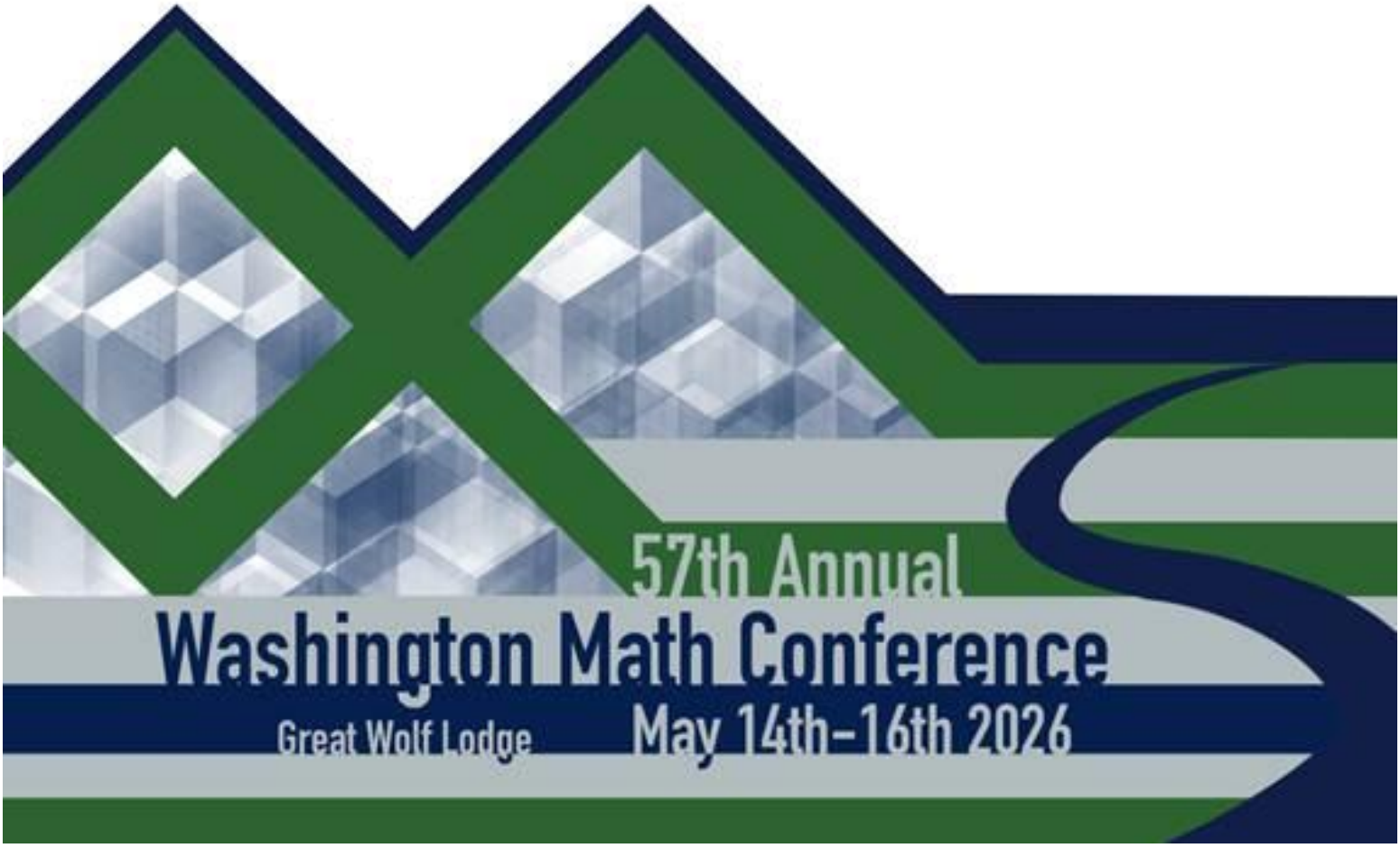

57th Annual
Washington Math Conference
Great Wolf Lodge
May 14th–16th 2026

Welcome!

Welcome!

Welcome to the 57th Annual Washington Math Conference! We are delighted to have you join us for this special gathering of educators, learners, and mathematics enthusiasts from across the region. This conference is a time to connect, collaborate, and be inspired as we explore new ideas, share best practices, and deepen our collective passion for teaching and learning mathematics.

We hope you enjoy your stay at Great Wolf Lodge and take full advantage of the many engaging and thoughtfully prepared sessions offered throughout the conference. Whether you are here to discover new strategies, exchange ideas with colleagues, or simply recharge your enthusiasm for the classroom, we trust this experience will be both meaningful and rewarding.

Thank you for being part of this long-standing tradition of excellence in mathematics education. We are honored to host you and wish you a memorable and enriching conference.

— Big Bend Community College

Conference Schedule

Date	Time	Event	Location
Thursday, May 14th	4:00–7:00 p.m.	Check-in	Conference Lobby
	7:00–8:30 p.m.	Opening Session	Chehalis Grand Ballroom
Friday, May 15th	7:30–8:45 a.m.	Check-in	Conference Lobby
	7:30–8:45 a.m.	Breakfast buffet	Chehalis Grand Ballroom
	8:50–9:40 a.m.	Session I	Breakout Rooms
	9:40–10:05 a.m.	Snacks	Conference Lobby
	9:55–10:45 a.m.	Session II	Breakout Rooms
	11:00–11:50 a.m.	Session III	Breakout Rooms
	12:00–1:15 p.m.	Lunch	Chehalis Grand Ballroom
	1:30–2:20 p.m.	Session IV	Breakout Rooms
	2:35–3:25 p.m.	Session V	Breakout Rooms
	3:25–3:50 p.m.	Snacks	Conference Lobby
	3:30–5:30 p.m.	Break	
	5:30–6:30 p.m.	Dinner buffet	Chehalis Grand Ballroom
	6:30–7:45 p.m.	Keynote address	Chehalis Grand Ballroom
Saturday, May 16th	7:30–8:30 a.m.	Breakfast buffet	Chehalis Grand Ballroom
	8:00–8:30 a.m.	WAMATYC General Meeting	Chehalis Grand Ballroom
	8:45–9:35 a.m.	Session VI	Breakout Rooms
	9:50–10:40 a.m.	Session VII	Breakout Rooms
	10:55–11:45 am	Session VIII	Breakout Rooms
	12:00–1:00 p.m.	Turn in name badges	Conference Lobby

MAP

GREAT WOLF LODGE
Washington

GUEST SERVICES

1 **Front Desk and Guest Services**

ATTRACTIONS

2 **The Great Geyser Water Park**
Pools, slides and water activities for every age

3 **Northern Lights Arcade**
The newest games, plus prizes

4 **Northern Lights Prize Shop**
Arcade prizes and treats

5 **Howlers Peak Ropes Course (Seasonal)**
An elevated obstacle course on ropes

6 **MagiQuest**
An interactive adventure game

7 **Oliver's Mining**
A sand-sifting hunt for gemstones

DINING

8 **The Watering Hole**
Soft drinks, cocktails, and ice-cold beer

9 **Hungry as a Wolf**
Pizza, pasta, and other Italian favorites

10 **Fatburger, Hot Dog On A Stick, and Buffalo's Express**
Burgers, shakes, hot dogs on a stick, and wings

