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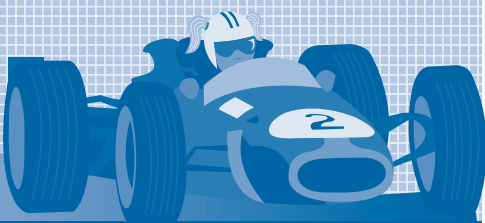
Allendale Campus

Mackinac Hall

Grand Valley State University

Strategies for Student Success  
A conference for PreK-College Mathematics Educators  
Saturday, February 27, 2016, 8 AM - 3:30 PM

# Math In Action



## REGISTRATION INFORMATION

**NEW! Online Registration Only**

[www.gvsu.edu/mathinaction](http://www.gvsu.edu/mathinaction)

**Cost:**

\$40.00 per teacher, \$20.00 per undergraduate student

**Late and onsite registration:**

\$45.00 per teacher, \$25.00 per undergraduate student

**Registration and Refund Deadline:**

February 16, 2016

## KEYNOTE SPEAKERS



Eugenia Cheng

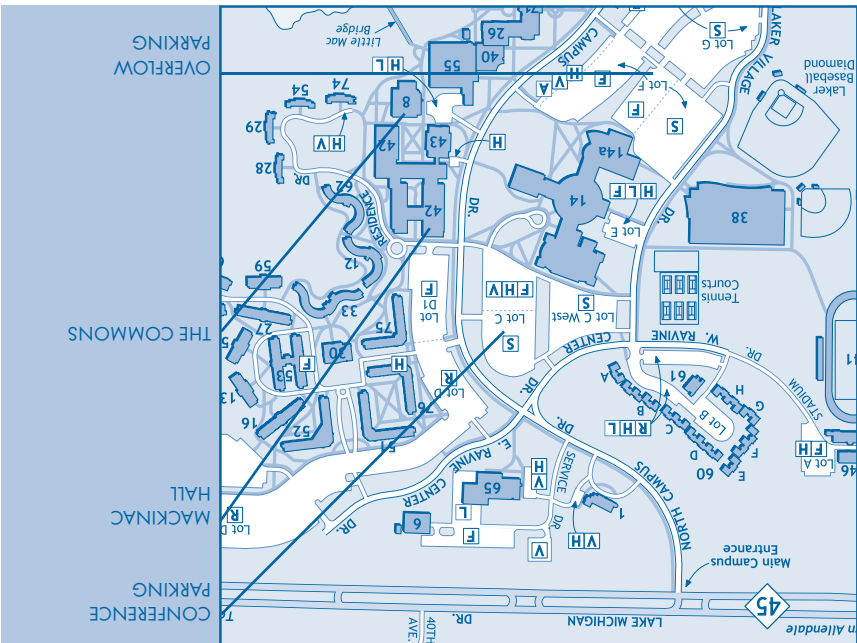
Eugenia Cheng is the Scientist in Residence at the School of the Art Institute of Chicago and a Senior Lecturer (Associate Professor) of Pure Mathematics in the School of Mathematics and Statistics at the University of Sheffield, UK. Her book, *How to Bake Pi: An Edible Exploration of the Mathematics of Mathematics*, has recently been highlighted on the *Late Show with Stephen Colbert*.



Christopher Danielson

Christopher Danielson is on the Teaching Faculty at Desmos. With more than 20 years of teaching experience, he has taught middle school and college mathematics—most recently at Normandale Community College in Minnesota. He is the author of *Common Core Math For Parents For Dummies* and *Which One Doesn't Belong*. He blogs at *Overthinking My Teaching* and *Talking Math with Your Kids*.

## MAP



## DIRECTIONS

**FROM DETROIT/LANSING:**  
I-96 West to I-196 West (Gerald R. Ford Freeway) through downtown Grand Rapids. Exit Lake Michigan Drive/M-45 (Exit 75). Take M-45 approximately 12 miles to Grand Valley's entrance and turn left (south). Approximately 160 miles from Detroit and 75 miles from Lansing.

