



# Wahpe Woyaka pi ( Talking Leaf )

South Dakota Council Teachers of Mathematics Newsletter

## Presidential Ponderings

### NCTM Annual Meeting

In April, I had the opportunity to attend the national NCTM conference in Indianapolis. It has been quite a few years since I last attended a national conference. Overall, the conference was good, but not as productive as past conferences that I have attended. I was disappointed at several of the sessions that I attended. My main objective in attending the conference was to find great presenters to come to our conference in Huron. I was not terribly impressed by any of the speakers that I heard – so I came up empty handed for featured speakers for our conference. If you have attended any conferences or attended any other professional development activities and have a suggestion for a featured speaker, please let me know. It's not too early to submit a speaker proposal form for our annual conference, which will be held February 2-4, 2012. The form is accessible on the SDCTM website.

I think we can be proud of our South Dakota math and science teachers. The sessions that I have attended at our state conference are just as good, if not better, than any of the sessions I attended in Indianapolis. More of our teachers should apply to present at the national and regional NCTM conferences. The 2013 NCTM Annual Meeting (national conference) will be held April 17-20, 2013 in Denver, CO. Speaker proposals can be submitted from February 1, 2012 through May 1, 2012. The 2012 Regional Conference will be held in Chicago November 28-30, 2012. The deadline for submitting a speaker proposal for that conference is November 1, 2011. If you have presented at the SD conference, please consider presenting at a national or regional conference.

### Common Core Standards

Ready or not, here they come - the Common Core Standards. From the introduction to the standards: "For over a decade, research studies of mathematics education in high-performing countries have pointed to the conclusion that the mathematics curriculum in the United States must become substantially more focused and coherent in order to improve mathematics achievement in this country. To deliver on the promise of common standards, the standards must address the problem of a curriculum that is 'a mile wide and an inch deep.' These Standards are a substantial answer to that challenge."

"It is important to recognize that 'fewer standards' are no substitute for focused standards. Achieving 'fewer standards' would be easy to do by resorting to broad, general statements. Instead these Standards aim for clarity and specificity."

The eight mathematical practices common to all grade levels:

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.



SUMMER 2011

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### Calendar Notes:

- *Daktronics Outstanding Math Teacher Applications due Fall 2011*
- *SDCTM/SDSTA Joint Conference February 2-4, 2012*
- *PAEMST Applications due May 1, 2012*
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*continued*



*“The Common Core Standards are designed to be robust and relevant to the real world...for success in college and careers.”*

## Presidential Ponderings, *continued*

The Common Core Standards are designed to be robust and relevant to the real world, reflecting the knowledge and skills that young people need for success in college and careers. They are scheduled for full implementation and testing in the school year 2014-2015. To aide in the implementation process, the SD Department of Education has developed a common core professional development series. The professional development consists of three phases. Teachers must commit to attending all three phases of the training. The first scheduled workshops are this summer. It is a pilot program for a limited number of teachers. Each year, a series of workshops and online learning will focus on designated standards. While teachers are not required to participate in all three years, it is highly recommended. The DOE website contains more information concerning the Common Core Standards and the upcoming training: <http://doe.sd.gov/octe/commoncoreStandards.asp> I would encourage everyone to participate in the training opportunities. The change from the current SD Mathematics Standards to the Common Core Standards is drastic and will not be accomplished overnight. We can't wait until 2014 to learn about the new standards if we want successful implementation.

Jay Berglund  
SDCTM President

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## SDCTM Members Share

Mike Barondeau, DWU, came across this NASA site and thought math teachers might be interested in some of these free downloadable books.

<http://spacemath.gsfc.nasa.gov/books.html>

Kurt Cogswell, SDSU, shared this site with information about research into the causes of math anxiety.

[http://www.edweek.org/ew/articles/2011/05/18/31math\\_ep.h30.html?kn=NQVFG%2Fv%2B6LhixIGFkLCIAGx2Af1x1a1isuZa&cmp=clp-edweek](http://www.edweek.org/ew/articles/2011/05/18/31math_ep.h30.html?kn=NQVFG%2Fv%2B6LhixIGFkLCIAGx2Af1x1a1isuZa&cmp=clp-edweek)





## Nominations for 2012 PAEMST

**Know a Great Elementary Math Teacher? Nominate him or her to receive the Presidential Teaching Award!**

We're looking for outstanding K-6 math teachers for the 2012 Presidential Awards for Excellence in Mathematics and Science Teaching. The awards are sponsored by the White House and administered by the National Science Foundation.

