Chapter 1

Introduction

1.1 Why this Book

Solving competition geometry problems is challenging. It requires students not only to remember lots of geometry theorems, but also to master various related techniques. Though related, these two skills are not the same. Many geometry techniques are intuitive to apply and do not involve complex theorems. However, it can be surprisingly more effective to utilize these techniques than to solely rely on a bunch of theorems. Therefore, being proficient in employing appropriate techniques will boost a student's problem solving ability in a meaningful way.

That being said, it appears that the vast majority of math trainings and materials focus on teaching students geometry theorems. This book will introduce a collection of geometry techniques which can be readily used to solve many competition geometry problems at various levels. Mastering them is a must for anyone who wants to be a strong contender in math competitions.

1.2   Target Audiences

While some contents, such as *the rotation method* and *the area method*, can be appreciated by and are helpful to beginners, most techniques are appropriate for students who compete at AMC10/12 and above. Certain topics are at AMO/MOSP level.

In order to get full benefits from this book, students should understand all the basic concepts that are taught in middle school and high school, including trigonometry and complex numbers. In addition, basic knowledge of some fundamental principles in physics is beneficial when studying *Chapter 8*.