

1 Welcome Letter

Dear Math Team Sponsors, Coaches and Students,

You are cordially invited to attend the sixteenth annual James S. Rickards Fall Invitational, a mathematics competition to be held on **Saturday, November 20, 2021**. The Rickards Invitational is one of the largest competitions in the Southeast with over 1000 competitors from over 45 elementary, middle, and high schools in previous years.

We encourage all middle and high schools to participate, regardless of whether or not they currently have math teams or Mu Alpha Theta chapters. To attract a variety of participants and familiarize new teams with mathematics competitions, we will incorporate the structure and rules of a standard Florida Association of Mu Alpha Theta (FAMAT) Invitational. We hope that this competition will inspire students to pursue the study of mathematics and motivate them to work hard for the upcoming mathematics competition season. It is our goal to ensure the competition runs as smoothly as possible and is an enriching experience for all students.

Registration may be completed online at **www.rickardsinvitational.org**. The fee is \$10 per student and must be submitted before Friday, November 12th. Furthermore, we recommend that schools interested in participating in this competition also update their registration with FAMAT. On the day of the competition, sponsors will sign-in their teams in the specified location of the testing center and the first testing session will begin at 9:30 AM (a complete schedule of events is attached).

To prepare you for competition events, the rules for our invitational are detailed in this Competition Handbook. In general, rules are in accordance with standard FAMAT policies. Calculators will not be permitted on any test, except for Statistics Individual and Team. We will have Individual and Team tests for the Algebra II, Precalculus, Statistics, and Calculus divisions, as well as Open tests for those students not competing in Team Round. Due to COVID-19 concerns, we will only have Individual and Open tests for the Pre-Algebra, Algebra I, and Geometry divisions.

If you have any questions, please contact us at **rickardsinvitational@gmail.com**. We look forward to your participation at our Invitational.

Sincerely,

Rachael Cross
Math Team Sponsor

Dylan Epstein-Gross
Math Team President

2 Competition Format

Eligibility

All students will compete in their respective Mu Alpha Theta divisions for the 2021-2022 school year (Pre-Algebra, Algebra I, Geometry, Algebra II, Precalculus, Statistics or Calculus). If a student does not participate in Mu Alpha Theta, he or she will compete in the division corresponding to his or her current math class. If you are not sure which division a student may compete in, please see the FAMAT Sponsor's Guide at

<https://floridamao.org/FAMATSite/PublicPages/Downloads.aspx>.

Individual Tests

There will be an Individual round for each division (Pre-Algebra, Algebra I, Geometry, Algebra II, Precalculus, Statistics, and Calculus). The Individual tests will consist of 30 multiple choice questions and an allotted testing period of one hour. The scoring is +4 points for each correct answer, -1 point for each incorrect answer, and 0 points for a question left blank. Any ties will be broken using the sudden death method (beginning at Question 1) where correct answers trump blank answers which then trump incorrect answers. Past tests are available for download at the Rickards Invitational website: www.rickardsinvitational.org.

Team Rounds

Each sponsor can select a team of 4 students per division to compete in a Team Round (teams must be selected in advance of the competition). We will only be seating one team per school in each division; teams can consist of at most 4 members. In the Team Round, the 4 (or fewer) students will be allowed to work together on 12 questions, presented one at a time. For each question, the team will have up to 4 minutes to submit their answers, and may only submit one time during each of the 12 questions.

The scoring system for the Team Round will be standard scoring; that is, 16 points for a correct answer in the first minute, 12 points for a correct answer in the second minute, 8 points for a correct answer in the third minute, and 4 points for a correct answer in the fourth minute. **A sliding scale will be implemented** – every minute without a correct answer shifts the point values down a further minute. Hence, if there are no correct answers in the first two minutes, a correct answer in the third minute earns 16 points, and a correct answer in the fourth minute earns 12 points.

Open Tests

All students competing in the Pre-Algebra, Algebra I, and Geometry divisions can compete in an Open test. Additionally, students competing in the Algebra II, Precalculus, Statistics, and Calculus divisions, and not competing in the corresponding Team Round, can compete in an Open test. The format and scoring for these tests are identical to the Individual tests. A description of each test is provided below:

Euclidean Open

The Euclidean Open is for students in **Pre-Algebra and Algebra I**. It draws upon concepts from both of these divisions, and is intended to be very approachable for students in either division.

Theta Open

The Theta Open is for students in **Geometry and Algebra II**. It draws equally upon concepts from Geometry and Algebra II.