11 **Pretzelmaker**
Fresh-baked pretzel bites, refreshing drinks, and more

12 **Woods End Creamery**
Ice cream treats for the whole pack

13 **Fireside**
Outdoors-themed dining with signature fire-cooked meals

14 **Timbers Table & Kitchen**
Breakfast buffet followed by Italian throughout the day, seasonal beverages

15 **Starbucks**
Coffee, pastries, and breakfast sandwiches

16 **Freshwoods**
Grab and go meals, snacks, and beverages

17 **Refreshers Cove**
Quick, refreshing drinks and snacks

SHOPPING

18 **Build-A-Bear Workshop**
Create-your-own stuffed toys

19 **Buckhorn Exchange**
Souvenirs, gifts, and vacation essentials

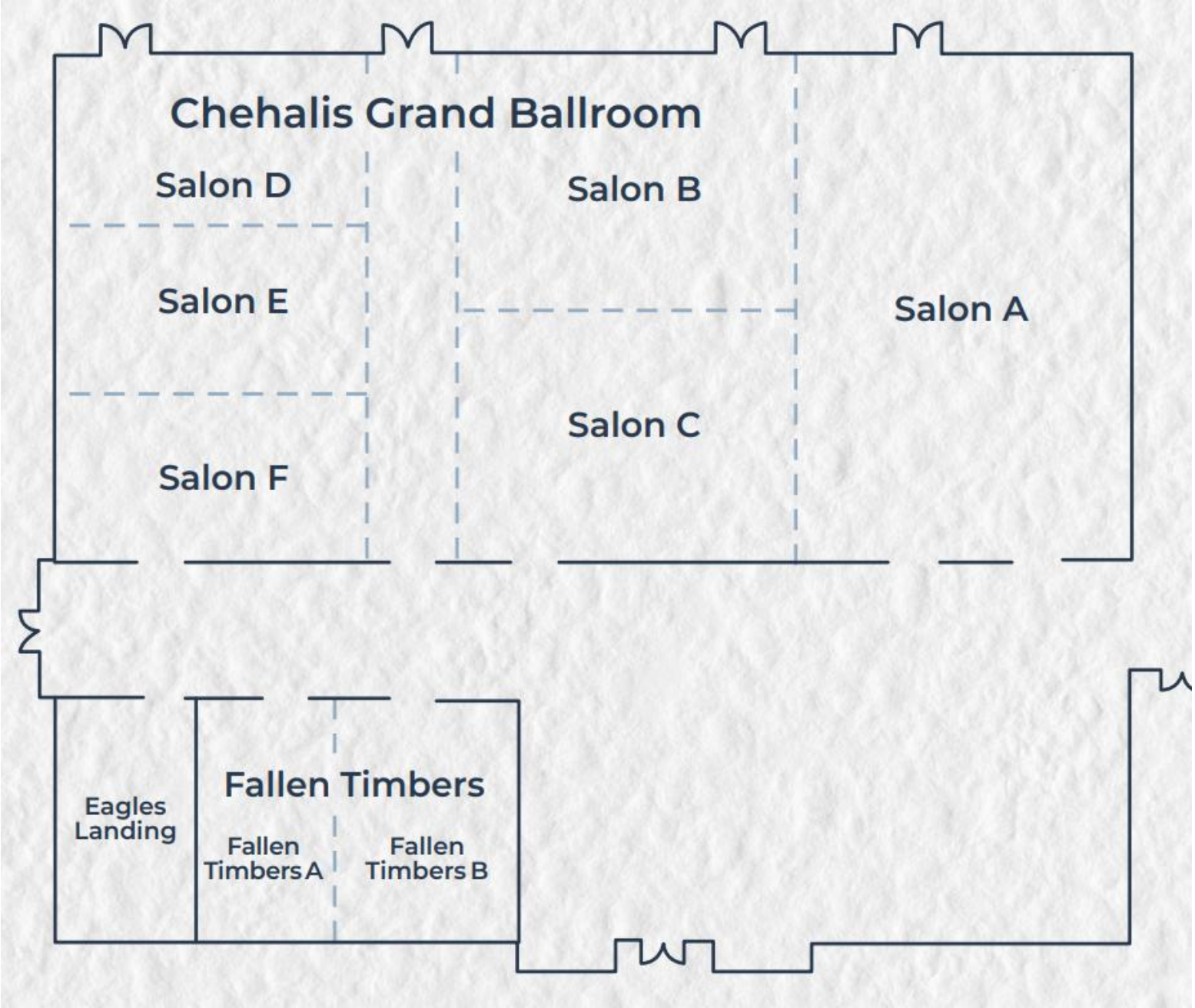
20 **Great Wolf Candy Company**
A wide assortment of candy, and other sweets

21 **Paddle Bay**
Swimwear, goggles, flip-flops, and towels

GROUPS & MEETINGS

22 **Conference Center**

Great Wolf Lodge Conference Breakout Rooms



Special Thank Yous

American Mathematical Association of Two-Year Colleges (AMATYC)

Big Bend Community College (BBCC) Business Office

Jeff Eldridge (Edmonds Community College)

Washington Mathematical Association of Two-Year Colleges (WAMATYC)

Washington State Board for Community and Technical Colleges (SBCTC)

Exhibitors

Invited Speakers

Thursday Evening Opening Session

Arthur Benjamin, Mathematician and Magician

In his entertaining and fast-paced performance, he will demonstrate and explain how to mentally add and multiply numbers faster than a calculator, how to figure out the day of the week of any date in history, and other amazing feats of mind. He has presented his mixture of math and magic to audiences all over the world.

Friday Keynote Address

Joan Melendez-Misner,
Space Engineer and Science Communicator

Joan is a Mission Integration Engineer at NASA, working on uncrewed and scientific missions. Her most recent mission, the Double Asteroid Redirection Test (DART), became the first planetary defense mission for future potential asteroids that come to Earth.
Prior to NASA, Joan worked at Blue Origin as a Mission Operations Systems Engineer working on the New Glenn rocket and launch pad systems. As well as an aerospace engineer for the Naval Air Systems Command (NAVAIR) working on Navy fighter jets and engines, with a focus on aerial refueling, biofuel research, and maintenance of aircraft.
Joan is also Science Communicator and creates STEM content on social media under the name "YourFemaleEngineer" and aims to increase representation in underrepresented communities through social media and non-profits.
Joan is from Barranquitas, Puerto Rico and grew up in Orlando, FL. She received a dual BS in Chemical Engineering and Chemistry from the University of Maryland/Towson University, and an MS in Systems Engineering from the Naval Postgraduate School. She currently resides on the Space Coast of Florida.

