BOSTON UNIVERSITY

CERTIFICATE of PARTICIPATION

This document certifies that

Niyathi Kukkapalli

successfully completed

Boston University's

Program in Mathematics for Young Scientists

PROMYS

July 3 through August 12, 2022

Niyathi Kukkapalli was one of a select group of ambitious high school students from around the globe invited to **PROMYS** to explore the creative world of mathematics. Through her intensive efforts to solve a large assortment of unusually challenging problems in number theory, she practiced the art of mathematical discovery — numerical exploration, formulation and critique of conjectures, and techniques of proof and generalization.

We congratulate **Niyathi Kukkapalli** on her successful completion of this intellectually demanding program.

Professor Glenn Stevens, Director of PROMYS

KWK SCHOLAR KWK SCHOLAR KWK

I'M OFFICIALLY A

KODE WITH KLOSSY

SUMMER 2023 SCHOLAR

KWK SCHOLAR KWK SCHOLAR KWK

8 of 22

PACT 2023 (advanced group) Inbox ×

Rajiv Gandhi <rajivg100@gmail.com> Sun, Feb 5, 1:03 PM

to Rajiv, bcc: me

Dear applicant,

Congratulations! We are delighted to let you know that you have been selected to participate in the 2023 Summer Program in Algorithmic and Combinatorial Thinking. You will be part of Group II (a.k.a advanced group). The program, which will run virtually (we are also likely to have an in-person component), will take place between June 26 - July 28, Below are some important things that we want you to know.

1. Below is a tentative schedule of a typical day at PACT. Please note that while we will try to adhere to this schedule as much as possible, we may have to change the times on some days depending on the availability of guest speakers and such. We strongly encourage that students attend live sessions (if a student decides to do the virtual component), but we will also be recording all lectures so that if a student misses out on a lecture for any reason they can watch it later. All times below are EDT.

9/9:30am - 11/11:30am: lecture for Group II students (length of the lecture will vary).

11:30/11:45am - 1:30/1:45pm: lecture for Group I students (length of the lecture will vary depending on the topics covered). This lecture will almost always be given by Dr. Rajiv Gandhi and we are likely to have lectures for 5 days a week (you should keep this time available for all 5 days). If possible, we will try to begin this lecture even a bit sooner than noon since we may have some participants from countries where it is pretty late at night. We expect the lecture length to be appx 1.5 - 2 hours.

9pm - 11pm: help/review sessions which will be run by more senior students, who may be PACT alum, or students from Group II. These sessions may not happen every weekday and sometimes there may be multiple/parallel sessions on a weekday. Length of these sessions will vary (we expect them to be 75-90 mins long). These sessions are meant to reinforce concepts learned during the main lecture and answer any questions that the students may have. Attending these sessions will be optional.

Occasionally we may hold help sessions over the weekend. We will inform the students about that, if it were to happen. Attending these sessions will be optional too.

In summary, we will work hard and we will make you work hard! :)

2. This is an intense program and it will involve quite a bit of work, so you may not want to pack many activities in your schedule. To understand well the material that we

AoPS Online
Art of Problem Solving

MATHCOUNTS/AMC 8 Basics Certificate of Completion

April 21, 2023

Art of Problem Solving Inc.
15330 Avenue of Science
San Diego, CA 92128

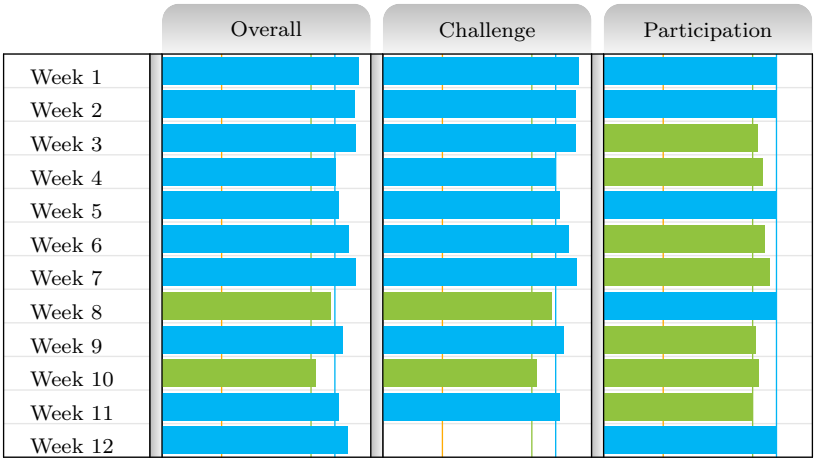
Greetings,

This letter confirms that Niyathi Kukkapalli has completed Art of Problem Solving's MATHCOUNTS/AMC 8 Basics course. This is a 12-week course providing an introduction to the problem-solving strategies required for success on MATHCOUNTS and the American Mathematics Competition 8 (AMC 8) tests. This course covers problems in number theory, algebra, geometry, and counting and probability. This course is specifically designed for high-performing learners and draws material from many programs for this country's top middle and high school students.

