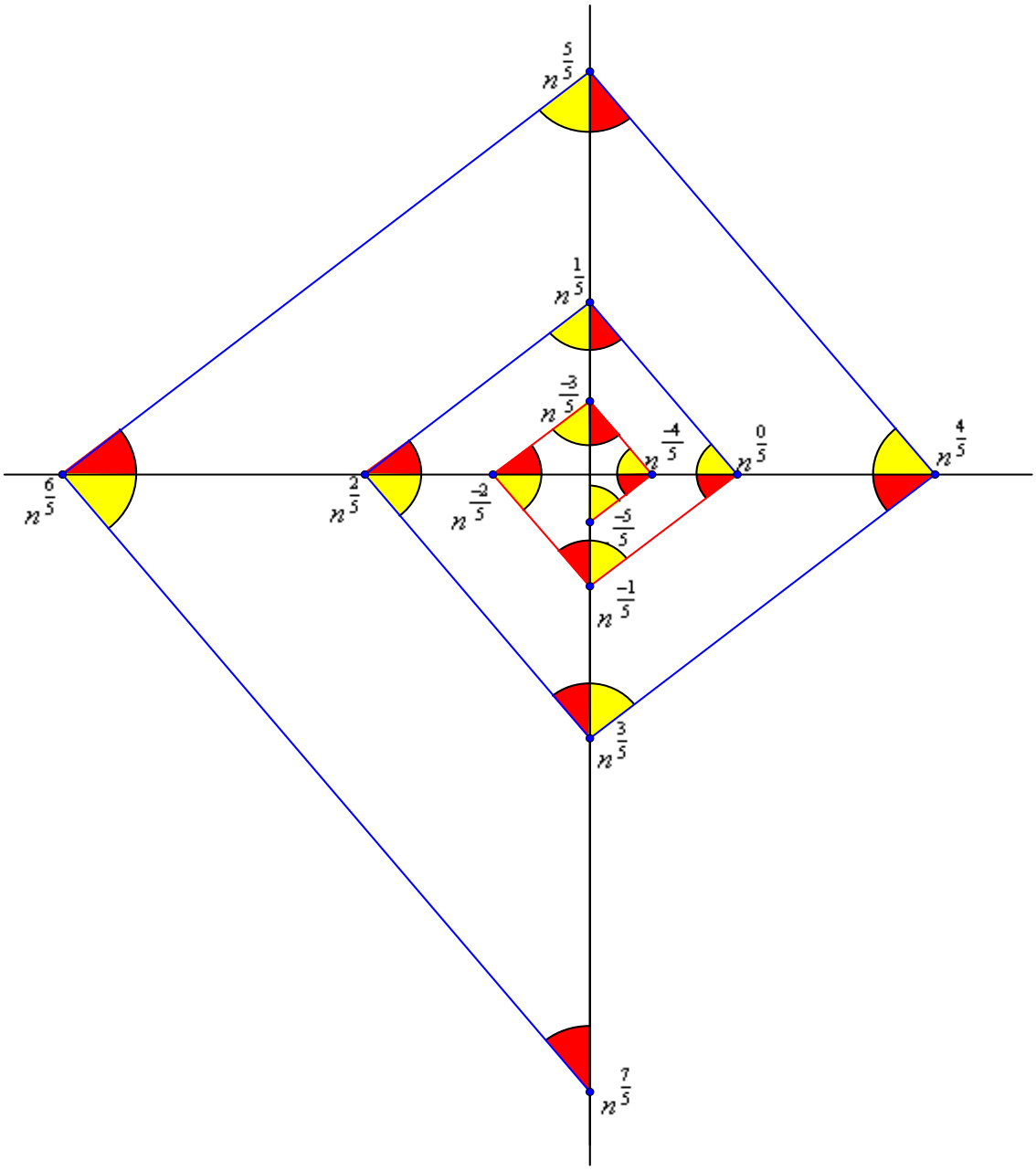
Montgomery College	15
Collin County Community College	13
Northeast Texas Community College	12
Tomball College	11
Laredo Community College	10
Austin Community College	9
Blinn College	9
Lamar Institute of Technology	8
Cisco Junior College	7
Central Texas College	6
Cy-Fair College	6

AMATYC Southwest Regional Conference
June 15-17, 2007
San Antonio, TX

Invited Speakers
Joseph Gallian, University of Minnesota
Gloria White, Charles A. Dana Center, University of Texas at Austin

