MUSTANG MATH MEMO

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Mustang Math Tournament 2023 - Registration Open!

Mustang Math is excited to announce that registration for the Mustang Math Tournament 2023 is now open! The team tournament will be on **April 29, 2023** from 9:00 AM to 5:00 PM PT, and will not only be occurring in-person in **Washington** and **California**, but also synchronously **online** around the United States and Canada! The event is run by a group of mathematically experienced high school and college volunteers (including the directors for the Stanford and Berkeley Math Tournaments) who are dedicated to providing a high-quality, collaboration-focused and enjoyable contest to middle school students globally. The tournament is **centered around teamwork and collaboration**, incentivizing students to work with their teams not only to navigate the **challenging but interesting problems** of the tournament, but also to develop strategies to master the unique and fun game-like rounds. With interesting and fun rounds including a logic-based puzzle round, a strategy-filled hexes round, a race-like gallop round, and our trademark 'Mystery Mare' round, our tournament is guaranteed to be **enjoyable for any and all students who have an interest in mathematics**.

Register Here!

Message From the Director

Dear Marvelous Mustangs,

We here at Mustang Math are in full swing of preparing for MMT 2023, and we could not be more excited about it! Finally being able to return to some in-person tournaments after three grueling long years of COVID has us all pumped. We're working hard at setting up a wonderful competition and Mustang Math experience for you all, and we're hopeful that it will be our biggest and highest-quality competition yet. From diligently preparing all of our registration information, booking our venues, improving our registration system, planning out awesome rounds and activities, and creating cool merch for students, MMT 2023 will be a wonderful experience for everyone involved. This year, we're really focused on doubling down on what has always made Mustang Math different - our focus on collaboration and strategy. In-person especially, the dynamic of working together as a team, discussing potential solutions, and devising a strategy to do as well as you can on the round becomes all the more apparent, and we're really excited to see how that strategy plays out for those participating in-person.

However, with all this being said, we're also focused and committed on making sure that all of the students who can't come in-person still receive a high-quality online tournament experience that you have come to expect from Mustang Math. Everything you're used to, from clear and concise announcements, a consistent competition schedule, and the wonderful test submission system through ContestDojo will be there, along with an improved Discord bot to make sure you have all the information and know where you should be at all times!

Overall, we're just ecstatic to have you all participate in MMT 2023, and you should absolutely learn more and register at https://mustangmath.com/competitions/mmt-2023! Please let us know if you have any questions or concerns!

Thanks,

Arpit Ranasaria
Director

Mustang Math Updates

Geometry Classes

Our inaugural class series, Algebra, has recently come to a close and we are starting our geometry course in early January! Our class will start on the week of January 8th, 2023 and run till March 5th, 2023. There are currently 2 levels of classes planned: *Beginner Geometry* (AMC 8 level) and Intermediate Geometry (AMC 10/12 level). See below for the weekly schedule and breakdown of topics. If you're interested in participating in these classes, visit the following link for more information!

Information for Classes

Message for Sponsors

If you're interesting in sponsoring Mustang Math or any of our competitions, please contact sponsorships@mustangmath.com

MM Community

Mustang Math's Community Discord server is a fun place for any student interested in mathematics. Click below to join!

Join Here

Chicken McNuggets, 10 in a Box

School's out for winter break, and maybe you've been really craving some chicken nuggets. You find that nuggets come in 2 different sizes, a box of 10 and a box of 21. What is the maximum number of chicken nuggets you can't buy with only these sizes?

Read more

Game Theory in Life

You and a friend are stealing pencils from the classroom. Your teacher suspects both of you to be the culprits. The teacher asks both of you, individually, to confess. Your teacher says, "If you confess but your friend doesn't, you can leave while your friend gets detention for 10 days. Similarly, if your friend confesses but you don't, you get detention for 10 days while your friend can leave. However, if both of you confess, both of you get detention for 5 days. But, if neither of you confess, both of you get detention for the afternoon." What do you do here?

Read more

Racing Riddle

There are twenty coins sitting on the table, ten are currently heads and tens are currently tails. You are sitting at the table with a blindfold and gloves on. You are able to feel where the coins are, but are unable to see or feel if they heads or tails. You must create two sets of coins. Each set must have the same number of heads and tails as the other group. You can only move or flip the coins, you are unable to determine their current state. How do you create two even groups of coins with the same number of heads and tails in each group?

(Source)

Mathematician of the Month

Johannes Kepler was born on December 27th, 1571 in Wükrttemberg, Holy Roman Empire (present-day Germany). From birth, he was prone to illness and contracted smallpox at a very young age, leaving his vision severely defective. Despite these circumstances, he was very strong academically.

Kepler attended the Protestant Seminary of Maulbronn in order to study and become a Protestant minister. However, he continued learning from a wide range of subjects. These subjects included Theology, Greek, Hebrew and Philosophy, but most importantly, Mathematics. He was so proficient in mathematics that he was one of the few students who could digest the works of Nicolaus Copernicus (known to be very complex). With discovery of his potential in mathematics, Kepler decided to continue his journey in mathematics.

His most highly acclaimed achievement was discovering three major laws of planetary motion, as follows:

1. The planets move in ellipses with the Sun at one focus
2. The radius vector describes equal areas in equal times
3. The squares of the periodic times are to each other as the cubes of the mean distances

His discoveries include not just these, but the cause of the tides, the inverse square law of light intensity, the Kepler Conjecture, and logarithms.

At the time, his findings won almost no recognition because it was much too complex to be understood. But later, these ideas became the foundation for Isaac Newton's discovery of the law of universal gravitation. His discoveries include not just these but the cause of the tides, the inverse square law of light intensity, the Kepler Conjecture, and logarithms. Certainly, Kepler's rock-solid mathematical footing allowed him to think centuries ahead of his time.

Image Credit: Wikimedia

Thank you so much for reading the Mustang Memo. We highly encourage you to share this with anyone whom you think may be interested.