**FROM HOLLAND:**  
US-31 North to M-45 (Lake Michigan Drive). Turn right (east) on M-45 and go approximately 12 miles to Grand Valley's entrance and turn right (south). Approximately 25 miles from Holland.

**FROM KALAMAZOO:**  
US-131 North to I-196 West (Gerald R. Ford Freeway). Exit Lake Michigan Drive/M-45 (Exit 75). Take M-45 approximately 12 miles to Grand Valley's entrance and turn left (south). Approximately 65 miles from Kalamazoo.

**FROM MUSKEGON:**  
I-96 East to Coopersville (Exit 16). Turn left on 68th Avenue and go approximately 6 miles. Turn left (east) on M-45 (Lake Michigan Drive). Go approximately 3 miles to Grand Valley's entrance and turn right (south). Approximately 45 miles from Muskegon.

**FROM NORTHERN MICHIGAN:**  
US-131 South to Grand Rapids. Take I-196 West to Lake Michigan Drive/M-45 (Exit 75). Take M-45 approximately 12 miles to Grand Valley's entrance and turn left (south). Approximately 160 miles from Traverse City.

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Forest Stewardship Council

## CONFERENCE SCHEDULE

8:30 AM - 8:40 AM	Session A	Registration and Refreshments
8:40 AM - 9:50 AM	Session B	SCCH REGISTRATION
9:50 AM - 11:00 PM	Session C or Brunch	Registration and Refreshments
12:10 PM - 1:10 PM	Session D or Lunch	ELEMENTARY KEYNOTE
1:20 PM - 2:20 PM	Session E or Lunch	SECONDARY KEYNOTE
2:30 PM - 3:30 P.M.	Session F	GENERAL KEYNOTE

## GENERAL KEYNOTE



desmos



Some exhibits will be available with items for sale, cash or check only.

December 4, 2015

Dear Colleague,

You are cordially invited to participate in this year's *Math in Action* conference. *Math in Action* is hosted by Grand Valley State University (GVSU) on the Allendale Campus on Saturday, February 27, 2016.

*Math in Action* sessions address a broad spectrum of practical use-in-your-classroom-tomorrow activities, designed to be hands and minds on! There are six hour-long sessions with several presentations from which to choose during each session. Common Core State Standards and the Mathematical Practices will be highlighted in several sessions. Several technology sessions are also offered so bring your iPad and smart phone!

Special this year are three keynote sessions. The Elementary (Session C, 11:00 am - 12:00 pm) and Secondary Keynotes (Session E, 1:20 - 2:20 pm) will be presented by Daniel Christopherson who is on the Teaching Faculty at Desmos (on leave from Normandale Community College in Minnesota) and author of *Common Core for Parents for Dummies* and *Which One Doesn't Belong?* The General Keynote (Session F, 2:30 - 3:30 pm) will be presented by Eugenia Cheng, the author of *How to Bake Pi: An Edible Exploration of the Mathematics of Mathematics*. Her book has been reviewed by the New York Times; she has also appeared on the *Late Show with Stephen Colbert*. Plan to see math in a new light and to be entertained!

Morning beverages near the registration table and brunch or lunch in the GVSU Commons are included in the conference registration fee. To avoid congestion, three meal periods are scheduled. Brunch is available during Session C (from 11:00 am - 12:00 pm). Lunch is available during Session D (from 12:10 - 1:10 pm) and Session E (1:20 - 2:20 pm). Food and beverage choices in the GVSU Commons are very diverse and accommodate most special diets. Come hungry!

Please share this brochure with colleagues. Brochures may also be downloaded from <http://www.gvsu.edu/mathinaction>. **The deadline for registration is February 16, 2016;** please don't delay!

Looking forward to you joining us! For comments or questions, contact us at [mathinaction@gvsu.edu](mailto:mathinaction@gvsu.edu).

