

The plan of our study

We study mathematics education. Studying education is divided into two branches. One is a study of teaching materials and the other is a study of teaching methods. We are planning to study teaching materials for university students. A study of teaching materials is to research the contents of a textbook from a higher viewpoint. We need a lot of knowledge and sometimes have to study mathematics at a high level. A study of teaching methods is to research effective methods for students to understand the subject. It is related to the students' ability, interest and interactive human relations. There is another phrase 'Preparation for classes'. It means that teachers read a textbook and solve exercises before a class. Some people think that a study of teaching materials is similar to a preparation for classes. They, however, are quite different from each other.

From 2002, we have been teaching mathematics education in Osaka City University and the contents are mathematics and stories about our experiences. We introduce mathematical topics of a high school which are developed into a higher level, but are not overlapped with mathematics in university. Now we are dealing with 'Equations of degree 3', 'Fibonacci sequence', 'Properties of π ', 'Euclidean algorithm' and 'Extension of numbers'. Since we had been teaching students in high schools for 14 years, we talk about our experiences at a break time in mathematics education class.

In 2013, high school textbooks were dramatically changed. The topic 'Matrix' was replaced with 'Complex number' and a new subject 'Application of mathematics' was introduced. So the plan of our study is the following:

- (1) we choose some topics from a new text and make teaching materials for university students,
- (2) and we teach them in our class.