

ACES MATH: Geometry (I)

Course Description

This is the first part of a one-year course on geometry, the study of shape, size and relative position of figures, as well as the properties of space. This course has three main elements in it: geometric concepts, deductive reasoning and mathematical proof. These three elements are mixed together in each problem that we study. Through in-depth studies of two- and three-dimensional geometric shapes, students get systematic training on using deductive reasoning to discover new properties of geometric objects from existing ones, and writing down the reasoning process in the forms of mathematical proofs.

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

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

Geometry,
Ray C. Jurgensen, Richard G. Brown and John. W. Jurgensen
Houghton Mifflin Company, 2000.

Main Topics. The main topics of this course include but not limited to: (i) deductive reasoning strategies; (ii) parallel and perpendicular lines; (iii) rays and angles; (iv) congruent triangles; (v) properties of polygons and quadrilaterals; and (vi) similarity.

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 instructor 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 .