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(T a l k i n g L e a f)

South Dakota Council Teachers of Mathematics Newsletter

Presidential Ponderings

Welcome to summer! With all the snow we went into June – seemed like it would never end! What did you think of the first round of the Smarter Balanced testing? I wonder what the scores would look like if we got them. Eek! I had some students who worked very hard and some who finished pretty darn quickly. Perhaps they were more mathematically adept than I realized. My favorite line was the student who told me he just felt like the answer should be 75%. I didn't have the heart to tell him he was wrong but I did say that generally in math we went with something other than just a feeling.

I assume many of you have signed up for the SLO training offered either by the Dept of Ed or SDEA. If you haven't yet there are sessions all over the state and most of them still have openings. There are also some other pretty good looking courses offered by the Dept of Ed that you might want to check out. They won't be paid, like the SLO training is, but they generally have reduced tuition rates for those who wish college credit. Stanford Online is again offering their course How to Learn Math. I took part of it last summer (I just got too busy to finish) and it was pretty interesting. Last year it was free, this year it will cost you \$125. If you are interest visit <https://class.stanford.edu/courses/Education/XEDUC115N/Summer2014/about>

Just a reminder, we are looking for presenters for the Math/Science Conference in Feb. The forms are on the website. You all have something you could bring to the conference and share with the rest of us and I encourage you to consider presenting. In addition, let other teachers in your schools know about this and encourage them to present. There is so much good going on in our classrooms and we need to share that with each other. Particularly with the Common Core standards, many of us are actively looking for lesson to supplement the current materials and classroom proved lessons are really appreciated. So please, take the time to fill out a presenter form and bring a friend with you.

On the topic of classroom materials, what are the rest of you using? My district will adopt this year and we are looking at all kinds of texts. Do you have something you love? Can you tell what is good and what is bad about it? Would you recommend it for other districts? Why? Why not? I know that I like to hear what the book reps say about materials but I am more interested in what people actually using the materials with their students have to say.

Finally, here are some articles I have run across in my reading the last few weeks.
<http://www.edweek.org/ew/articles/2014/06/11/36vergara.h33.html?cmp=ENL-EU-NEWS1>

http://blogs.edweek.org/edweek/curriculum/2014/06/reducing_math_anxiety_how_can.html?cmp=ENL-EU-NEWS3

http://blogs.edweek.org/edweek/inside-school-research/2014/06/nclb_teacher_perceptions.html?cmp=ENL-EU-NEWS2

Enjoy your summer. Rest, rejuvenate and use some of your time to get that presentation ready for the conference!

Ellie


Ellie Cooch
SDCTM President



SUMMER 2014

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Calendar Notes:

- PAEMST Applications Due May 1, 2015
- SDCTM/SDSTA Conference February 5 - 7, 2015



Higher Ed Viewpoint

At this time of year we are all sitting back and reflecting on the fact that we survived another school year. Congratulations to all of us! As we now find time during the next three months to rejuvenate and reflect on changes we wish to make for next year I thought that I would give you a final update on two initiatives between the BOR and the DOE, the Dual Credit and Remediation initiatives.

Dual Credit – Reduced Tuition Program

Efforts have continued to progress in the expansion of dual credit opportunities in South Dakota through the reduced tuition High School Dual Credit Program. Courses will be offered to high school juniors and seniors who meet the program acceptance criteria, and whose schools have signed an MOU with DOE. These courses will be offered in person, online, or at the centers.

A System working group has coordinated this project over the past several months. Information regarding these courses can be found on the SDMyLife website, operated by DOE. Students and School Faculty are able to access course lists for each campus, as well as the common System application. The enrollment process for the Fall Semester opened in early April, and MOU's have been received by 157 high schools, indicating a very high level of interest. To date, just over 100 students are enrolled in the reduced tuition dual credit courses within the System.