Friday Session Schedule

Time	Fallen Timbers A	Fallen Timbers B	Chehalis D	Chehalis E	Chehalis F
8:50 am	My Favorite (Mostly Non-Calculus) Calculus Problems **Presenter: Charles Camacho**	CUREs at Columbia Basin **Presenter: Jenny Hughes**	From ABE to College: Transforming Adult Math Education with the Bridge to College Model **Presenters: Dawn Draus, Megan Luce, Sherry McLean, Laura Wisman**	Diving Deeper into Desmos **Presenter: Lee Singleton**	How to get the brain off the couch **Presenter: Sarah Bauer**
9:55 am	Secrets of Mental Math **Presenter: Arthur Benjamin**	Let's Talk Precalculus! A Community Discussion on Math 141/142 Curriculum and Co-Requisite Models **Presenter: Natalie Hobson**	Andragogy in Action: Using Lived Experiences to Support Transition to College and the Workforce **Presenter: Dr. Sam May-Varas**	ALEKS for Calculus: Using AI and Machine Learning to Support Student Learning in Calculus **Presenter: Eric Ziegler**	Data & 101: Unpacking the Who, What, Where, When, and Why **Presenters: Helen Burn, Dawn Draus, Ken Hang**
11:00 am	Reflections: how teaching English should have influenced my pedagogy **Presenter: Jason Counihan**	Statistics - an activity sharing site **Presenter: Kate Cook**	Professional/Technical Math - What We're All Doing **Presenter: Allie Dykes**	Tiny Acts of Elegance: Writing and Formatting Mathematics **Presenter: Jeff Eldridge**	Creating Transformative Math Courses for Future Teachers **Presenters: Megan Luce and Natalie Hobson**
11:25 am	Math 109: Mathematical Models in Gaming **Presenter: Jason Counihan**	Use AI to add a theme to your Statistics course **Presenter: Kate Cook**	Beyond the Chatbot: Leveraging OpenAI and Google AI Studio to Build "MathBuddy," a Metacognitive Study Partner **Presenter: Hoewoon Kim**		
1:30 pm	From the Chain Rule to ChatGPT: The Mathematics Behind Artificial Intelligence **Presenter: John Mitchell**	High School Mathematics Examinations in East Asia **Presenter: Salah Abed**	A Space for BEdA Math sharing **Presenter: Rhea Becke**	AI Homework Assignments **Presenter: Tyler Wallace**	Conversations on Teaching Linear Algebra: Sharing Practices, Applications, and Resources **Presenter: Srividhya Venkatraman**
2:35 pm	Games You Can't Lose: The Mathematics of Scams and Hustles **Presenter: Arthur Benjamin**	Curriculum Changes at UW Seattle **Presenters: Jonah Ostroff and Rekha Thomas**		Innovations in Precalculus and Calculus MyLab **Presenter: Aaron Warnock**	Design–Collect–Analyze–Present: A Full-Cycle Statistics Project **Presenter: Natalie Hobson**

Saturday Session Schedule

Time	Fallen Timbers B	Chehalis D	Chehalis E	Chehalis F
8:45 am	Darkness is faster than light **Presenter: Dr. William T. Webber**	Math STEMposium Projects **Presenter: David Mayhugh**	STRIVE Toward Transformation: Building Risk-Tolerant, Resilient Learning Environments **Presenter: Mandie Mauldin**	Using Large Language Models as Math Tutors **Presenter: Marcelo Guerra Hahn**
9:50 am	LiveMath Lives **Presenter: Dr. William T. Webber**	Clarifying and Aligning the Calculus Transfer Pathway **Presenter: Dawn Draus**	Linear Algebra Without Fractions? **Presenter: Yves Nievergelt**	Online Education in the Age of AI **Presenter: Steve Kangas**
10:55 am		Using High School Transcripts for Placement: Early Results from the GRID **Presenter: Dawn Draus & Noah Overby**	Building Thinking Classrooms comes to College **Presenter: Dusty Wilson**	From Procrastination to Purpose: Eat That Frog in College Math Courses **Presenter: Diana Petty**

Presentation Abstracts (These have been edited for brevity)

Friday Session Schedule

Session I: Friday 8:50-9:40am

My Favorite (Mostly Non-Calculus) Calculus Problems
Presenter: Charles Camacho

Some of the most powerful problems in my calculus courses have little to do with calculus; instead, their solutions rely primarily on algebraic reasoning and geometric intuition. In this talk, I will share a collection of my favorite problems from single- and multivariable calculus that consistently stretch student understanding while building foundational problem-solving skills. I will discuss how I use the problems in class to promote discussion, collaboration and productive struggle.

CUREs at Columbia Basin
Presenter: Jenny Hughes

CUREs (Course Based Undergraduate Research Experiences) are being implemented in a variety of mathematics courses at Columbia Basin College funded by an NSF (National Science Foundation) Grant. I will share the project I have implemented in Introductory Statistics and discuss how you can implement CUREs into your course, as well as share student feedback and success.

From ABE to College: Transforming Adult Math Education with the Bridge to College Model
Presenters: Dawn Draus, Megan Luce, Sherry McLean, Laura Wisman

The Washington State BEdA Math Curriculum Project has developed an Adult Basic Education (ABE) course curriculum inspired by the successful Bridge to College Math high school course. Designed to engage adult learners, this course fosters conceptual understanding, reasoning, and flexible thinking while meeting high school graduation requirements and preparing students for credential-appropriate math pathways. Join us to learn more about the course and how to implement it at your own institution. OER materials, canvas template, and WAMAP problem sets available to share!

Diving Deeper into Desmos
Presenter: Lee Singleton

We'll look at some lesser-known features in Desmos, which can be useful for demonstrations, activities, and projects. Activities and Projects focus on Precalculus level, with some demonstrations from Calculus level classes.

How to get the brain off the couch
Presenter: Sarah Bauer

The brain is a lazy, sullen teenager that would rather spend its time on the couch, saving energy for its primary functions: reminding us of that thing we did in middle school and keeping us alive. Learning requires us to be the nagging parents, desperately trying to convince it that the hard and time-consuming work of storing skills and knowledge for long term retrieval is worth it. How do we do that? And more importantly, how do we teach our students to do that?

Session II: Friday 9:55-10:45am

Secrets of Mental Math
Presenter: Arthur Benjamin

Dr. Benjamin will go into greater detail on how to mentally square numbers, create personalized magic squares, determine the day of the week of any birthday, and more.

Let's Talk Precalculus! A Community Discussion on Math 141/142 Curriculum and Co-Requisite Models
Presenters: Natalie Hobson and Sean Boyd

Precalculus courses (Math 141/142) vary widely across institutions in content, pacing, textbook choices, and use of co-requisite support. This interactive session invites participants to share experiences and discuss key questions: What is currently going on in our precalculus classroom? What resources work best? How are co-requisite models supporting student success?
Participants will engage in small-group and whole-group discussions to exchange ideas, identify common challenges, and gather practical strategies to bring back to their departments.

Andragogy in Action: Using Lived Experiences to Support Transition to College and the Workforce
Presenter: Dr. Sam May-Varas

The workforce needs individuals with some level of training. Community colleges provide access to support adult learners in meeting their academic and career goals (May-Varas, 2015, p. 81). Adult learners bring numerous experiences to the learning environment. These lived experiences support students in accessing coursework and developing a deeper understanding of course content. In this presentation, participants will be able to identify adult learners' experiences and develop a lesson, and integrate the lesson into their course.

ALEKS for Calculus: Using AI and Machine Learning to Support Student Learning in Calculus
Presenter: Eric Ziegler

Learn how ALEKS for Calculus, powered by AI, proactively diagnoses what a student needs, delivers personalized prerequisite content, strengthens fundamentals, and builds deeper conceptual understanding.

Data & 101: Unpacking the Who, What, Where, When, and Why
Presenters: Helen Burn, Dawn Draus, Ken Hang

Join us for an interactive session where we'll provide a comprehensive status update on the Data & 101 project. Together, we will explore potential opportunities and challenges, inviting your valuable feedback to shape the future of this initiative and enhance its impact on our students.

Session III: Friday 11:00-11:50am (Full Sessions)

Tiny Acts of Elegance: Writing and Formatting Mathematics
Presenter: Jeff Eldridge

Whether authoring an OER textbook, creating alt-text for images or preparing a simple worksheet, communicating with clarity and precision can improve student comprehension—even when making modifications that may be imperceptible to the reader.