Sincerely,

### Math in Action Steering Committee Members

Charlene Beckmann & Firas Hindeleh, GVSU co-chairs  
Jan Kuzee, GVSU Site Director  
Rusty Anderson, Kent ISD  
David Clark, GVSU  
Hope Gerson, GVSU  
John Golden, GVSU  
Lynn Helene, Ionia ISD  
Jan Koop, Calvin College  
Tara Maynard, Zeeland Creekside Middle School  
Karen Meyers, Regional Math & Science Center  
Jillayne Prince-Wallaker, Holland Public Schools  
Mary Richardson, GVSU  
Jan Roy, Montcalm Community College  
Mary Ann Watters, Regional Math & Science Center



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Allendale, MI 49401-9403

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MATH IN ACTION 2016 PROGRAM		
SESSION A: 8:40 – 9:40 AM		
<b>A1 Early Childhood &amp; Math</b> <i>Heather Lashuay &amp; Amy Kerkstra, Kent Intermediate School District</i> Join us for some math madness! Learn how to use objectives to plan quality math activities and how to enrich your classroom environment to enhance mathematical learning. Grades PreK – K		
<b>A2 Kid’s Math Talk - Starting Standards Based Interactive Notebooks</b> <i>Desiree Harrison, Kid’s Math Talk, LLC.</i> Come to this session to learn how to start the journey of interactive math notebooks for elementary students! Leave with samples that you can start using Monday! Grades 2 – 4		
<b>A3 Viewing Fractions to Develop Strategies for Operating on Fractions Flexibly</b> <i>Nancy Mack, Grand Valley State University</i> Explore ways to help students view fractions as quantities, iterations of unit fractions, and in other equivalent ways, and explore how this helps students develop strategies for adding and subtracting fractions. Grades 2 – 5		
<b>A4 Making M-Step Understandable and Meaningful</b> <i>Ruth Anne Hodges, Megan Schrauben, &amp; Jill Griffin</i> <i>Michigan Department of Education</i> The M-Step reports hold opportunities to have meaningful data discussions to move instruction forward. We’ll explore ways to foster changes for students and parents about the goals of mathematics. Grades 3 – 6		
<b>A5 Opportunities to Learn about Algebraic Connections</b> <i>Hyunyi Jung, Calvin College</i> <i>Eryn Stehr, Michigan State University</i> Participants will engage in and discuss unique activities that helped secondary teachers learn to teach algebraic connections. These activities were reported by pre-service teachers and instructors from five different universities. Grades 7 – 10		
<b>A6 Desmos 101: Online Graphing Calculator For All Devices</b> <i>Kevin Lawrence, Michigan State University</i> An introduction to desmos.com, an online graphing calculator for laptops, tablets, and smartphones. Focus is on creating dynamic representations (symbolic, tables, and graphs) for the algebra classroom. Bring a device! Grades 7 – 10		
<b>A7 Factoring Quadratics without Factoring</b> <i>Ruth Meyering, Grand Valley State University</i> This graphing approach to factoring is more visual and more conceptual. The objective is to visually make sense of the algebra rules for factoring a quadratic. Foil FOIL! Grades 9 – 12		
<b>A8 Create Your Own Math Apps</b> <i>Daniel Adrian, Grand Valley State University</i> I will demonstrate how to create your own math “apps”, interactive webpages that allow students to explore mathematics concepts dynamically. Grades 9 – 12		
SESSION B: 9:50 – 10:50 AM		
<b>B1 Leading Pre-K Math in Action</b> <i>Amy Kerkstra, Melissa Buurstra, &amp; Heather Lashuay</i> <i>Kent Intermediate School District</i> Preschool hands on learning through activities, games, and strategies in the areas of Number Concepts and Operations, Spatial Relationships and Shapes, Comparing and Measuring, and Knowledge of Patterns. Grades PreK		
<b>B2 Compare Word Problems</b> <i>Jillayne Wallaker, Holland Public Schools</i> Learn to easily represent and solve simple and more complex compare story problems with comparison bars. Grades 1 – 3		
