

ACES MATH: Algebra (III)

Course Description

This is the third part of a course on elementary algebra, a mathematical language that we use to describe patterns. This part involves more advanced topics in elementary algebra and some topics in abstract algebra. In addition to the regular calculation-based presentation of algebra, this course attempts to introduce mathematical proofs, training students on how to write rigorous proofs when deriving new results from existing results.

Prerequisite. Students who take this course should have taken the ACES math course: Algebra (II). A placement test is required for anyone who did not take the prerequisite course.

Textbooks. We recommend the following textbook for students to read:

Algebra 2: Concepts and Skills

R. Larson, L. Boswell, T. Kanold and L. Stiff
McDougal Littell, 2008.

Main Topics. The main topics of this course include: (i) elementary set theory; (ii) elementary linear algebra; (iii) sequences and series; (iv) introduction to combinatorics; and (iv) introduction to trigonometry.

Homework. Learning mathematics is very similar to learning to play piano: you can not learn anything unless you practice a lot, and if you practice a lot you will be good at it. There is no shortcut here. Therefore, we will have a large (but still reasonable) amount of homework for the students after each lecture.

Notes on Competition Track. Students on the competition track are expected to work on harder (meaning more difficult and in larger amount) homework sets.

Communications. Students and their parents are encouraged to communicate with the instructors on issues directly related to the course, through the email address aces.math.info@gmail.com; For other issues related to the ACES after school program, please email aces4kidsinfo@gmail.com .