Creating Transformative Math Courses for Future Teachers
Presenters: Megan Luce and Natalie Hobson

Students often develop a math identity long before middle school, making the preparation of future elementary teachers critically important. We invite faculty who teach (or are considering teaching) Math for Elementary Educators or Math for Early Childhood Educators to share successes, challenges, course structures, and big questions. Together, we will explore what these courses should prioritize, how to make them transformative for future teachers, and how to navigate common tensions. Come ready to contribute, question, and collaborate.

Half Sessions Part I: Friday 11:00-11:25am

Reflections: how teaching English should have influenced my pedagogy
Presenter: Jason Counihan

A decade ago, I taught English as a foreign language for three years. I would love to share some of the insights that it granted me, and the more important insights it SHOULD have given me (but took me way too long to figure out.)

Statistics - an activity sharing site
Presenter: Kate Cook

We all write amazing statistics activities for our classes, so let's share them through a shared drive. Come see what I've set up, get access, and start sharing.

Professional/Technical Math - What We're All Doing
Presenter: Allie Dykes

We'll discuss the trades we support, the topics we cover, the homework platforms we use, our book choices, and anything else that comes up. For anyone who teaches Math for the Trades, Math for Professional or Technical degrees, or anyone interested in learning more about these courses!

Half Sessions Part II: Friday 11:25-11:50am

Math 109: Mathematical Models in Gaming
Presenter: Jason Counihan

I've created a new general college-level math course to harness the fact that games offer a natural context for understanding math. In doing so, I've broken from traditional teaching methods in a few interesting ways. Initial results are promising!

Use AI to add a theme to your Statistics course
Presenter: Kate Cook

We know students usually respond well to gamification. Can AI help with that? I used AI to help me add a Detective theme to my online statistics class. Come see what it looked like and hear what the students thought about it. Get inspired to "theme-ify" your own class.

Beyond the Chatbot: Leveraging OpenAI and Google AI Studio to Build "MathBuddy," a Metacognitive Study Partner
Presenter: Hoewoon Kim

This presentation introduces "MathBuddy," an AI-powered assistant designed to support students who struggle with coursework or hesitate to seek help. Unlike standard solvers, MathBuddy fosters metacognition by offering step-by-step explanations and diagnostic questions rather than just final answers. We will demonstrate the application's architecture—built with Streamlit and powered by the OpenAI API and Google AI Studio—and discuss its role in making mathematics more equitable and accessible for underserved populations.

Session IV: Friday 1:30-2:20pm

From the Chain Rule to ChatGPT: The Mathematics Behind Artificial Intelligence
Presenter: John Mitchell

How large language models like ChatGPT work can seem mysterious—even spooky—but they're built on mathematics that community college instructors teach every day. This talk traces the journey from calculus and statistics to modern AI systems, showing how concepts like the chain rule, gradient descent, and error minimization scale to help computers understand and generate human language.
We'll connect classroom topics—chain rule, loss functions, and matrix operations—to their roles in AI, and demonstrate building a small language model in Python. You'll leave with a clearer picture of how the mathematics you teach is at the heart of modern AI—and why mastering the chain rule matters more than ever.

High School Mathematics Examinations in East Asia
Presenter: Salah Abed

For several years now, I've adapted problems from East Asian college entrance examinations for use in English-speaking classrooms. I've personally translated exam problems from Japanese, Korean, and Vietnamese. In this attendee-driven session, you'll work together to solve some of the more challenging problems, which will force you to synthesize concepts from various levels of mathematics and think—*really* think—about how math works!

A Space for BEdA Math sharing
Presenter: Rhea Becke

When attending this conference in the past, I rarely encountered other BEdA staff. While much of what we do is math, our students and our programs are different than Math Departments. This is an informal space to meet with other BEdA Math faculty who are attending the conference and interested is sharing, brainstorming, community building, etc. I will provide some guiding questions, but otherwise the format will be determined by who attends.

AI Homework Assignments
Presenter: Tyler Wallace

Rather than a textbook and homework problems, students were given AI prompts to have a conversation with the AI and submitted their AI conversations for homework assignments. The procedure and results of this experiment will be discussed.

Conversations on Teaching Linear Algebra: Sharing Practices, Applications, and Resources
Presenter: Srividhya Venkatraman

This session brings together Linear Algebra instructors for open conversations about teaching practices. Discussion will focus on applications, student projects, and instructional materials, highlighting shared experiences and approaches across classrooms.

Session V: Friday 2:35-3:25pm

Games You Can't Lose: The Mathematics of Scams and Hustles
Presenter: Dr. Arthur Benjamin

Dr. Benjamin will go into greater detail on how to mentally square numbers, create personalized magic squares, determine the day of the week of any birthday, and more.

Curriculum Changes at UW Seattle
Presenters: Jonah Ostroff and Rekha Thomas

We will be presenting changes at UW-Seattle to the curriculum for multivariable calculus (Math 126 and 224) and linear algebra (Math 208).

Innovations in Precalculus and Calculus MyLab
Presenter: Aaron Warnock

Come see the most recent innovations in MyLab Math for Precalculus and Calculus, including AI Study Tools, GeoGebra graphing exercises, Interactive Calculus, Freehand Grader, Study Prep, and more.

Design–Collect–Analyze–Present: A Full-Cycle Statistics Project
Presenter: Natalie Hobson

Students thrive when they can see—and do—a full statistical process themselves. This session presents a complete framework for a full-cycle statistics project that guides students from selecting a topic to communicating their findings. Attendees will see how scaffolded checkpoints help students design meaningful questions, collect authentic data, conduct appropriate analyses, and present their results with clarity and confidence. The workshop includes rubrics, timelines, assignment sheets, and examples of successful student work.

Saturday Session Schedule

Session VI: Saturday 8:45-9:35am

Darkness is faster than light
Presenter: Dr. William T. Webber

This is a follow-up to a presentation I gave last year where I asked "Is darkness faster than light?" Although I stand by the bulk of the information presented in that talk I realized that I came to the wrong conclusion. So, I would like to set the record straight and demonstrate how the speed of darkness is faster than the speed of light. The talk will include actual demonstrations of stuff that looks like it is moving faster than the speed of light.

Math STEMposium Projects
Presenter: David Mayhugh

Getting students to showcase mathematical thinking and applications/connections either within math or their other STEM courses through poster presentations. Helping students synthesize their interdisciplinary learning.

STRIVE Toward Transformation: Building Risk-Tolerant, Resilient Learning Environments
Presenter: Mandie Mauldin

Reimagine teaching with tools that foster equity, resilience, and belonging—turning barriers into bridges and creating classrooms where students and faculty grow and flourish.
This interactive workshop explores Trauma-Informed Pedagogy, Universal Design for Learning, and the Flipped Classroom, focusing on reducing working memory overload—a key barrier to learning. These approaches build confidence, strengthen study habits, and improve performance across disciplines, equipping educators with practical, research-informed tools to help all learners thrive.
The workshop introduces the STRIVE Framework, a strengths-based approach to creating equitable, inclusive, and engaging learning environments. Designed for developmental math courses with diverse learners, STRIVE addresses low success rates in gateway courses that often block progress. Data comparing STRIVE strategies to traditional methods demonstrates the effectiveness of this framework.