<b>B3 Use iPads to Construct Explanations of Math Concepts</b> <i>Carolyn Bolduc, Grand Rapids Public Schools</i> In this session, you will use iPads to construct explanations of math concepts using techniques such as app smashing and screen casting. Bring your iPad and let’s begin! Grades 2 – 4		
<b>B4 Are the Standards for Mathematical Practice on the Test?</b> <i>David Coffey, Grand Valley State University</i> <i>Andrea Pattison, Lauren Galasso, Megan Reiley, Kaileigh Wenglikowski</i> <i>Grand Valley State University Students</i> Together, we will evaluate to what extent the CCSS Standards for Mathematical Practice are evident in various standardized test items used to evaluate Michigan elementary students. Grades 3 – 6		
<b>B5 A Mindset Shift for Making Integration Meaningful in the Secondary Classroom</b> <i>Megan Schrauben, Jill Griffin, Ruth Anne Hodges</i> <i>Michigan Department of Education</i> Instruction can provide rich opportunities to engage students in meaningful work. Learn about policies and initiatives that encourage integration of content and leverage informal learning opportunities. Grades 6 – 9		
<b>B6 Desmos 201: Exploration, Homework, &amp; Projects</b> <i>Kevin Lawrence, Michigan State University</i> A continuation of Desmos 101, we will discuss strategies for using Desmos as a tool to explore algebraic concepts and create homework assignments, projects, and classroom activities. Bring a device! Grades 7 – 10		
<b>B7 Using Mathematical Magic to Enliven Algebra Instruction</b> <i>Karen Novotny, Grand Valley State University</i> I will present three different mathematical “magic” tricks that can be explained using basic algebra. Then we will work through the mathematics behind the magic. Grades 8 – 11		
<b>B8 Can You Tell CR**P from Crayolas? Evaluating Information Sources for Researched Projects</b> <i>Debbie Morrow, Grand Valley State University</i> Engage students in finding information about mathematical topics, and help them learn critical evaluation of sources. Like math, “research” takes practice and good critical thinking skills! Grades 9 – 12		
SESSION C or Brunch: 11:00 AM – Noon		
<b>C1 Elementary Keynote: Beyond Helping with Homework — Thinking Deeply about Math at Home and at School</b> <i>Christopher Danielson, Teaching Faculty at Desmos, Normandale Community College, Department of Mathematics and Statistics</i> Parents know to read aloud every day to support their children’s developing literacy, but they don’t know what to do for math. That’s probably our fault. We’ll look at current research and projects, and ask tough questions as we strive to understand how to support children’s mathematical growth in both settings. Grades PK – 5		
<b>C2 High Leverage Teaching and Learning Practices for Mathematics Classrooms (part 1 of 2)</b> <i>Danielle Seabold, Kalamazoo Regional Educational Service Agency</i> My overall goal is for you to leave here interested and excited about deeply exploring 1-2 high leverage teaching and learning practices with your colleagues back at your school or district. Grades K – 12		
<b>C3 Ours IS the Reason Why! Stop Invert and Multiply!</b> <i>Jason Gauthier, Allegan Area Educational Service Agency</i> We need to stop teaching students to invert and multiply when dividing fractions. But what to teach instead? Come discuss an alternative algorithm for division of fractions. Grades 5 – 8		
<b>C4 Implementing 3 Act Tasks</b> <i>Chelsea Ridge, Grand Valley State University</i> The power of student learning comes through effective facilitation of a three act task. Come to discuss implementation and experience a three act task on proportional reasoning. Grades 7 – 11		
<b>C5 Calories and the Alphabet</b> <i>Mary Richardson &amp; Diann Reischman, Grand Valley State University</i> Speakers will discuss activities examining the relationships between: letter frequency in English text and Scrabble game tile points, Morse Code Units, and perceived and guessed calories in fast food. Grades 8 – 10		