**Every year up to 108 National Awardees each receive** a \$10,000 award, a paid trip for two to Washington, DC to attend a week-long series of networking opportunities and recognition events, and a special citation signed by the President of the United States.

The program is now accepting nominations of K-6 teachers for the nation's highest honor for mathematics and science teachers. Anyone can nominate a teacher. Teachers should submit completed application materials by May 1, 2012.

**For more information, including nomination and application forms, please visit [www.nsf.gov/pa](http://www.nsf.gov/pa) or [www.sdctm.org](http://www.sdctm.org) and click on the awards link.**

Diana McCann  
SD Math Coordinator PAEMST  
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## Share the Classroom Treasures

“Sharing” the treasures has been quite popular at the SDCTM/SDSTA Conference. As you sort through your treasures and organize your life....don't forget about the conference. Start a “save it for the conference” box and plan to bring all your “extras” to the *Share the Classroom Treasures*.

*PLEASE - No Textbooks or broken/non-working equipment. Although it may feel like yours, make sure it is. If it's marked "School Property", please leave it in school.*

*Nominate an outstanding secondary teacher for the 2012 PAEMST.*



*“Challenge students to find and circle the various shapes in the world.”*

## K-5 Corner

### Enjoying the Lazy Days of Summer

As you are spending time with your family this summer, consider acquiring some materials to add to your math classes. When you are traveling, gather some brochures about tourist attractions. These are great for reading class, where you can summarize each attraction or use the paragraphs to find main idea and details. You can have a center or an assignment where students use these brochures to plan a family vacation. What would it cost for a family of four to visit Mount Rushmore? What is the National park pass cost? If you actually go there, you could take a digital camera shot of the menu board at the Rushmore Ice Cream Shop. When you are planning your trip could your family get ice cream cones or malts there? Invite students to make word problems for classmates to solve based on a trip to the Black Hills. Throw the brochures and information into a file folder and let them choose their vacation destination.

If you are out with your digital camera, be on the lookout for unique items that portray basic shapes, such as squares, pentagons, etc. Take digital pictures. Place them into a binder with plastic protection sheets on each page. Provide a Visa-Vis washable marker with each binder. Challenge students to find and circle the various shapes in the world. Thinking fountain website has a place for you to submit your photos of the various shapes and has a shape picture gallery you can use with your classroom. <http://www.thinkingfountain.org/s/shapewalk/shapewalk.html> is part of a wonderful website from the Minnesota Science Museum. If you have access to several cameras or help from your high school computer helpers, you could actually take your students outside in small groups with digital cameras and an older helper to create their own photos of shapes in the world to add to the binder.

Summer is also a good time to catch up on some professional reading. Searching for answers to help with students from this last year, may provide some answers for an up-coming student. So, rest, recharge, and work on developing that terrific new idea to enhance your classroom next year.

Brenda Danielson  
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# If the IRS had discovered the quadratic formula ...

Daniel J. Velleman, Dept. of Mathematics and Computer Science, Amherst College

## Who Can Use Form QF?

You can use Form QF if all of the following apply.

- You need to solve an equation of the form  $Ax^2 + Bx + C = 0$ .
- $A$  is not equal to zero.