Using Large Language Models as Math Tutors
Presenter: Marcelo Guerra Hahn

Large Language Models (LLMs) are emerging as powerful tools for supporting mathematics learning through personalized, on-demand tutoring. This presentation explores how LLMs can function as math tutors by providing step-by-step explanations, adaptive practice, and immediate feedback across topics such as algebra, calculus, and statistics. Unlike traditional homework systems, AI tutors engage students in interactive dialogue, helping identify misconceptions and promote mathematical reasoning rather than simply delivering answers.
The session highlights practical strategies for integrating LLMs into math instruction while maintaining academic rigor. Participants will learn how to guide students in using AI responsibly as a learning partner, and how to emphasize conceptual understanding and problem-solving skills in assessment practices. LLMs have the potential to expand access to tutoring, reduce math anxiety, and strengthen student learning outcomes in mathematics.

Session VII: Saturday 9:50-10:40am

LiveMath Lives!
Presenter: Dr. William T. Webber

LiveMath is mathematical software that has been around for 40 years. It is currently undergoing updates so that it works on current systems and is relevant to today's education. I will demonstrate LiveMath's ability to do symbolic mathematics in topics ranging from algebra to linear algebra and differential equations. I will also demonstrate Livemath's power as a graphing utility. If you are a student or teacher of mathematics, then LiveMath is for you.

Clarifying and Aligning the Calculus Transfer Pathway
Presenter: Dawn Draus

An open, discussion-based session grounded in the work of a cross-sector Community of Practice examining the calculus sequence. Faculty are invited to explore what is happening across the calculus pathway, what receiving institutions expect, and where transfer students may encounter disconnects. Bring your experiences, questions, and insights to help shape this ongoing conversation about strengthening the calculus pathway.

Linear Algebra Without Fractions?
Presenter: Yves Nievergelt

Students may encounter their first linear systems of equations in examples where all the coefficients are integers, and at the end all the solutions are also integers. For such linear systems, are there ways to calculate the solutions without ever facing fractions? The talk will show such ways, which are akin to replacing elimination with minimization or Euclidean division, because division is iterated subtraction, but that’s another hot topic. After some practice, students will beg you to be allowed to return to fractions!

Online Education in the Age of AI
Presenter: Steve Kangas

During the pandemic we developed online interactive textbooks (in WAMAP) for almost all math courses available at a two-year college. We will happily share these textbooks.
But lately we've begun to make some adjustments because of AI. We have a new approach which is AI-resistant.
Steve Kangas earned a PhD in Mathematics from the University of Oregon and has been teaching for 40 years.

Session VII: Saturday 10:55-11:45am

Using High School Transcripts for Placement: Early Results from the GRID
Presenter: Dawn Draus & Noah Overby

Nine colleges are piloting a transcript-based math placement approach that uses high school coursework and GPA to place recent high school graduates into college math. This session shares preliminary success data for students placed into MATH& 107, 141, 146, and 151 via the GRID. This is a chance for you to ask questions, explore how the GRID works in practice, and learn how to join the ongoing work.

Building Thinking Classrooms comes to College
Presenter: Dusty Wilson

Building Thinking Classrooms (BTC) has swept K-12 math education nationwide. Based on his research, Peter Liljedahl invites us to replace teaching habits wherein our strongest 20% of students think for 20% of the time with the BTC practices where 80% of students think 80% of the time. But will this work in a college classroom? This talk will outline the successful implementation of BTC in college algebra, calculus, and linear algebra and conclude by inviting you to take a leap of faith.

From Procrastination to Purpose: Eat That Frog in College Math Courses
Presenter: Diana Petty

Have you ever wondered why your students are really in your class? Do they have a sense of purpose beyond checking off requirements or earning a grade? What is that one thing you can do as a teacher that might have a lasting positive impact on their future?
In this session, I will share how I integrated the book Eat That Frog into my co-requisite and developmental math courses to improve student success by helping them find motivation through reflection on long-term goals and taking responsibility for their lives while developing their mathematical skills. You will hear student success stories, see how the course is structured, and take away practical ideas that you can implement in your own classes.
My hope is that you will leave with renewed passion and motivation for teaching and with new ideas for making a meaningful difference in your students' lives.

Registrants

Bellevue College

Tony Akhlaghi
Ricardo Chavez
Carmen Dettloff
Sandra Emerson
Sunmi Ku
Jennifer Laveglia
Helton Leal
Mandie Mauldin
Liangmin Zhou

Bellingham Technical College

Calhan Ring

Big Bend Community College

Salah M. Abed
Jada Addink
Sarah Bateman
Jonathan Bauer
Sarah Bauer
Kristy Bishop
Rebecca Chamberlain
Elizabeth Clements
Jessica Cole
David Mayhugh
Michele Ramirez
Tyler Wallace

Cascadia College

Megan Luce
Grace Meigs
Linda Richard
Srividhya Venkatraman

Centralia College

Preston Kiekel

Clark College

Rheannin Becke
Aaron Bingham
Paul Casillas
Kate Cook
Allie Dykes
Sally Keely
Sam May-Varas
Shannon McCombs
John Mitchell
Michelle Walty

Clover Park Technical College

Dion Alexander
LaVerta Schmeling

Columbia Basin College

Meg Bartrand
Robert Delorto
Nicholas Gardner
Jenny Hughes
Hoewoon Kim
Rebecca Luttrell
David Mackay
Jesna Nissam
Melody Smiley
John Spence

Eastern Washington University

Yves Nievergelt

Edmonds College

Mary Anderson
Pat Averbeck
Catherine Conway
Jeff Eldridge
Tiffany Ledford
Deann Leoni
Nancy Marx
Uzair Muhammad
Doug Owen
Andreas Quist

Everett Community College

Alys Hugo
Mike Story

Grays Harbor College

Justin Kautzman

Green River College

Allison Beckwith
Jason Counihan
Michelle Haigh
Rochelle Mitchell

Highline College

Helen Burn
Barbara Hunter
Shane Kibler-Trimboli
Terry Meerdink
KhoiNguyen Nguyen
Aaron Warnock
Dusty Wilson

Lake Washington Institute of Technology

Marcelo Guerra Hahn
Sherry McLean
Adriana Milligan

Lower Columbia College

Shari Samuels
Terri Skeie

Macmillan Learning

Joy Olsen

North Idaho College

Sarah Adams

North Seattle College

Vinod Sastry
Samuel Wilson

Olympic College

Elisabeth Briggs
Elizabeth O'Neil

Pacific Northwest Christian College

Robert Weissenfels

Pearson

Julio Hernandez
Robbie Oyama

Renton Technical College

Matthew Brian Green

Shoreline Community College

Steven Bogart
Tatiana Rudneva
Lauren Sandven
Marek Wyzgowski

South Seattle College

Zahra Alavi
LaToya Johnson

Tacoma Community College

Sean Boyd
Natalie Hobson
Min Kim

University of Washington

Rekha Thomas

University of Washington - Seattle

Charles Camacho
Jonah Ostroff

University of Washington Tacoma

Alan Bartlett
Julia Eaton
Haley Skipper
Erik Tou
Ruth Vanderpool

Walla Walla Community College

Chris Mehl

WASBCTC

Dawn Draus
MarcusAntonio Gunn
Noah Overby

Whatcom Community College

Kourosh Ghaderi
Lee Singleton
William Webber

Yakima Valley College

Matt Lewis
Diana Petty

Conference History

Each April or May since 1969*, faculty from two-year and four-year colleges across Washington and neighboring states have gathered to foster their professional development. The conference begins on Thursday evening with an opening session that typically features an invited speaker. On Friday morning and afternoon, faculty present talks and host roundtable discussions on a variety of topics related to mathematics and education. The Friday-evening dinner includes a keynote speaker. Presentations conclude with additional sessions on Saturday morning.

