



The Ohio Council of Teachers of Mathematics

NEWSLETTER

March 2007

No. 89 +n

Celebrating Euler

(Historical Tidbits from Dr. Kullman)

--Dave Kullman, Miami University

Most Americans associate April 15 with income taxes, but mathematics teachers and students should observe April 15, 2007, as the 300th birthday of the great Swiss mathematician, Leonard Euler (pronounced "oiler").

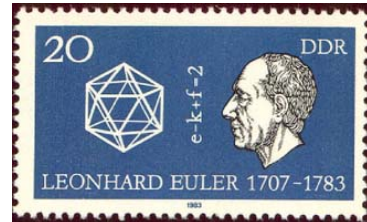


Euler was born and grew up in Basel, Switzerland. At age 14 he entered the University of Basel, where he studied under Professor Johann Bernoulli. Most of his professional career was spent at the St. Petersburg Academy of Sciences in Russia, and the Berlin Academy in Prussia. He

died in St. Petersburg in 1783.

Euler, who has been called "Analysis Incarnate," was one of the most prolific mathematicians ever to have lived. His complete works occupy 77 volumes, and amazingly, nearly half of these were produced after he was totally blind. He wrote about every branch of mathematics known in his time, and his name is attached to a number of mathematical ideas, including Euler's polyhedral formula ($V - E + F = 2$); Euler's identity ($e^{ix} = \cos x + i \sin x$); the Euler phi-function (the number of positive integers less than and relatively prime to a given integer); the Euler line (related to the 9-point circle); and Euler's constant ($\gamma \approx 0.577215 \dots$). Euler also gets credit for introducing the letter e as the base of natural logarithms, the letter i for the square root of -1 , and

for popularizing the use of π as the ratio of circumference to diameter of a circle. His solution of the Königsberg bridge problem marks the beginning of graph theory, and he solved a long-standing problem of summing the reciprocals of the perfect squares. His portrait appears on postage stamps of Germany, Russia, and Switzerland, as well as on a Swiss bank note.



To learn more about this mathematical giant and celebrations being planned around the world for his 300th birthday, visit the web site of the Euler Society: <http://www.eulersociety.org/>. This includes links to the Euler Tercentenary and the Euler Archive.

[editor's note: watch for more tidbits in future newsletters!]

Do What Makes Sense (Presidential Ponderings)

-Bonnie Beach, President

In the early days after the 1989 NCTM Standards, David Whitin wrote: “The Standards document is a theoretical statement about how people learn; it is based on a belief system that says, among other things, that learners construct their own knowledge, that learners grow by sharing and generating ideas with others and that learners gain new understandings by representing their ideas in different ways, such as through drawing, written narrative, or oral discourse.” This statement holds true for *Principles and Standards for School Mathematics* and gives us insight into how we can better teach a subject traditionally seen as difficult, boring, frustrating, and all those other “not warm-and-fuzzy” terms.

Among other things, NCTM recommended the following instructional practices: “Actively involve students individually and in groups. Use appropriate technology. Use concrete materials. Be a facilitator of learning, not a dispenser of knowledge. Assess learning as an integral part of instruction.” However, “Do what students like” is not on the list.

I think it is equally crucial that we engage students in meaningful, worthwhile tasks in the mathematics classroom.

I do believe that these shifts in practices will positively affect students’ attitudes (the subject of an earlier Presidential Ponderings). Although changing attitudes about mathematics is important, that is not the primary reason for suggesting these shifts in classroom practices. We change our practices to improve our efforts to provide every student with “mathematical power.” Therefore, we must continually consider if tasks we ask students to undertake are indeed worthwhile (one of NCTM’s *Professional Teaching Standards*).

In the 1980s, I served as a mathematics supervisor for a large school district in West Virginia. As part of my job, I visited classrooms on

a regular basis. Many times during classroom visits, I would observe classes playing “Around the World,” a game used to practice “math facts.”

For those of you unfamiliar with the game, two students would stand up, and the teacher would display a flash card. The first of the two students to say the correct answer would continue to play, while the student “who lost the round” would sit down. Another student would stand up and the play continued. Students not standing were told to play from their seats to practice.

