

How to Apply

1. Complete the following sections:

Part 1: About You

Part 2: Algebraic Fluency

Part 3: Challenge Problem

2. Follow these directions:*

- Do each section on its own piece of paper. If you use more than one piece of paper for one section, staple it.
- Type the About You section.
- Paper clip the three sections together, but do not staple the sections together.
- Write your ID number at the top of each section.
- Do not write your name on any page.

* It is important to follow these directions because they make your application anonymous and easy to process, and also because the ability to follow written directions is an indicator that you are able to handle the self-directed learning that takes place in Math Academy.

3. Choose your due date, and turn in your application on time:

Option 1: Bring it to your math class on or before Friday, January 17.

Option 2: Bring it to the SVHS front office no later than 10:00 on Tuesday, January 21.

Part 1: About You

Most high school students, of any grade, would find Math Academy to be too rigorous and overwhelming, but for many students who take it, it is the most enjoyable class, despite (or because of) the challenge. The following questions will help give you, your family, and your teachers some insight into how well Math Academy might fit your learning style and interests. Please type your answers using complete sentences (other than the math problem), and proofread your answers.

1. Most Math Academy applicants would easily get an A in Math 1 or Math 2, but not necessarily in Math Academy. What were your grades like over the past couple years, and how would you feel if you did not get an A in math next year?
2. What would you do if you failed a math test?
3. In most classes, work done at home serves to review what was done in class. In Math Academy, students are more self-directed, and some material is learned at home, such as through homework problems based on concepts not directly covered in class. How do you feel about using resources (textbook, notes, friends, online sources, etc.) to work on problems different than what you have experienced in class?
4. Most math classes involve learning ways to do specific things, but Math Academy is also about learning general concepts and then applying them in new situations. How would you feel about test questions that are based on reasoning about concepts learned in class rather than being similar to actual examples seen before?

Part 2: Algebraic Fluency

Most students have trouble with fractions, exponents, algebraic manipulation, and other fundamentals of arithmetic and algebra throughout high school, but students in Math Academy are assumed to be fluent with these and other topics. Most students also tend to have difficulty writing formally using mathematics, which is something expected in Math Academy.

1. How do you feel about fractions and about basic algebra?
2. Solve the equation $3x = 7 - \frac{1}{4}x$ without a calculator.
3. Using mathematical terminology, explain your process in solving the equation. Use complete sentences.

Part 3: Challenge Problem

Your little brother has three stuffed animals: a hippo, a tiger, and bear. Every morning he lines them up in front of his room. There are six different orders he can do: HTB, HBT, THB, TBH, BHT, BTH.

The Problems

1. For his birthday he gets another tiger. He starts with them in the order THBT, but there are 11 other possible orders. List all 12 orders.
2. Your uncle gives him a third tiger. How many possible orders are there now?
3. He buys another bear, so now he has a hippo, three tigers, and two bears. How many possible orders are there now?
4. After Christmas, he ends up with a total of two hippos, three tigers, eight bears, and a cow. How many possible orders are there now?

The Task

Your job is to explain your reasoning as you solve the problems. You do not need to explain methods you tried that turned out not to be helpful, but you are welcome to include these if you feel it will help explain why the correct methods work. Typed and handwritten responses are both fine.

The Criteria

We are looking for four things:

1. Does it seem like you actually understand the concepts you are explaining, as opposed to blindly following formulas or doing what someone told you to do?
2. Are your explanations clear enough that a student who is not doing this project could read them and understand them well enough to do problems like these on their own? (You are welcome to try this if you find a child or adult willing to be your student.)
3. Are you comfortable using appropriate mathematical terminology and notation?
4. Does it seem like you enjoyed the challenge?

There are many different ways to do these problems, and there is no expectation that you will correctly answer every question.

The Rules

You are encouraged to use resources, such as other people or online sources, with three restrictions:

1. Do not look at another student's work.
2. If someone helps you, they may not write anything.
3. Cite any source of help, whether it is an online source, a textbook, a person, etc.

How to Apply

1. Complete the following sections:

Part 1: About You

Part 2: Algebraic Fluency

Part 3: Challenge Problem

Part 4: Teacher Recommendation

2. Follow these directions:*

- Do each section on its own piece of paper. If you use more than one piece of paper for one section, staple it.
- Type the About You section.
- Paper clip the three sections together, but do not staple the sections together.
- Write your ID number at the top of each section. Check with your teacher to make sure it is the correct ID.
- Do not write your name on any page.

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3. Choose your due date.

Email the school counselor Sarah Hershey, shershey@scottsvalleyusd.org, to arrange a time in March or April to come to SVHS to drop off your application and take the numeric and algebraic fluency assessment. The assessment will take under 30 minutes.

Part 1: About You

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1. How do you feel about fractions and about basic algebra?
2. Solve the equation $-3(x - 2) = 9 - \frac{1}{4}x$ without a calculator.
3. Using mathematical terminology, explain your process in solving the equation. Use complete sentences.

Part 3: Challenge Problem

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Part 4: Teacher Recommendation

Have your teacher fill out the recommendation form on the next page.

1. Print a copy.
2. Fill out the basic information at the top.
3. Give it to your teacher to fill out the bottom half.
4. Come back later to get it back from your teacher in a sealed envelope.

Basic Info

Student Name: _____

Student ID#: _____

Parent Name: _____

Parent Email: _____

Teacher Name: _____

Teacher Email: _____

Course Name: _____

Course Website: _____

Dear Middle School Math Teacher,

Your student has expressed an interest in Math Academy at Scotts Valley High School.

Math Academy is offered as a rigorous option for freshmen intending on taking Math Academy 2 as a sophomore and IB Math HL as a junior and senior. Math Academy covers more content than traditional math courses, but the crucial differences are the additional rigor, pace, and challenge. In particular, in Math Academy:

- Topics are studied in more depth and with more rigor.
- There are projects to explore concepts and applications.
- Students are expected to be unimintimidated by self-directed learning.
- There is a greater emphasis on applying concepts as opposed to focusing on procedures.
- Students are assumed to be fully fluent in algebraic manipulation, fractions, decimals, and other elementary and middle school topics.

Math Academy is a great opportunity for students who have been well prepared for its rigors. However, students who are pushed into an honors level prematurely, whether by parents, peer pressure, or personal expectations, may have a miserable experience that can result in a lasting dislike of math.

Most incoming SVHS freshmen take Math 1, but advanced students may have a better experience in Math 2 or Math Academy. Thank you for helping us determine which course would be best for your student by filling out the information below. Please feel free to contact us with any questions.

Erik Wyner
 ewyner@scottsvalleyusd.org
Math Academy 1 Teacher

Sarah Hershey
 shershey@scottsvalleyusd.org
SVHS Counselor

Achievement

Student's math grade in most recently completed official grading period: _____%

Recommendation

Based only on numerical and algebraic fluency, which course do you feel this student is likely prepared for?

- Math 1
 Math 1 or Math 2
 Math 2
 Math 2 or Math Academy
 Math Academy

Based on numerical and algebraic fluency as well as critical thinking skills, self-direction, thoroughness and attention to detail, and growth mindset (eagerness to learn, resilience, etc.), which course do you feel would provide a positive learning experience for this student?

- Math 1
 Math 1 or Math 2
 Math 2
 Math 2 or Math Academy
 Math Academy

Additional Information

Are there any factors we should consider about this student that are not addressed elsewhere in the application?