Math departments from Washington's community and technical college system take turns hosting the conference. Since 1996, every five years the WCMC has joined with ORMATYC to present a regional conference. While (unlike many states or regions) the annual Washington conference is not run by WAMATYC (the state affiliate of the American Mathematical Association of Two-Year Colleges), WAMATYC does hold its annual business meeting during the conference, sponsors invited speakers and presents awards to outstanding faculty.

*The 2020 conference was cancelled due to the pandemic. The 2021 and 2022 conferences took place virtually, but in-person conferences resumed in 2023.

Year	Host	Location	Year	Host	Location
1969	Green River + Highline + Ft. Steilacoom	Ashford	**2000**	Bellevue	Wenatchee
1970	Spokane Falls	Ashford	**2001**	Peninsula + ORMATYC	Stevenson
1971	Everett	Snoqualmie Pass	**2002**	Clark	Yakima
1972	Everett	Snoqualmie Pass	**2003**	Spokane + North Idaho	Wenatchee
1973	Seattle Central	Snoqualmie Pass	**2004**	Pierce	Yakima
1974	Green River	Lake Wilderness	**2005**	Highline	Ocean Shores
1975	Highline	Issaquah	**2006**	Olympic + ORMATYC	Stevenson
1976	Bellevue	Snoqualmie Pass	**2007**	Wenatchee Valley	Wenatchee
1977	Shoreline	Issaquah	**2008**	North Seattle	Lake Chelan
1978	Edmonds	Issaquah	**2009**	Columbia Basin	Pasco
1979	Olympic	Port Ludlow	**2010**	Yakima	Yakima
1980	Spokane Falls	Winthrop	**2011**	Green River + ORMATYC	Stevenson
1981	Spokane Falls	Winthrop	**2012**	Tacoma	Wenatchee
1982	Highline	Lake Chelan	**2013**	Whatcom	Bellingham
1983	Olympic	Port Ludlow	**2014**	Everett + Shoreline	Wenatchee
1984	Green River	Union	**2015**	Bellevue	Lake Chelan
1985	Shoreline	Winthrop	**2016**	Clark + ORMATYC	Gleneden Beach OR
1986	North Seattle	Union	**2017**	Highline	Grand Mound
1987	Lower Columbia	Union	**2018**	Edmonds	Yakima
1988	Olympic	Port Ludlow	**2019**	Centralia + Bates	Ocean Shores
1989	Bellevue	Lake Chelan	**2020**	cancelled	
1990	Clark	Union	**2021**	WAMATYC	online
1991	Pierce + Tacoma	Lake Chelan	**2022**	WAMATYC	online
1992	Yakima	Yakima	**2023**	Pierce	Lake Chelan
1993	Highline	Wenatchee	**2024**	Clark + ORMATYC	Gleneden Beach OR
1994	South Seattle	Silverdale	**2025**	Green River	Wenatchee
1995	Skagit Valley + Whatcom	Wenatchee	**2026**	**Big Bend**	**Grand Mound**
1996	Spokane Falls + ORMATYC	Stevenson	**2027**	?	?
1997	Green River	Lake Chelan	**2028**	?	?
1998	Tacoma + Big Bend	Lake Chelan	**2029**	Clark College	?
1999	Edmonds	Ocean Shores			

2026 Math Conference Challenge Problems

All of these can (and ideally should) be done without a calculator. Please do any or all of these on a separate piece of paper. As you complete a problem, submit it to the Registration Table. Prizes will be awarded.

1. Find values of constants x and y so that $(k+1)x + (k-1)y - 5k + 1 = 0$ holds for all values of k.
   (Tokyo University of Pharmacy and Life Sciences)

2. The equation $(1-\mathrm{i})a^2 + a - b(1+\mathrm{i}) = 0$ has two real solutions of the form (a, b). One is $(0, 0)$. Find the other solution.
   (Kansai University)

3. When α and β are the two distinct solutions to $x^2 - 7x + 9 = 0$, find the value of $\frac{2\beta}{\alpha} + \frac{2\alpha}{\beta} + \frac{1}{\alpha\beta}$ as well as the value of $(\alpha^3 + 8)(\beta^3 + 8)$.
   (Iwate University)

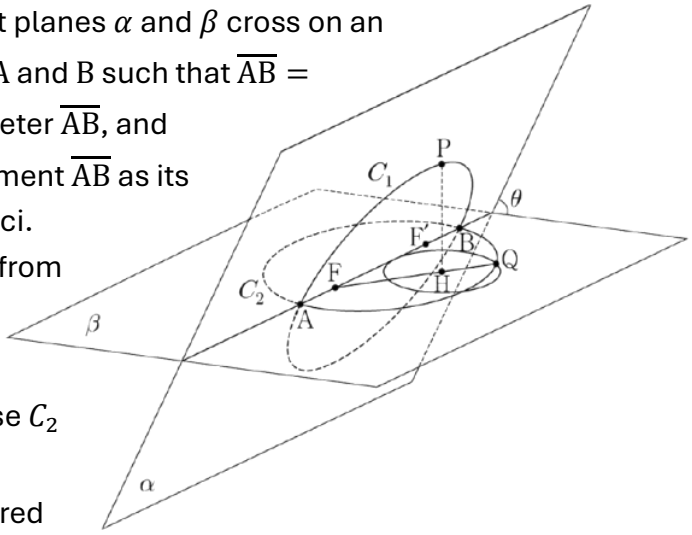
4. For integer solution sets (x, y) of the equation $xy - 3x - 4y + 6 = 0$, find the largest integer value of x.
   (Ritsumeikan University)

5. For some $a \in \mathbb{R}$, consider the function $f(x) = x^3 - 3ax + a$. Find all possible values of a for which $f(x) \geq 0$ where $0 \leq x \leq 1$.
   (Osaka University)

6. Rationalize the denominator and find the equivalent expression with no cubed roots in the denominator: $\frac{55}{2\sqrt[3]{9} + \sqrt[3]{3} + 5}$.
   (Kyoto University)

7. For every $t \in \mathbb{R}$, there exists a tangent line to the curve $y = \frac{1}{\mathrm{e}^x} + \mathrm{e}^t$ that passes through the origin. If constant a is such that $f(a) = -\mathrm{e}\sqrt{\mathrm{e}}$, what is the value of $f'(a)$?
   (Suneung, Calculus Elective)

8. As the diagram indicates, two different planes α and β cross on an intersection line that contains points A and B such that $\overline{\mathrm{AB}} = 18$. Circle C_1 lies on plane α with diameter $\overline{\mathrm{AB}}$, and ellipse C_2 lies on plane β with line segment $\overline{\mathrm{AB}}$ as its major axis and points F and F' as its foci.
Let H be the foot of the perpendicular from point P on circle C_1 to plane β, where $\overline{\mathrm{HF}'} < \overline{\mathrm{HF}}$ and $\angle \mathrm{HFF}' = \frac{\pi}{6}$. Let Q be the point where line HF and ellipse C_2 meet, where $\overline{\mathrm{FH}} < \overline{\mathrm{FQ}}$.
A circle of radius 4 on plane β is centered at point H and passes through point Q, and this circle is tangent to line AB. When θ is the angle between the two planes α and β, what is the value of $\cos\theta$?
(Suneung, Geometry Elective)



1. Four different points $\mathrm{A}, \mathrm{B}, \mathrm{C}, \mathrm{D}$ lie on the surface of a sphere of radius 1, satisfying these properties: $\overline{\mathrm{AB}} = 1$; $\overline{\mathrm{AC}} = \overline{\mathrm{BC}}$; $\overline{\mathrm{AD}} = \overline{\mathrm{BD}}$; $\cos\angle\mathrm{ACB} = \cos\angle\mathrm{ADB} = \frac{4}{5}$.
    a. Find the area of triangle ABC.
    b. Find the volume of tetrahedron ABCD.