Remediation – College Algebra Readiness Course

For the past two years DOE has been offering remedial coursework through the South Dakota Virtual High School with limited participation from students around the state (just under 100 this past academic year). In an effort to expand this opportunity, they are working with school districts to offer a College Algebra Readiness Course that was designed in conjunction with math faculty from our system for implemented during the upcoming academic year. This course, which is offered through MyFoundations Lab, is designed to replicate remedial courses offered on our campuses and offered as the fourth year math course for interested students. Students will complete a series of modules they are assigned based on a diagnostic test taken at the start of the course. After completing the modules, students will take the Accuplacer exam, with a successful outcome being to attain the System's benchmark score for placement into College Algebra. This course will be taught by high school teachers at participating schools, and will be offered to students at no cost.

Districts can offer the course as a replacement to an existing math course such as consumer math or business math, as an independent study supervised by a qualified math teacher, or by adding the course to their existing math offerings. The goal is for students to receive the remediation they need while still in high school, which will save them time and money when they arrive on our campuses. Promotional materials and a MOU have been sent to school districts. So far, twelve schools have signed up to participate in the first year of this program. If these schools see success with this course, it is our hope that more schools will participate in the coming years.

Now get out there and enjoy some summer. If you have any questions, please feel free to inquire. Best wishes on a safe and enjoyable summer.

Regards,

Dan Van Peurseem
Higher Ed Liaison for SDCTM
Associate Professor and Dept. Chair
The University of South Dakota
Department of Mathematical Sciences
Dan.VanPeurseem@usd.edu



"...money will motivate students so they should know that it can be used as an alternative to the ACT for placement in their math courses."



Higher Ed Viewpoint *continued*

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Share the Wealth

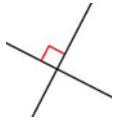
I like to include activities in each newsletter. My goal is to include activities/lesson ideas for each grade level. I know that we have some of the world's best math teachers teaching in the state...and some of the most generous. However, I've come to realize that we are also some of the most modest. You never think what you are doing is "good enough" to include in the newsletter. Let me assure you that it is! If it works for your students, I know that at least one other teacher would find it helpful as well. I challenge you each to submit at least one activity...no matter how small or how large. You can include pictures of your students (and you if you'd like). Past submissions have sometimes included a student worksheet, others have not. It can be as simple or as complex as you are comfortable with. Sometimes, a simple idea (with or without handouts, pictures etc). can be like a gold mine to the teacher that is looking for just the right thing.

Send submissions to: smcquade2@sfcss.org



"Sometimes a simple idea can be like a gold mine ..."





Kroon's Corner

Interesting images are all around us. It can be fun to find the hidden (or maybe not-so-hidden) mathematics in our world! Consider the following photographs which were taken in a Huron restaurant. What is your best lesson idea using these photos?

Please submit your responses to cindy.kroon@k12.sd.us. Your submission can be as brief or as elaborate as you choose. The next newsletter issue will feature your ideas and lesson suggestions.



Photo credit: Cindy Kroon 2/9/14



Also planned for the next newsletter: new picture(s) for your consideration. Members are encouraged to submit their own mathematical photos. Please send your pictures to cindy.kroon@k12.sd.us.





Name(s) _____

I. Required Elements 40 pts (2 pts. Each)

You may use any medium to illustrate each required element. You may show AT MOST two elements on any given piece of your mobile. Clearly label each element.

- Diagonal of a polygon
- Interior angles sum theorem
- Exterior angles sum theorem
- Parallelogram
- Rectangle
- Rhombus
- Square
- Isosceles Trapezoid (label base angles & legs)
- Regular hexagon
- Kite
- Octagon that is not regular
- Concave decagon
- Quadrilateral that is not a parallelogram, kite, or trapezoid
- Midsegment of a trapezoid
- parallelogram diagonals bisect each other
- rectangle diagonals are congruent
- rhombus diagonals are perpendicular
- Explain & demonstrate why a square is both a rhombus and a rectangle
- Illustrate two other properties or theorems from Ch. 6

PRESENTATION (10 pts.)