<b>C6 Selecting Systems of Linear Equations</b> <i>Andrew Otten, Northview High School</i> When learning how to solve systems of equations, students have to choose between multiple methods. But what happens when students also have to choose the equations making up the systems and then defend their choices? Grades 9 – 12		
<b>C7 Raising Mathematicians</b> <i>Ann Bingham, Berrien RESA</i> Participants will analyze the four standards for mathematical practice emphasized in the new SAT through the lens of the Eight Teaching Practices outlined in Principles to Action. This session requires participants to work on google docs so please set up an account prior to the conference and bring your own device. Grades 9 – 12		
SESSION D or Lunch: 12:10 – 1:10 PM		
<b>D1 Number Talks — Building Conceptual Knowledge and Computational Fluency</b> <i>Esther Billings, Grand Valley State University</i> <i>Rosalie Kaser &amp; Anne Rasch, Child Discovery Center</i> We’ll share what a number talk is, how we’ve been using it in the classroom, and how it has impacted students’ understanding and computational fluency. Student work will be shared. Grades K – 3		
<b>D2 High Leverage Teaching and Learning Practices for Mathematics Classrooms (part 2 of 2)</b> <i>Danielle Seabold, Kalamazoo Regional Educational Service Agency</i> My overall goal is for you to leave here interested and excited about deeply exploring 1-2 high leverage teaching and learning practices with your colleagues back at your school or district. Grades K – 12		
<b>D3 What Makes a Task Worthwhile?</b> <i>Debbie Schuitema, Andrea Hall, &amp; Lindsay Blume</i> <i>Godfrey-Lee Public Schools</i> Join this session to identify tasks that elicit different levels of thinking in order to meet learning goals based on the standards and standards for mathematical practice. Grades 2 – 5		
<b>D4 Modifying Textbook Problems to Encourage Mathematical Practices</b> <i>Hope Gerson, Grand Valley State University</i> I will share several techniques that you can use to turn boring textbook problems into opportunities for mathematical inquiry and purposeful practice. Examples will be from geometry and measurement. Grades 3 – 5		
<b>D5 Solve It! Problems: Building Middle School Students Ability to Apply the Standards for Mathematical Practice</b> <i>Pam Wells, Grand Valley State University</i> Participants will explore how to use problems from the Solve It! section of <i>Mathematics Teaching in the Middle School</i> to engage students in using the Standards for Mathematical Practice. Grades 5 - 8		
<b>D6 Understanding Stereotype Threat in Mathematics</b> <i>Kathy Coffey, Grand Valley State University</i> This interactive session focuses on strategies for engaging all learners for optimal learning with special consideration given to “stereotype threat” and “fixed mindset” as potential barriers to engagement in mathematics. Grades 6 – 9		
<b>D7 Making Math Instruction for the SAT Meaningful</b> <i>Jill Griffin, Michigan Department of Education</i> The redesigned SAT helps to emphasize the fundamental goals of math instruction. Learn how to leverage this assessment to design instruction that will engage and motivate students to persevere. Grades 9 – 11		
<b>D8 “What?! I Don’t Have to Find an Answer?” Using the 8 Mathematical Practices Daily</b> <i>Sarah Snyder, Northview High School</i> Incorporating the 8 Mathematical Practices on a daily basis is easier than you think. Resources, ideas, strategies, and a “Mathematical Practice” mind set will be discussed. Grades 9 – 12		
SESSION E or Lunch: 1:20 – 2:20 PM		
<b>E1 Secondary Keynote: Empowering Students with Rich Online Algebra Activities</b> <i>Christopher Danielson, Teaching Faculty at Desmos, Normandale Community College, Department of Mathematics and Statistics</i> Instead of the computer programming our students, let’s have our students use mathematics to program the computer. This session introduces online lessons being developed at Desmos—lessons whose goal is empowering students with algebra; lessons that put students’ ideas together using networked devices. Grades 6 – 12		