    (Tokyo University)

2. Prove that $\pi > 3.05$.
    (Tokyo University)

Fun Math Problems

These are to do in your "spare time". Solutions are found on the last page.

Type 1: 10 Block

Rules and Examples

Rule: select contiguous regions of blocks such that the sum is always 10.

7	4	1
3	1	3
6	3	2

Step 1: We can start with 7 in the upper-left corner. Notice that 7 + 3 = 10 but 7 + 4 = 11 > 10. Thus, 7 must connect with 3.

7	4	1
3	1	3
6	3	2

Step 2: Notice the 6 in the lower-right corner. That must connect with 3, giving us a total of 9. The only way to get 10 would be to include the central 1.

7	4	1
3	1	3
6	3	2

Step 3: The remaining cells add to 10.

Puzzles

1.

8	2	4	5
6	2	7	1
2	3	1	7
1	6	2	3

2.

1	4	2	9
9	4	6	1
1	4	1	3
3	2	1	9

3.

1	2	7	2	6
10	9	9	1	2
7	1	7	4	6
1	2	3	4	10
1	4	5	5	1

Type 2: Zero-Zero Formulas

Rules and Examples

Below are a set of cards along with a sum.

Add zeros to the end of the cards until the formula holds.

You may add any number of zeros to a card or none at all.

1	+	2	+	3	=	312

This one does not require carrying, so the solution is straightforward.

10	+	2	+	300	=	312

Puzzles

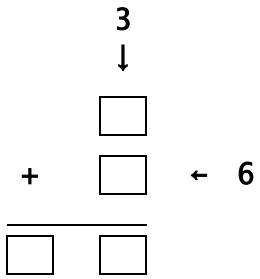
1. $\square + \square + \square = 67$
2. $\square + \square + \square + \square = 846$
3. $\square + \square + \square + \square + \square = 679$
4. $\square + \square + \square + \square + \square = 925$

Type 3: Addition Somewhere

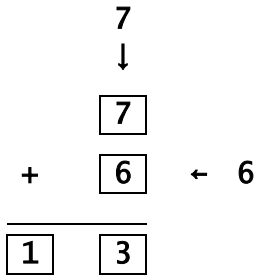
Rules and Examples

Insert one digit 0–9 in each square ☐ until the written calculation holds.

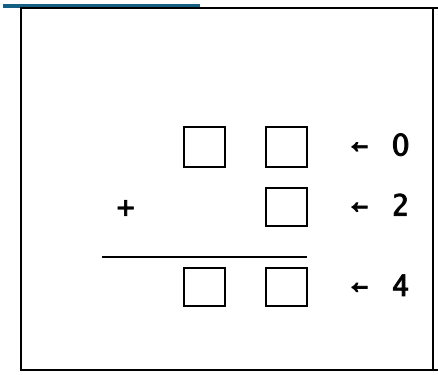
The arrows refer to one cell in the row or column to which they point.

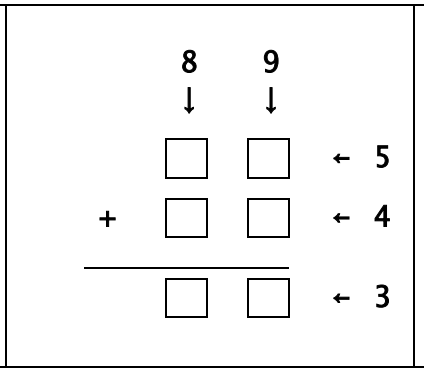


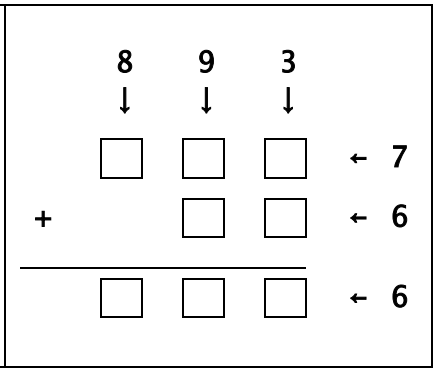
We use that the sum is two digits to greatly reduce the possibilities. The first digit must be 1.



Puzzles





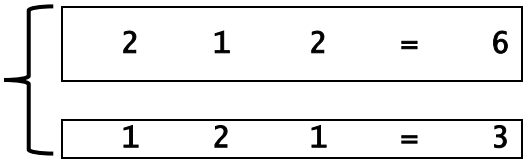


Type 4: Twin Equations

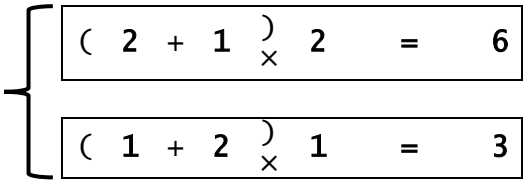
Rules and Examples

Add identical operations to the same cards so that both equations hold.

The symbols you may add are +, −, ×, ÷, and ().



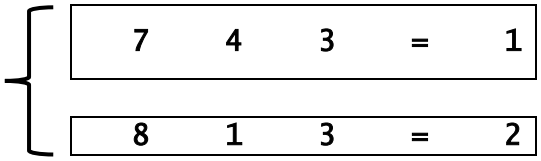
Add operators until both equations are true. It often helps to focus on one and then try the same operators on the other.



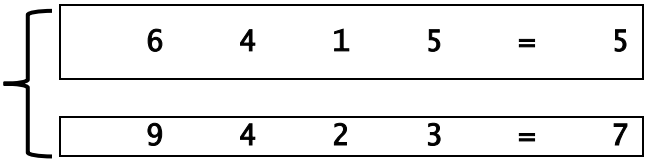
Puzzles

1.

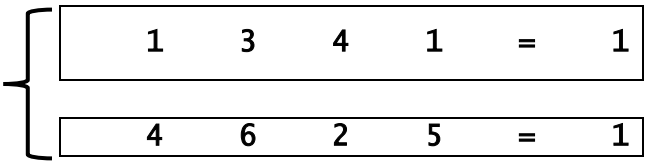
2.



3.



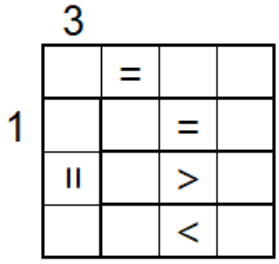
4.

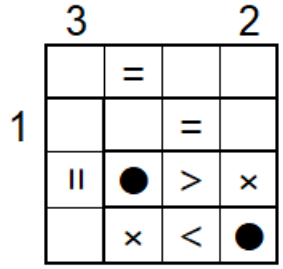


Type 5: Stones

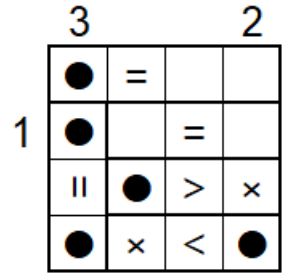
Rules and Examples

Add a stone into some of the blank cells. It is fine to leave some cells blank.
The numbers outside rows/columns denote how many stones belong in that row/column.
Each region blocked off by bold lines indicates the number of stones on each side of that symbol, as a size relationship. It is possible that sides have zero stones.