Teachers would always tell me how much students loved playing this game. Now think about why students would love this game! The students who aren’t good, or who are mediocre, loved the game because they only have to “be on the spot” for a split second. Then they get to sit down and be invisible. [Do you really think they are “playing along”?] Those who are really good at mathematics love the game because they get to show everyone how smart they are. [And, I am certain there is a fraction of every class who actually hate the game.]

I contend that, although students may love the game, it is not a worthwhile task. Who is really practicing their math facts in this game? Those who really need it? Most likely not! I think for most students this game is a waste of time. I know there are those who disagree. But, my point is that we need to reflect on each task we use in a classroom and wonder if it is indeed worthwhile. Although I think it is crucial that we try to change attitudes towards mathematics, I think it is equally crucial that we engage students in meaningful, worthwhile tasks in the mathematics classroom.

Several years ago, Marilyn Burns wrote an article entitled “Ways to be a Better Mathematics Teacher.” One of my favorite items on the list is to “do what makes sense.” As we plan activities for our students, we should always make sure that we “do what makes sense.” Ask yourself, “Does it make sense mathematically?” “Does it make sense instructionally?” You will indeed be a better mathematics teacher if you do only what makes sense!



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Ohio University Council of Teachers of Mathematics Report

- *Jim Vanosdall, President*

OUCTM has once again continued its active role in the College of Education at Ohio University. Our free tutoring program, offered to any child in the Athens area, continues to grow. During fall quarter, we were able to pair about 12 tutors with members of the organization.

Most recently, OUCTM has taken an active role in a Lego Robotic Club at East Elementary in Athens. The club is an after-school program where children design robots using Legos and study how mathematics relates. OUCTM hopes to continue their active role with the Robotic Club throughout the spring and possibly present the material at OCTM, 2007!

Professional development also continues to be a main focus for OUCTM in 2007. In the past few months our members have participated in a live mock interview, resume writing seminars, and a classroom management seminar. For more information, check us out at www.ohio.edu/ouctm



Pictured from L-R are: Leah Kraft (Treasurer), Emily Daughters (Public Relations Director), Marissa Blewitt (Secretary), Jim Vanosdall (President), Jeff Rice (Vice-President), and Nick Shay (NCTM/Tutoring Representative)

PUZZLE CORNER

- *by Duane Bollenbacher*

Level One

You have \$1.00 in your pocket made up of seven coins. What are the coins?
(Hint: There may be more than one answer.)

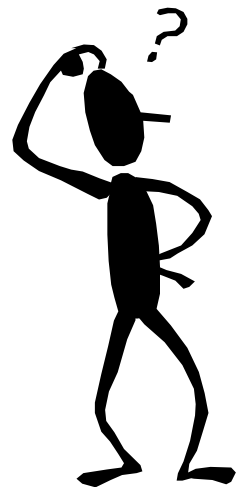
Level Two

Find the largest integer less than 2007 that is divisible by 2,3,4,5,6, and 7.

Level Three

$$\sum_{k=0}^3 (k!) - \sum_{k=0}^3 k = (x-4)^2. \quad \text{Solve for } x.$$

(answers on page 6)



**The Ohio Council of Teachers of Mathematics
Individual Membership Form**

Circle One: Renewal New Membership

_Name _____

Address _____

2nd Address _____

City _____ State _____

Zip+4 _____

SSN (last four digits only) _____

Home Phone (_____) _____

Work Phone (_____) _____

Email: _____

Employed by: _____

Position: _____ Grade Levels: _____

____ Male ____ Female

Make checks payable to OCTM and mail them with this form to:

**Sister M. Theresa Sharp, SND
OCTM Membership Secretary
13000 Auburn Road
Chardon, OH 44024-9330**

Check one below:

____ \$25.00 for 1 year

____ \$60.00 for 3 years

____ \$5.00 student membership

____ Life – Available without payment of dues to persons who were OCTM members for 15 consecutive years prior to retirement.