- Design (must use at least two levels)
- Neatness, balance, creativity
- Use of interesting materials
- Each element is clearly labeled

II. TECHNOLOGY/COMMUNICATIONS (10 pts.)

- Use a digital camera to take a picture of your project. Import the picture into a Word document. Re-size the picture to approximately 2x3 inches. Add a creative title above the picture.
- Write a brief description of your mobile. Include an explanation of how your mobile meets each of the requirements above. Also discuss the following:
 - Compare your mobile with your original design and ideas.
 - If you were to make another mobile, what would you do differently?
 - What tips would you give to someone who wants to build a mobile?
 - What do you like best about your mobile?
 - How can this project be improved?
- Turn in the integrated Word document (hard copy) with picture, title, and written discussion.

Mobile Due Date: _____

Written Due Date: _____



Geometric Thermodynamic Properties: An Analysis of Triangles and Circles

Herschel Knapp, PhD, hknapp@ucla.edu

For more than a decade, we have known that triangles have 180° whereas circles have 360° , hence, circles are twice as hot as triangles.



The physics underlying this geometric thermal difference is fairly straightforward: The molecules within the triangle rebound between each angle and their opposite side. Molecules repeatedly colliding in the center of the triangle

creates friction, thereby raising the temperature of the figure. Triangles drawn with dotted lines run considerably cooler, as the dotted line serves to vent heat, whereas solid lines retain such heat and trigonometric pressure.



Conversely, circles have no angles, and spheres have even fewer. Round objects have more sides than one can hope to account for ($10/6\pi \pm \infty^{-1}$) causing a roundabout molecular action from one side back to

the opposite side, but since there is no opposite side of the circle, the molecules are forced to spiral around like a circle in a circle, or like a wheel within a wheel, never ending or beginning on an ever-spinning reel, thus radiating more heat.

A circle is a 2D shape, defined as all the points a given distance from a central point within a plane. Spheres are 3D; the addition of the extra D can be seen in celestial objects such as the Sun or tennis balls that are set on fire. The temperature of the Sun has been measured at 1THU (Terribly Hot Unit) which is roughly equivalent to $1.57 \times 10^7 \times \delta$ Kelvin, wherein δ is an obscenely large number, and when calculated, is an even root of 360 (for proof,

please consult a math major who has a calculator with at least 42 buttons on it).

In a practical sense, we see that circles are conducive to heat conduction, which is why heating ducts, coffee cups, exhaust pipes, water heaters, pie tins, pots, pans, and the nozzles of hair dryers are consistently circular.

This is not to say that triangles are lesser than circles in terms of their thermal properties. The fire triangle, consisting of fuel, oxygen, and heat is particularly useful in helping to keep fire at a reasonable temperature (under 180°). Additionally, the thermal limiting characteristics of triangles are optimal for dispersing heat that would otherwise incinerate Jack O'Lanterns.

Despite the superior tonal qualities of circles, percussionists opt to use triangles, as they run cooler. While acoustical experts agree that circles consistently generate a richer tone than triangles, safety is a critical issue, citing multiple orchestral adversities involving singed sheet music, and atonal radiation. Additionally, circles have been known to burn through their suspension strings and roll off, causing tragic orchestral conflagrations, as was the case for the Burbank Philharmonic Orchestra, wherein both musicians spontaneously combusted during their only performance of *The Firebird*, by Stravinsky.

Dr. Håns N. Pontz, Chief Scientist at the Institute of Interesting Investigations (I³) has recently been awarded a \$2,600,000 grant from the Department of Untenable Heuristics (DUH) to study the thermodynamic properties of theoretical polygons. The team's ultimate goal is to discover a shape capable of breaking the 360° barrier. The twofold problem involves creating and then containing such a shape, which could result in a virtually inexhaustible supply of geometric heat, ultimately making lukewarm fusion a reality.



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

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We now offer the option to use PayPal to pay your dues for a minimal processing fee of \$1.00. The processing fee will cover the processing fees incurred by SDCTM and fees charged for having checks cut by PayPal.

Instructions can be found online at:



SDCTM Newsletter
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