

## How to Read a Math Textbook

Math textbooks differ from most other literature in three main ways.

1. Math texts present information in a very condensed form. Every sentence is important.
2. Math textbooks use a very precise technical language.
3. Math texts attempt to teach skills as well as to convey information.

Because of these differences, math texts be approached in a different fashion than other texts. The approach below uses several techniques to improve understanding.

1. The text is read multiple times improve retention.
2. The text is read actively so as to develop your problem solving skills.
3. The text is read in a different manner at each reading to maximize understanding.

### First Reading: Preview

Preview the text before the lecture. At this stage you want to skim the text for broad ideas. Survey the topic headings, examine any diagrams or example problems and familiarize yourself with the vocabulary. When done you should have a good idea of the type of problems that you will solve, a basic idea of the approach to solving them, and some of the applications.

### Interlude: Lecture

If you have pre-read the material, you will find lectures to be more informative. During a lecture, instructors typically overview the material and work selected problems. The lecture will help to give focus and direction to the vague ideas that your pre-reading will have spawned.

### Second Reading: Outlining

Your second reading will be the most comprehensive. Here you will carefully read every sentence. This reading should be an active process and will require that you have pencil and paper (and maybe a calculator). You should record every new vocabulary term and its definition as you encounter them. You should also work through every example problem.

### Interlude: Homework

Homework is the first place to apply what you have learned. While working through the problems you will probably use your book as a reference. Try to more than just copy the techniques illustrated by the example problems. The goal of homework is to help you learn how to apply general principles to specific situations. Try to keep your eye on the big picture.

### Third Reading: Highlighting

During your third reading the idea is to review topics and examples which are still giving you trouble. When you complete this reading you should be able to answer every problem in the homework and the lecture.

### Later Readings: Review

It is a good idea to read the text again before each quiz or test. At each reading the concepts will become more clear and memorable.