Sincerely,

Richard Rusczyk
Founder, Art of Problem Solving
classes@artofproblemsolving.com

Student Report



How to Read This Report

Our system for communicating progress to students is based on colors. The green line is the target we set for students; when a student's progress bar for a particular assignment reaches the green line, that means they have passed it. The blue line is the mastery line; reaching it means that a student has exceeded expectations on the corresponding assignment.

Overall: The Overall Bar primarily reflects progress on the weekly Challenge Problem homework. The Challenge bar is based on weekly short-answer assignments.

Challenge: Every week, the student is challenged with several difficult short-answer problems based on the week's topic. These problems collectively test the student's ability to correctly apply the key concepts of the week. Students are allowed to re-attempt a problem until they answer correctly. The answers are automatically graded by a computer, giving the student instant feedback along a with a full solution to each problem.

Participation: The participation score is generated automatically by monitoring performance during class time.

AoPS Online
Art of Problem Solving

Special AMC 8 Problem Seminar Certificate of Completion

April 21, 2023

Art of Problem Solving Inc.
15330 Avenue of Science
San Diego, CA 92128

Greetings,

This letter confirms that Niyathi Kukkapalli has completed Art of Problem Solving's Special AMC 8 Problem Seminar A. This course is a special 5-hour weekend seminar designed to help students prepare for the American Mathematics Competition 8 (AMC 8). In this course, students learn problem-solving strategies and test-taking tactics. The course also includes a practice AMC 8 test. This course is specifically designed for high-performing learners and draws material from many programs for this country's top middle school students.

Sincerely,

Richard Rusczyk
Founder, Art of Problem Solving
classes@artofproblemsolving.com

AoPS Online
Art of Problem Solving

MATHCOUNTS/AMC 8 Advanced Certificate of Completion

April 21, 2023

Art of Problem Solving Inc.
15330 Avenue of Science
San Diego, CA 92128

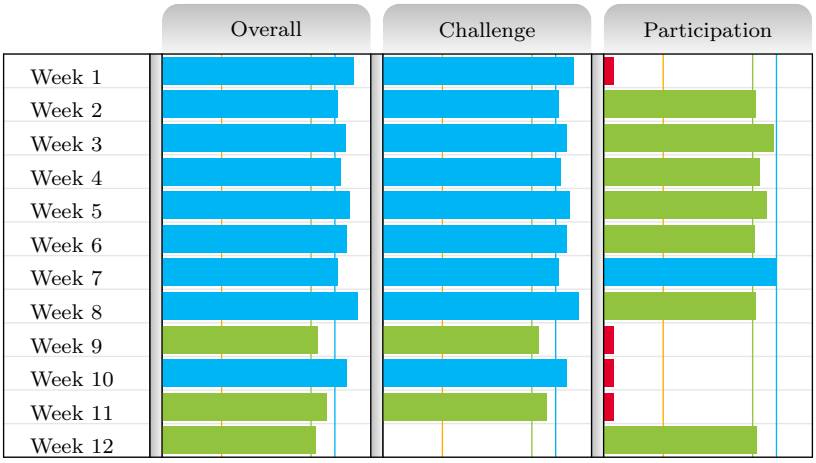
Greetings,

This letter confirms that Niyathi Kukkapalli has completed Art of Problem Solving's MATHCOUNTS/AMC 8 Advanced course. This is a 12-week course covering advanced problem-solving strategies that are required for success on MATHCOUNTS and the American Mathematics Competition 8 (AMC 8) tests. This course covers problems in number theory, algebra, geometry, and counting and probability. MATHCOUNTS/AMC 8 Advanced is specifically designed for high-performing learners and draws material from many programs for this country's top middle and high school students.