<b>E2 Addition and Subtraction with Manipulatives and Picture Books</b> <i>Kevin Dykema, Mattawan Middle School</i> Discover how picture books and manipulatives can be integrated to lead to success with addition and subtraction. See ways to make the concepts clearer for your students. Grades K – 2		
<b>E3 Math Exchanges and Math Workshop</b> <i>Aimee Schwartz, Holly Area Schools</i> Catch the buzz around “Math Exchanges” by Kassia Wedekind. Session will focus on how Student Talk in a workshop like format can change your math instruction forever. Grades K – 3		
<b>E4 Rethinking Math</b> <i>Dorothy VanderJagt, Kent Intermediate School District</i> <i>Teresa McDougall, Grandville Public Schools</i> Participants will be challenged to rethink mathematics instruction! Join us for ideas on assessment, student centered instruction, and professional learning that is purposeful and engaging. Grades 3 – 8		
<b>E5 Engaging the Common Core Through a Time-Honored Problem</b> <i>Michael Tanoff, Kalamazoo Area Mathematics and Science Center</i> The Tower of Hanoi, an engaging and popular puzzle from recreational mathematics, provides an embodiment for subtly blending exposure to at least four of the Common Core State Standards. Grades 4 – 10		
<b>E6 Promoting Collaboration During Problem Solving: Coaching Principles in Action</b> <i>Jon Hasenbank, Grand Valley State University</i> <i>Jamie Stuart, Grandville Middle School</i> <i>Molly Carter, Grand Valley State University Student</i> Learn how you can use principles from cognitive coaching to help middle school students become more self-directed, mindful, and collaborative problem solvers. Includes tasks from algebra and pre-algebra. Grades 5 – 8		
SESSION F: 2:30 – 3:30 PM		
<b>F1 General Keynote: How To Bake Pi</b> <i>Eugenia Cheng, Scientist in Residence at the School of the Art Institute of Chicago, Senior Lecturer (Associate Professor) of Pure Mathematics, School of Mathematics and Statistics, University of Sheffield, UK</i>  I will present mathematics as a way of thinking, and not just about numbers. I will use a variety of unexpectedly connected examples including music, juggling, and baking, as in the title of my recent book. My aim is to show that math can be made fun and intriguing for students of all ages, by means of hands-on activities, examples that everyone can relate to, and funny stories. Grades 4 – 12		
<b>F2 Making Michigan Math Standards Developmentally Appropriate</b> <i>Ruth Anne Hodges, Michigan Deaprtment of Education</i> Explore the connections between the Early Childhood Standards and the K-2 mathematics standards, looking through the lens of learning trajectories. Grades K – 2		
<b>F3 Michigan Statistics Poster Competition (MSPC)</b> <i>Daniel Frobish &amp; Daniel Adrian, Grand Valley State University</i> The MSPC for grades K-12 is a great way to incorporate a unit on statistics into your curriculum. The chair of the competition will be present to answer questions. Grades K – 12		
<b>F4 Using Number Talks to Build Computation Strategies</b> <i>Rusty Anderson, Kent Intermediate School District</i> Classroom number talks, 5 to 15 minute conversations around purposefully crafted computation problems, are a tool that can be incorporated into classroom instruction to build mental math and computation strategies. Grades 2 – 5		
<b>F5 Creative Ways to Practice Content</b> <i>Tara Maynard, Zeeland Public Schools</i> Creative ideas to help students practice content, understand vocabulary, draw diagrams, match solutions, and complete content reviews. Increase student engagement, peer-to-peer communication (written & verbal), and individual practice. We’ll look at activities that both do and do not require technology. Grades 5 – 12		
<b>F6 On-line and Off-line Investigations with Area and Circumference of a Circle</b> <i>Jane-Jane Lo, Western Michigan University</i> Many students have difficulty with the concepts and formulas for the area and circumference of a circle. Come explore a hands-on and a GeoGebra-based activity for these challenging topics. Grades 6 – 9		