____ From time to time, OCTM makes our members' mailing information available to other reputable organizations or companies for mathematics-related products or services that might be of interest to our members. We are confident that many of our members find this a valuable and time-saving service. If, however, you would like your name excluded from these mailings, check here.

Don't miss the 57th Annual OCTM Conference

"Columbus...A Capitol Idea!"

Columbus, Ohio
October 19-20, 2007

See www.ohioctm.org for more information

2007 EMPT Summer Academy "Remedial Algebra Using a Function Approach" July 25 – 27, 2007

-Ed Laughbaum

Questions: How can we foster long-term memory of algebra taught? How can we develop understanding of algebraic concepts and processes? Is pattern-building better than reasoning when trying to foster understanding of algebra? Will memorizing produce long-term memory? Will practice? How is an emotional connection (meaning) related to memory, attention, and understanding? Do we need to "connect" a mathematical concept/skill to other algebraic concepts? To the real world? Can't we make learning faster? How can we more likely create correct recall of algebra taught?

At the 2007 EMPT Summer Academy we will consider answers based on research from the cognitive and neurosciences, and suggest using a function approach when teaching remedial algebra will help maximize learning through the ideas listed below.

A function approach:

You will find that the use of function when teaching algebra provides a seamless integration of the ideas listed below and will address all of the questions listed above. Teaching from a function approach means **using functions and function behaviors** to teach mathematics such as factoring, equation solving, arithmetic operations on polynomials, systems of equations, inequalities, properties of inequalities, definitions, concept of asymptotic behavior, absolute value, slope, laws of exponents, etc.

Using unique materials, we will reorder the algebra

content and use function concepts to develop understanding of, interest in, and long-term retention of traditional algebraic ideas. We will capitalize on cognitive processes of associations, pattern building, attention, visualizations, meaning, the enriched teaching environment, distributed learning, and priming. We will model how to teach remedial algebra through a function approach with graphing calculators, and demonstrate why they are crucial to teaching and learning.

Information: Meals, shared sleeping room, and course materials provided. Two hours of Math 610 graduate credit available.

Please go to

www.empt.org/empt/prof_dev/summer_academy.asp

for registration information.

For all other info, contact

Ed Laughbaum,

elaughba@math.ohio-state.edu



Duane Bollenbacher's 19th Annual Summer Workshops

2007 SUMMER MATHEMATICS WORKSHOPS

at Bluffton University, Bluffton, Ohio (Between Toledo and Dayton on I-75)

Each workshop is 3 days in length (with one exception)

Possible credit that may be earned:

20 Contact Hours for LPDC Credit—Cost \$125 OR

1 Sem. Hour Grad. Workshop Credit (Pass/Fail)—Cost \$250

The Courses:

TI 83/84 For The Beginner (one day)

Monday, June 11, 2007

Instructor: Duane Bollenbacher

Finding and Using the Special (Often Hidden)

Features on the TI 83/84 Graphing Calculator

(Using the TI-84—provided)

T,W,R, June 12-14, 2007

Instructor: Duane Bollenbacher

Tips On Becoming A Middle School

MASTER TEACHER of Mathematics

M,T,W, Aug 6-8, 2007

Instructor: Marilyn Link

Become a MASTER TEACHER of High School Mathematics,

Using the Number Sense and Algebra Standards

M,T,W, Aug 6-8, 2007

Instructor: Duane Bollenbacher

NOTES:

Campus housing and food available.

There will be a maximum of 24 participants in each workshop.

For further information, brochures/registration forms, or questions, contact:

Duane Bollenbacher, Bluffton University Box 54, Bluffton, OH 45817-2104;
(W) 419-358-3296; (H) 419-358-7365; e-mail: bollenbacherd@bluffton.edu

PUZZLE CORNER ANSWERS

- by Duane Bollenbacher

Level One: $50 + 25 + 5(5)$

$50 + 4(10) + 2(5)$

$(3)25 + 1(10) + 3(5)$

$(2)25 + 5(10)$

Level Two: 1680

Level Three: $x = 6$ or $x = 2$



OCTM General Meeting October 13, 2006 Toledo, Ohio

--summarized from Kim Yoak's notes

Bonnie asked that affiliate presidents attend board meetings because they have votes on the board. It is difficult to get a quorum without having a number of these affiliate presidents in attendance.