## Form QF

1 Enter $A$ here. If line 1 is zero, stop. You cannot use Form QF...	1	
2 Enter $B$ here .....	2	
3 Enter $C$ here.....	3	
4a Do you have evidence to support your values of $A$ , $B$ , and $C$ ?.....	<input type="checkbox"/> Yes	<input type="checkbox"/> No
b If "Yes," is the evidence written? .....	<input type="checkbox"/> Yes	<input type="checkbox"/> No
5 Multiply line 1 by 2.....	5	
6 Divide line 2 by line 5.....	6	
7 Multiply line 6 by $-1$ .....	7	
8 Multiply line 3 by line 5.....	8	
9 Amount from line 2.....	9	
10 Multiply line 2 by line 9.....	10	
11 Multiply line 8 by 2.....	11	
12 Subtract line 11 from line 10. If line 11 is more than line 10, leave blank and fill out Negative Discriminant Worksheet.....	12	
13 If amount on line 12 is zero, enter amount from line 7 on line 15, write "Dbl Rt" in space to left of line 15, and leave line 16 blank. Otherwise, take square root of amount on line 12. Check if square root is from: <b>a</b> <input type="checkbox"/> Square root tables <b>b</b> <input type="checkbox"/> Calculator.....	13	
14 Divide line 13 by line 5.....	14	
15 Root 1: Add lines 7 and 14.....	15	
16 Root 2: Subtract line 14 from line 7.....	16	

## Negative Discriminant Worksheet

1 Amount from Form QF line 5.....	1	
2 Amount from Form QF line 7.....	2	
3 Amount from Form QF line 11.....	3	
4 Amount from Form QF line 10.....	4	
5 Subtract line 4 from line 3.....	5	
6 Take square root of line 5. Check if square root is from: <b>a</b> <input type="checkbox"/> Square root tables <b>b</b> <input type="checkbox"/> Calculator.....	6	
7 Divide line 6 by line 1.....	7	
8 Write amount from line 2, a plus sign, amount from line 7, and the letter " $i$ ". Enter here and on Form QF line 15.....	8	
9 Write amount from line 2, a minus sign, amount from line 7, and the letter " $i$ ". Enter here and on Form QF line 16.....	9	

## **BING!** (Quadratic Equations Bingo)

Students fill out the spaces on their BING card using integers from -8 to 8.

(Having students randomly select where to place the numbers ensures that cards will not be all alike.)

Students solve the given quadratic equation using the method of their choice. (next page)

Solutions must be in writing before students can mark their BING card.

Students mark their cards by writing the equation onto the card (in the space containing the solution.)

A student may cover only one solution from a given equation.

Example:  $x^2 + 3x + 2 = 0$

Solutions are  $x = -1$  and  $x = -2$ . The student may cover either -1 or -2 but not both on the same turn.

A student gets a BING by covering any row, column, or 4 corners.

<b>B</b>	<b>I</b>	<b>N</b>	<b>G</b>

Print equations on transparency  
(for overhead projector) or write on board.

$$X^2 + 3x + 2 = 0$$

$$X^2 + 9x + 20 = 0$$

$$X^2 + 9x + 18 = 0$$

$$X^2 + 9x + 8 = 0$$

$$X^2 + x - 2 = 0$$

$$X^2 + 5x - 14 = 0$$

$$X^2 + 14x + 48 = 0$$

$$X^2 + 9x = 0$$

$$X^2 - 3x + 2 = 0$$

$$X^2 - x - 12 = 0$$

$$X^2 - 8x + 15 = 0$$

$$X^2 - 14x + 48 = 0$$

$$X^2 - 49 = 0$$

$$X^2 - 2x - 24 = 0$$

$$X^2 - 25 = 0$$

$$X^2 - 10x + 21 = 0$$

$$X^2 - 12x + 32 = 0$$



Print a copy of this form. Mail with check payable to SDCTM to:

**Diana McCann**  
**31133 Bon Homme Road**  
**Tabor, SD 57063**

Name \_\_\_\_\_

School Name \_\_\_\_\_

Subjects or Grades Taught \_\_\_\_\_

Addresses

Home \_\_\_\_\_

\_\_\_\_\_

School \_\_\_\_\_

\_\_\_\_\_

Mailing Address: \_\_\_\_\_ Home \_\_\_\_\_ School

Home Phone \_\_\_\_\_

School Phone \_\_\_\_\_

Fax Number \_\_\_\_\_

E-mail \_\_\_\_\_

Membership categories (Check only one)

- \_\_\_\_\_ Elementary School \$5.00
- \_\_\_\_\_ Middle School / Junior High \$20.00
- \_\_\_\_\_ High School \$20.00
- \_\_\_\_\_ Post Secondary \$20.00
- \_\_\_\_\_ Retired \$5.00
- \_\_\_\_\_ Student \$5.00
- \_\_\_\_\_ Other \$20.00



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