

Algebra 1

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Tuition: \$499

Course Description:

Algebra 1 provides the first stepping stone on the path to higher-level high school mathematics. The goal is for all students to have a strong foundation in Algebra so that they can succeed in higher-level mathematics. Before the course begins students will be asked to take a pre-test to determine which track will best suit their needs.

Honors track: Assignments on the honors track will prepare students for advanced work in mathematics with a view towards SAT II and AP tests in the future. There will be a greater emphasis on word problems and additional content will be included.

Regular track: Assignments will be tailored to help students who may have gaps in their understanding or who struggle with word problems and multi-step questions. Additional remedial assignments will be added each week to review prior concepts and areas of weakness.

Course Goals:

Conceptual Understanding. Good mathematicians understand the reasons behind mathematics. Students do not retain knowledge of mathematics if they do not grasp why a theorem or equation works. During the weekly Web-ex sessions students will hear and see in-depth explanations of examples in the text as well as real life applications. In addition, students will be assessed not only based on their responses, but on their ability to explain how they arrived at their answer. The University of Chicago textbook that we are using does an excellent job of incorporating these type of higher-level thinking skills into each lesson.

Procedural Fluency. Many students who struggle with mathematics get stuck because they lack foundational skills. The course will begin with a review of pre-algebra to ensure that students are prepared for Algebra 1 content. They also will be completing the practice problems in the textbook and taking quizzes to measure their mastery of the new skills. . Brief 20-minute video clips on the course website will help them grasp these new skills quickly

Problem-Solving Skills. Reasoning and the ability to choose the correct strategy for a problem is the key that most students are missing in tackling word problems. This will be a main focus of this course. Each week students will be assigned a "Problem of the Week," a more challenging word problem created by math teachers working with Drexel University. The students will be responsible for both solving the problems and posting a written explanation of how they arrived at their answer. Discussions about different solutions and approaches to the same problem will broaden their view of problem-solving.

Web-ex Lectures/Discussions: Live WebEx on Mondays from 12-1 pm EST. Sessions are recorded. Students will also be participating in discussions on the course website.

Communications: Students can contact me through the course website with questions. We will also be taking time during weekly WebEx for questions.

Technical needs: Scanner, durable microphone and headset, Broadband, high speed Internet and an e-mail account that accepts large files. Some assignments are downloaded as PDF files from the website.

Time Commitment: Students should allow for at least 5 hours a week to complete the assignments. It is also crucial that they work on math each day. Developing mathematical skills is far easier with daily practice.

Work due dates: All weekly assignments will be posted on Monday morning and are due by Sunday at midnight. A typical week may include:

- 2-3 sections in the textbook with video lessons to watch and practice problems to complete
- A “Problem of the Week” students may solve using any method. They are graded not just for correct answers, but for explaining their thinking and what parts of the problem challenged them
- Additional skills practice for remediation or a challenge problem/project

Qualifications: I have an undergraduate degree in Mathematics from the University of Pittsburgh and a Masters in Education from the University of Pennsylvania. I have taught high school mathematics for the past 7 years in the Philadelphia area. (I was homeschooled K-12, and received an AP scholar with distinction award in high school.)

Required Materials: UCSMP Algebra 1 (3rd edition) ISBN#9780076213863

You can order it from amazon.com or from the publisher

<https://www.mheonline.com/program/view/2/16/620/0076213862/>

Calculator: a TI-83 or higher model. Students will need a graphing calculator for the higher level mathematics in high school so I recommend that you purchase the calculator now and they become accustomed to it. In Algebra 1 students will mainly be using the calculator to check their work or solve the problem in a different way.

Who should apply: Any student 7th grade and up who has successfully completed a pre-algebra course. If you have any questions about the course feel free to contact me at kathrynmgomes@gmail.com