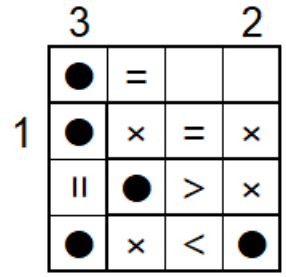




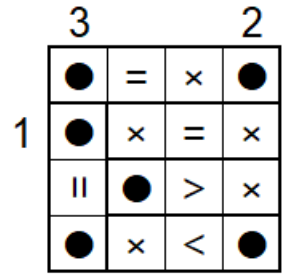
You can think of ● as one and × as zero. The inequalities each have one solution.



The leftmost column also only has one workable solution.

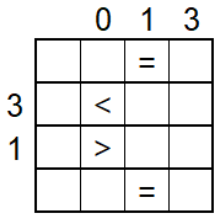


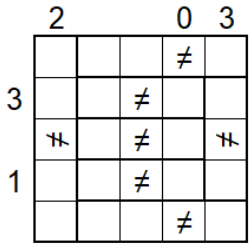
The second row now only holds if both sides of the equality region are empty.

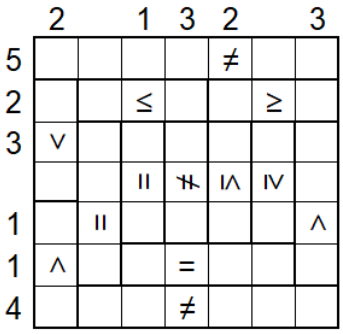


The last stone must go in the top-right cell.

Puzzles





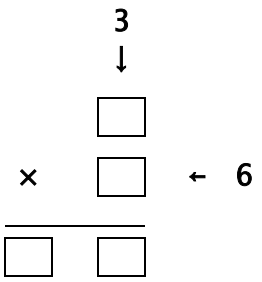


Type 6: Multiplication Somewhere

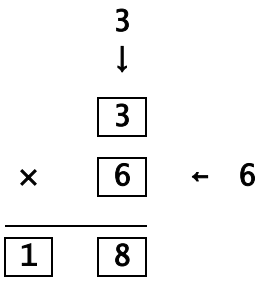
Rules

Insert one digit 0–9 in each square ☐ until the written calculation holds.

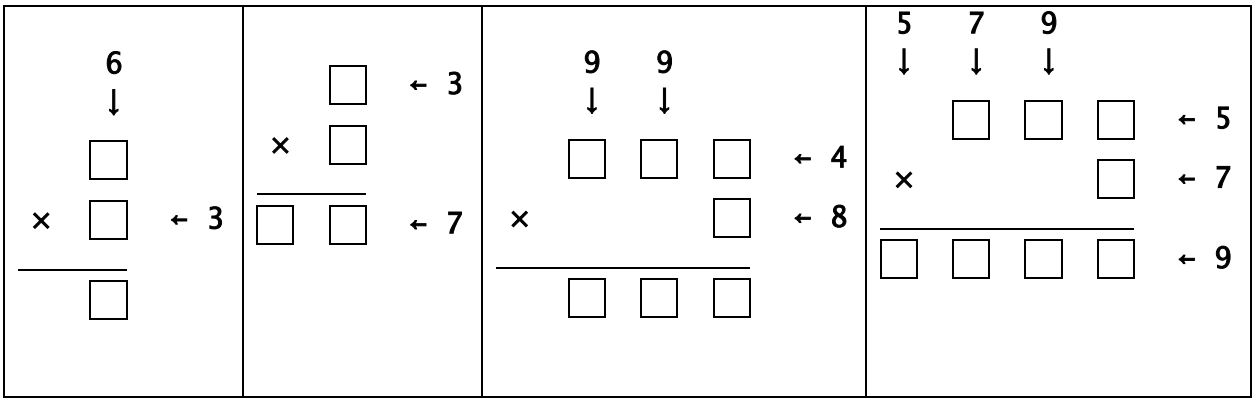
The arrows refer to one cell in the row or column to which they point.



There exists only one possible place to put 6. Also, 3 cannot go on the very bottom, as that would make a multiple of 6 that ends in 3. Therefore, 3 must go up top, and the rest fills itself in.



Puzzles



Solutions to Fun Problems

Type of Problem | **Solutions**

10 Block

8	2	4	5
6	2	7	1
2	3	1	7
1	6	2	3

1	4	2	9
9	4	6	1
1	4	1	3
3	2	1	9

1	2	7	2	6
10	9	9	1	2
7	1	7	4	6
1	2	3	4	10
1	4	5	5	1

Zero-Zero Formulas

1 [50] + [8] + [9] = 67

2 [300] + [40] + [500] + [6] = 846

3 [2] + [3] + [4] + [600] + [70] = 679

4 [100] + [30] + [5] + [700] + [90] = 925

Addition Sumwhere

	[4] [0]	← 0
+	[2]	← 2
	[4] [2]	← 4

	8 ↓	9 ↓	
	[5]	[9]	← 5
+	[2]	[4]	← 4
	[8]	[3]	← 3

	8 ↓	9 ↓	3 ↓	
	[8]	[6]	[7]	← 7
+		[9]	[6]	← 6
	[9]	[6]	[3]	← 6

Twin Equations

1 – 4 + 5 = 2

5 – 3 + 3 = 5

7 ÷ (4 + 3) = 1

8 ÷ (1 + 3) = 2

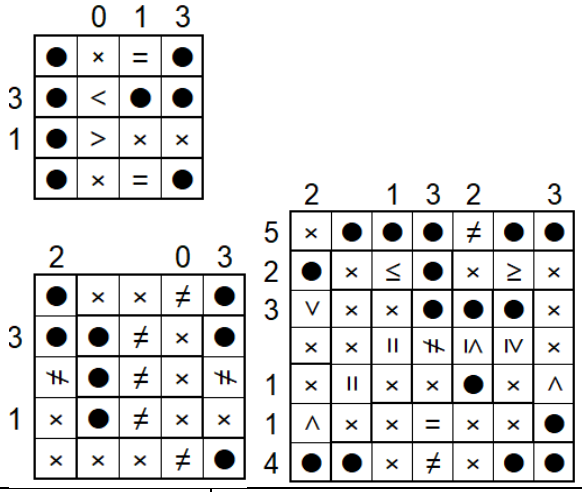
6 – (4 + 1) ÷ 5 = 5

9 – (4 + 2) ÷ 3 = 7

(1 + 3) ÷ (4 × 1) = 1

(4 + 6) ÷ (2 × 5) = 1

Stones



Multiplication Sumwhere

	6 ↓	
	[2]	
×	[3]	← 3
	[6]	

	[3]	← 3
×	[9]	
	[2] [7]	← 7

	9 ↓	9 ↓	
	[1]	[2] [4]	← 4
×		[8]	← 8
	[9]	[9] [2]	

	5 ↓	7 ↓	9 ↓	
		[7]	[8] [5]	← 5
×			[7]	← 7
	[5]	[4]	[9] [5]	← 9