Sincerely,

Richard Rusczyk
Founder, Art of Problem Solving
classes@artofproblemsolving.com

Student Report



How to Read This Report

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Overall: The Overall Bar primarily reflects progress on the weekly Challenge Problem homework. The Challenge bar is based on weekly short-answer assignments.

Challenge: Every week, the student is challenged with several difficult short-answer problems based on the week's topic. These problems collectively test the student's ability to correctly apply the key concepts of the week. Students are allowed to re-attempt a problem until they answer correctly. The answers are automatically graded by a computer, giving the student instant feedback along a with a full solution to each problem.

Participation: The participation score is generated automatically by monitoring performance during class time.

AoPS Online
Art of Problem Solving

Special AMC 10 Problem Seminar A Certificate of Completion

April 21, 2023

Art of Problem Solving Inc.
15330 Avenue of Science
San Diego, CA 92128

Greetings,

This letter confirms that Niyathi Kukkapalli has completed Art of Problem Solving's Special AMC 10 Problem Seminar. This course is a special 5-hour weekend seminar designed to help students prepare for the American Mathematics Competition 10 (AMC 10). In this course, students learn problem-solving strategies and test-taking tactics. The course also includes a practice AMC 10 test. This course is specifically designed for high-performing learners and draws material from many programs for this country's top middle and high school students.

Sincerely,

Richard Rusczyk
Founder, Art of Problem Solving
classes@artofproblemsolving.com

AoPS Online
Art of Problem Solving

AMC 10 Problem Series Certificate of Completion

April 21, 2023

Art of Problem Solving Inc.
15330 Avenue of Science
San Diego, CA 92128

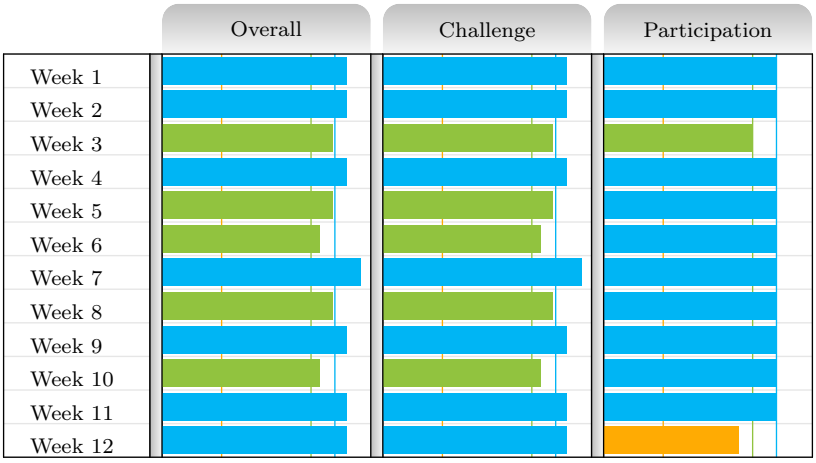
Greetings,

This letter confirms that Niyathi Kukkapalli has completed Art of Problem Solving's AMC 10 Problem Series course. This is a 12-week course covering advanced problem-solving strategies required for success on the American Mathematics Competition 10 (AMC 10) test, the first test in the series of prestigious contests that determines the United States team for the International Mathematical Olympiad. AMC 10 Problem Series covers topics in number theory, algebra, geometry, and counting and probability. AMC 10 Problem Series is specifically designed for high-performing learners and draws material from many programs for this country's top middle and high school students.

Sincerely,

Richard Rusczyk
Founder, Art of Problem Solving
classes@artofproblemsolving.com

Student Report



How to Read This Report

Our system for communicating progress to students is based on colors. The green line is the target we set for students; when a student's progress bar for a particular assignment reaches the green line, that means they have passed it. The blue line is the mastery line; reaching it means that a student has exceeded expectations on the corresponding assignment.

Overall: The Overall Bar primarily reflects progress on the weekly Challenge Problem homework. The Challenge bar is based on weekly short-answer assignments.

Challenge: Every week, the student is challenged with several difficult short-answer problems based on the week's topic. These problems collectively test the student's ability to correctly apply the key concepts of the week. Students are allowed to re-attempt a problem until they answer correctly. The answers are automatically graded by a computer, giving the student instant feedback along a with a full solution to each problem.

Participation: The participation score is generated automatically by monitoring performance during class time.