Some Irrationals from a Geometric Spiral Perspective

By John J. Edgell, Jr., Ph. D., Texas State University

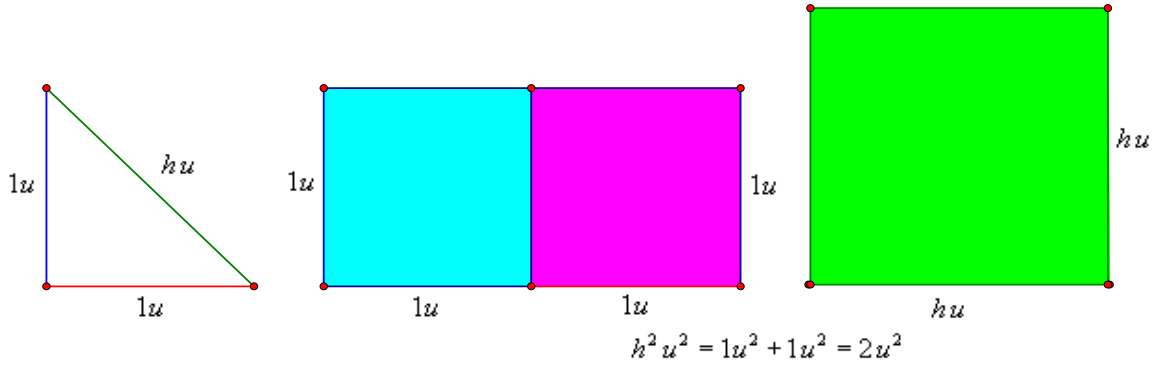


A Different Focus upon the Pythagorean Relation

Rational numbers may begin with a rationale understanding and be somewhat understood particularly when expressed/applied decimally. But, in general, students and adults have a great degree of difficulty with arithmetic of rational numbers. Somewhat later, supposedly at an abstract level of thinking, students are exposed to irrational numbers. And, without surprise, arithmetic of irrational numbers seems to almost a complete mystery.

This paper will not clear up the mysteries that exist for most students and adults. But, for some students, a geometric perspective on some of the irrational numbers may help them to get started. And, with a geometric perspective on arithmetic in general, perhaps these students may emerge with a more in-depth understanding than their peers.

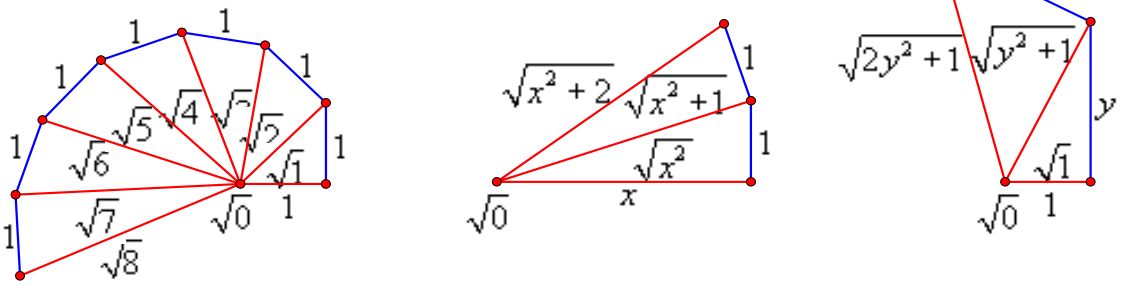
The ancient Greeks intellectuals seemed to be primarily oriented to geometrical ideas and quite often applied geometry to working with numbers – extracted from measures. Some issues with numerical conceptions were probably a result of such geometry associated with Pythagoras. The relationship between the two shortest edges and the longest edge, opposite the largest angle, of any tri-lateral was well understood. And, it was virtually a religious faith that rational numbers should satisfy any/all measurement situation. Pythagoras' ideas applied to right tri-laterals seemed to defy what had been long believed about rational numbers. For instance, faith and Pythagoras would indicate that the sum of the squares of the two legs of rational length of a right tri-lateral should have the same area as the square of the hypotenuse, which should be of rational length. A classical example of the dilemma is featured below.



$$h^2u^2 = 1u^2 + 1u^2 = 2u^2$$

Consequently the hunt was on to find a rational number, *h*, such that $h^2 = 2$. Clearly, to the traditional Greeks, the hunt might take time, but would be finite. Unfortunately, for these Greeks and regardless of the amount of an award, no one could come up with a rational *h* such that the square would be two. Ultimately a few intellectuals began to doubt the existence of a rational between 1 and 2 that would satisfy the requirement. Thus, the conception of the need for other numbers beyond the scope of the rational numbers became evident.

Geometric spirals have always seemed to have intrinsic interest. Over the years a spiral depicting the square roots of the counting numbers has become a standard application. Some of these square roots, including the square root of two, are examples of irrational numbers. A part of this classical spiral is depicted below on the left.



Read the rest of John Edgell's paper on the TexMATYC website, www.texmatyc.org

Check us out at www.texmatyc.org

Dates to Remember!

TexMATYC Pre-conference workshop
Visual Algebra and Pre-Calculus
February 23, 2006
Houston, TX

TCCTA/TexMATYC Conference
February 24-25, 2006
Houston, TX

AMATYC Annual Conference
November 2-5, 2006
Cincinnati, OH

MORE MATH HUMOR

Contributed by Rita Marie O'Brien, Navarro College