Sister M. T. Sharp gave the membership report. We usually get about 1800 memberships through OEA. Our membership as of yesterday is 4,106. Thanks to YSU and BGSU for many student memberships. Adele is also working on getting information to the NCTM members who have Ohio addresses; we have 4 new memberships from this group. Bonnie thanked Sister for her work.

Richard Glove spoke about the memorial lecture and scholarships. Bill Speer presented this year for pre-service teachers. We gave four \$750 scholarships this year to students who were entering their junior year or senior year or to a grad student who had not taught before. Next year, we will award 6 such scholarships.

Charlie Kobida spoke about the tournament. It is in its second year online. Letters went to coaches this week. Enrollment is now open. Independent students may participate (without a school team). They are eligible for individual awards. Home school students are also welcome. It is the last Saturday in February. The grading will occur the following week, and graders are needed. Visit www.octmtournament.org for more information.

Dan Brahier reported on the 2006 conference. Pre-registration was 825. 174 more have registered since then for a total of 999 so far. [editor's note: This total does not include any Saturday walk-in reservations that may have come.]

The 2007 conference is in Columbus, 2 full days, Friday and Saturday, October 19-20, 2007. If we are interested in speaking, the speaker form is on the website, and Bonnie Beach and Jack Albers have proposal forms. Hopefully, speakers will soon be able to fill out proposal forms as an electronic form.

The 2008 conference is an NCTM regional meeting in Cleveland. It is October 16-18. It will be at the Convention Center and the Crowne Plaza.

2009 will be in Cincinnati. Judy Gerwe and Margie Coleman are chairing it. The location is yet to be

determined (whether it will be downtown or outside of the city). It may be in November.

2010 will be in Akron. The convention center is reserved.

Judy Gerwe spoke about affiliate services. She mentioned the affiliate grants and encouraged affiliates to apply. She also noted that affiliates should send information to the newsletter editor and webmaster (Bret Gensburg). The website also includes links to affiliate websites. All of these rights and privileges are true for student affiliates as well.

Judy Higgins is our NCTM representative. She sends NCTM information to board members, but she will also send this to any member who is interested if we e-mail her through the website.

Bonnie noted that we now only have two full board meetings, September and March. The executive board meets in June and December. This is due to a constitutional change last year. She asked for any comments/opinions about this change. Electronic communication has allowed for more work to be done outside of meetings. There are some changes that the board will vote on in March, and the membership will vote on these changes next fall at the conference.

We have a new technology committee. The members are Charlie Kobida, Bret Gensburg, Margaret Garner, Sister M. T. Sharp, Judy Gerwe, and Fred Dillon. The first task is to advise Bret on the website. There have been some changes (due to board suggestions) in the last few months. We need to let Bret know when things need to be updated. If it is a change in a board member's position, we need to let Adele know, and she will let Bret know. It is the board member's responsibility to subscribe to and unsubscribe from the Yahoo group. See Bonnie or Bret if you need to find out how to do this.

Bonnie asked for issues and concerns. Linda Gojak noted that we had 5400 members in 2000. In 6 years, we have lost a lot of members. We need to get young teachers in OCTM; we also need to find more elementary members. She suggests that the board should start to take some action. Bonnie noted that the board accepted a proposal to offer a joint membership with SECO for K-6 (as did SECO's board); these teachers can join both groups for a 25% reduced rate. This will be offered soon, once the details are finalized. Rena Allen has been instrumental in working on this project.

Bonnie noted that the board is here to serve the membership and welcomes participation and questions.



OHIO COUNCIL OF TEACHERS OF MATHEMATICS



OCTM NEWSLETTER
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Vice President College
Laura Anfang
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Important Dates:

OCTM Full Board Meeting
March 10, 2007

OHMIO
March 31, 2007

NCTM Conference - Atlanta
March 21-24, 2007

OCTM Conference – Columbus
October 19-20, 2007

NCTM Regional Conference –Kansas
City, MO
October 25-27, 2007