AoPS Online
Art of Problem Solving

Intermediate Algebra Certificate of Completion

April 21, 2023

Art of Problem Solving Inc.
15330 Avenue of Science
San Diego, CA 92128

Greetings,

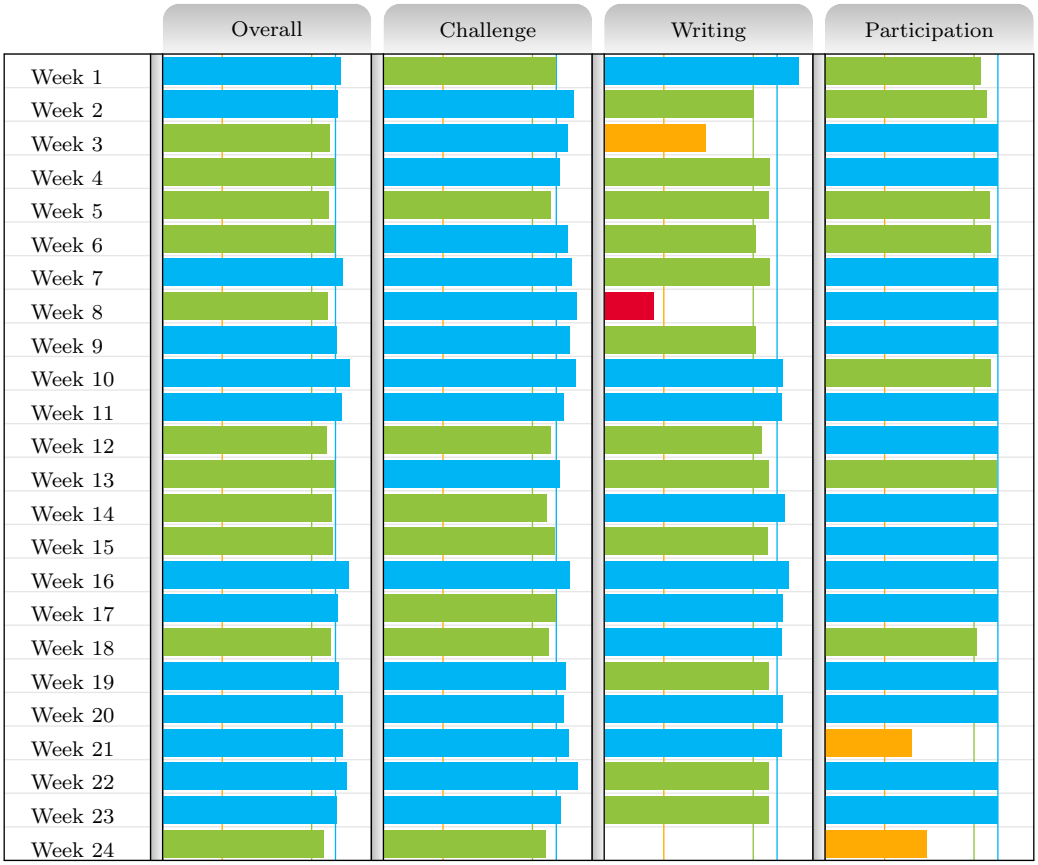
This letter confirms that Niyathi Kukkapalli has completed Art of Problem Solving's Intermediate Algebra course. This 24-week course should be considered equivalent to a full year of topics. This class includes material found in a standard Algebra 2 or Precalculus courses as well as advanced topics beyond the range of most standard curricula. This course is specifically designed for high-performing learners and draws material from many programs for this country's top middle and high school students.

Sincerely,

Richard Rusczyk
Founder, Art of Problem Solving
classes@artofproblemsolving.com

Intermediate Algebra Certificate of Completion

Student Report



How to Read This Report

Our system for communicating progress to students is based on colors. The green line is the target we set for students; when a student's progress bar for a particular assignment reaches the green line, that means they have passed it. The blue line is the mastery line; reaching it means that a student has exceeded expectations on the corresponding assignment.

Overall: This bar is built by combining the Challenge, Writing, and Participation bars. The length is based 64% on the Challenge Problem score, 32% on the writing problems score, and 4% on the Class Participation score.

Challenge: Every week, the student is challenged with 6-12 difficult short-answer problems based on the week's topic. These problems collectively test the student's ability to correctly apply the key concepts of the week. Students are allowed to re-attempt a problem until they answer correctly. The answers are automatically graded by a computer, giving the student instant feedback along a with a full solution to each problem.