Mu-Alpha Open

The Mu-Alpha Open is for students in **Precalculus, Statistics, and Calculus**. It can draw upon concepts from Geometry, Algebra II, Precalculus, and Calculus.

Mini-Events

Speed Math and Mental Math are open to all divisions, though students can only register for **one of the two**. Speed Math is an 8-minute test with 20 short-response questions, and Mental Math is a 15-minute test with 40 short-response questions that must be completed without any work on the paper. A competitor's score is the number of questions they answer correctly, and ties will be broken by sudden death method starting at Question 1.

Interschool Test

The Interschool is a new addition this year. It is a lengthy test that will be sent out to registered schools on Saturday, November 6th, along with a form for submitting answers. In the standard FAMAT style, the test will consist of not only

math questions, but also various other logic and miscellaneous questions that competitors can use Internet resources to solve. Questions will each be weighted with different point values depending on difficulty, and the final score of a school is the sum of the points for all questions they answered correctly. All registered competitors for a school are allowed to work together on the Interschool during the two weeks before the competition, but the answers form must be submitted by 11:59 PM on Friday, November 19th (the day before the competition).

3 Awards and Sweepstakes

A breakdown of the awards is given below:

Individual Tests

Awards will be given to the top 10 competitors in each Individual test.

Team Awards

Awards will be given to the top 3 teams in each division. A team's total score is calculated by adding the Individual test score of each member of the team to its Team Round score. This only applies to the divisions with team rounds - Algebra II, Precalculus, Statistics, and Calculus.

Open Tests

Awards will be given to the top 15 competitors in each Open test.

Mini-Events

Awards will be given to the top 3 competitors in each event; however, keep in mind these events are just for fun and do not count towards sweepstakes.

Interschool Test

Awards will be given to the top 5 middle schools and top 5 high schools (across both in-person and mail-in).

Middle School Sweepstakes

Sweepstakes awards will be given to the top 3 middle schools, as determined by adding the top 4 T-scores from the Pre-Algebra, Algebra I, and Geometry (or Algebra II, if a school has no Geometry team) divisions of each school.

High School Sweepstakes

Sweepstakes awards will be given to the top 5 high schools, as determined by adding the top 4 T-scores from the Geometry, Algebra II, Precalculus, Statistics and Calculus divisions of each school.

4 Preliminary Schedule

Please note that this is a preliminary schedule of events, and is subject to small changes prior to competition day. An official schedule of events, complete with room numbers/event locations, will be distributed in the competition program on the morning of the competition. Any updates prior to competition day will be posted on the Invitational website: www.rickardsinvitational.org.

8:00 – 8:45 AM	Registration
8:45 – 9:15 AM	Scantron Preparation
9:30 – 11:00 AM	Round 1 Testing
	Individual Tests: Pre-Algebra, Algebra I, Geometry, Algebra II, Mu-Alpha Open
	Team Rounds: Precalculus, Statistics, Calculus
11:00 AM – 11:15 AM	Short break for provided snacks and refreshments.
11:15 AM – 12:45 PM	Round 2 Testing
	Individual Tests: Precalculus, Statistics, Calculus, Euclidean Open, Theta Open
	Team Rounds: Algebra II
1:00 – 1:30 PM	Mini-Events for Registered Competitors
8:00 AM on Sunday	Tests, answer keys, solutions, and dispute forms posted on website
11:59 PM on Sunday	Dispute forms due

Note that, unlike most years of the invitational, there will be no lunch or in-person award ceremony this year due to COVID concerns. An award ceremony will be posted virtually a little while after the competition, and awards will be mailed out to participating schools. More information about the timing of the award ceremony will be given closer to the competition.

5 Registration

The registration cost is \$10 per student. Other details are included in Section 1. Registration must be completed by Friday, November 12th. Registration should be completed online at www.rickardsinvitational.org. Once you complete registration, you will receive a confirmation email within a few days that holds an invoice, details on how to pay your registration fees, and any other details that need to be addressed.

We will provide ID numbers for the competition in a separate ID sheet, emailed out before the competition. We will also provide scantrons on the day of the competition (though if you feel you may need extra, you can print and bring your own, as they are the same type used at FAMAT competitions). Students will bubble in the scantrons on the day of the competition with their given IDs.

When you arrive at your testing center on the morning of November 20th, you will sign in your school at the Rickards auditorium.

We hope to see everyone on November 20th! Thank you.