Writing: Writing Problems require a student to write a full solution in complete sentences, rather than simply provide a numerical answer. Each problem serves as a capstone for the week and provides practice in mathematical writing. Here, the student is expected to articulate their creative, critical, and logical reasoning, and to show any step-by-step computations that lead to their final answer or proof. Writing problems are reviewed by our instructional staff, and students receive a grade as well as personalized feedback on both the technical and stylistic aspects of their submission.

Participation: The participation score is generated automatically by monitoring performance during class time.

AoPS Online
Art of Problem Solving

Intermediate Counting & Probability Certificate of Completion

April 21, 2023

Art of Problem Solving Inc.
15330 Avenue of Science
San Diego, CA 92128

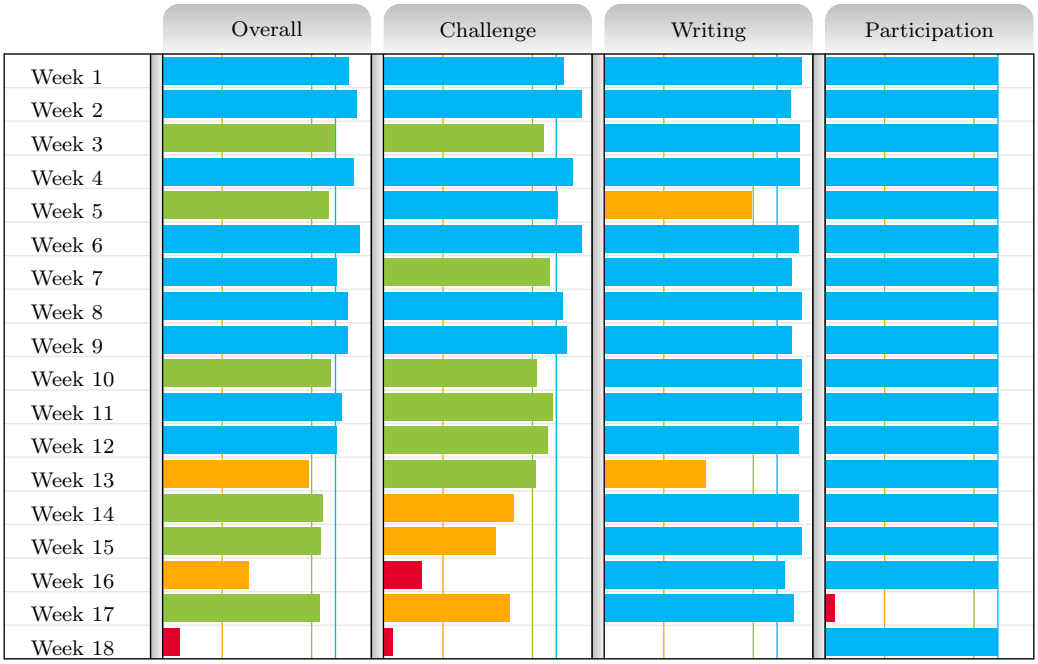
Greetings,

This letter confirms that Niyathi Kukkapalli has completed Art of Problem Solving's Intermediate Counting and Probability course. This 18-week course is comparable to a collegiate course in discrete mathematics, covering one-to-one correspondences, the principle of inclusion-exclusion, generating functions, distributions, the pigeonhole principle, induction, constructive counting and expectation, combinatorics, recursion, conditional probability, and introductory graph theory. The course is specifically designed for high-performing learners and draws material from many programs for this country's top middle and high school students.

Sincerely,

Richard Rusczyk
Founder, Art of Problem Solving
classes@artofproblemsolving.com

Student Report



How to Read This Report

Our system for communicating progress to students is based on colors. The green line is the target we set for students; when a student's progress bar for a particular assignment reaches the green line, that means they have passed it. The blue line is the mastery line; reaching it means that a student has exceeded expectations on the corresponding assignment.

Overall: This bar is built by combining the Challenge, Writing, and Participation bars. The length is based 64% on the Challenge Problem score, 32% on the writing problems score, and 4% on the Class Participation score.

Challenge: Every week, the student is challenged with 6-12 difficult short-answer problems based on the week's topic. These problems collectively test the student's ability to correctly apply the key concepts of the week. Students are allowed to re-attempt a problem until they answer correctly. The answers are automatically graded by a computer, giving the student instant feedback along a with a full solution to each problem.

Writing: Writing Problems require a student to write a full solution in complete sentences, rather than simply provide a numerical answer. Each problem serves as a capstone for the week and provides practice in mathematical writing. Here, the student is expected to articulate their creative, critical, and logical reasoning, and to show any step-by-step computations that lead to their final answer or proof. Writing problems are reviewed by our instructional staff, and students receive a grade as well as personalized feedback on both the technical and stylistic aspects of their submission.

Participation: The participation score is generated automatically by monitoring performance during class time.

AoPS Online
Art of Problem Solving

F=ma Problem Series Certificate of Completion

April 21, 2023

Art of Problem Solving Inc.
15330 Avenue of Science
San Diego, CA 92128

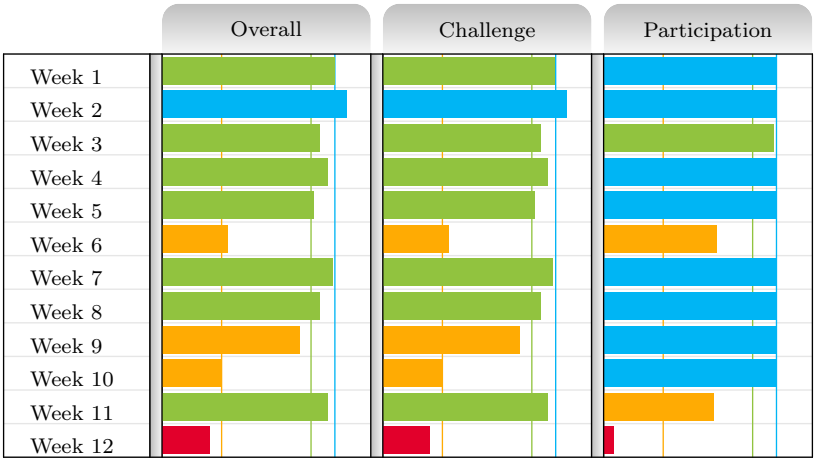
Greetings,

This letter confirms that Niyathi Kukkapalli has completed Art of Problem Solving's F=ma Problem Series class. F=ma Problem Series is a 12-week class in classical mechanics to prepare for the F=ma exam, the first test in a series of contests that determines the members of the US team for the International Physics Olympiad. This course is specifically designed for high-performing learners and draws material from many programs for this country's top middle and high school students.

Sincerely,

Richard Rusczyk
Founder, Art of Problem Solving
classes@artofproblemsolving.com

Student Report



How to Read This Report

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Overall: The Overall Bar primarily reflects progress on the weekly Challenge Problem homework. The Challenge bar is based on weekly short-answer assignments.

Challenge: Every week, the student is challenged with several difficult short-answer problems based on the week's topic. These problems collectively test the student's ability to correctly apply the key concepts of the week. Students are allowed to re-attempt a problem until they answer correctly. The answers are automatically graded by a computer, giving the student instant feedback along a with a full solution to each problem.

Participation: The participation score is generated automatically by monitoring performance during class time.

AoPS Online
Art of Problem Solving

AIME Problem Series B Certificate of Enrollment

April 25, 2023

Art of Problem Solving Inc.
15330 Avenue of Science
San Diego, CA 92128

Greetings,

This letter confirms that Niyathi Kukkapalli was enrolled in Art of Problem Solving's AIME Problem Series B course. This is a 12-week course covering advanced problem-solving strategies required for success on the American Invitational Mathematics Exam (AIME), the second in the series of prestigious math contests that determine the United States team for the International Mathematics Olympiad. AIME Problem Series B covers problems in number theory, algebra, geometry, and counting and probability. This course is specifically designed for high-performing learners and draws material from many programs for this country's top middle and high school students.

Sincerely,

Richard Rusczyk
Founder, Art of Problem Solving
classes@artofproblemsolving.com

MAA AMC

American Mathematics Competitions

American Mathematics Competitions

SECOND PLACE

is awarded to

for outstanding achievement in the

American Mathematics Competition 10

2021

Michael Dorff
Mathematical Association of America President

Carl Yerger
AMC 10 Co Editor in Chief

Azar Khosravani
AMC 10 Co Editor in Chief

Art of Problem Solving Academy

This certificate of achievement
is awarded to

Niyathi Kukkapalli

for taking on a new challenge with
High School Contest Math
in the 2020-21 Academic Year

Julie Kemeklis
Campus Director

AoPS Academy
Art of Problem Solving

Richard Rusczyk
Founder