Tips For Reading Math Textbooks

坚持-热爱-专注 ◇

1 Introduction

Reading a math textbook is different than other types of reading. A math textbook teaches you concepts and techniques rather than telling you a story. It's not always the best strategy to start from the beginning and try to read every single word. If you feel like reading your math textbook is "impossible" try some of the following strategies, which will help you get the most out of your reading.

2 Tips

Know your goal

- Figure out what concepts you should be getting from the reading—consult the syllabus, talk to your professor, or ask your TA.
- Are you reading in preparation for lecture? Focus mostly on getting the big picture and generating questions for class. Reading after lecture? Use the book to fill in details that you might have missed in class and work examples to get extra practice.
- Take a look at the types of problems you'll be expected to solve or the concepts you are expected to understand by the end of the section.
- Keep your goal in mind as you read, and check in with yourself after finishing a section.

Take notes···in your own words

- When reading a math book, take notes as a way to translate the text into your own words. This is an effective learning technique— when you write down definitions, theorems and explanations in your own words, you are more likely to understand and remember them.
- If you're having trouble putting something in your own words, it might mean you don't have a solid un-

derstanding of it yet. Consult another resource(e.g. another textbook or internet resource) or person (e.g. professor, tutor, classmate). Even if the process is frustrating, it's worthwhile; testing your ability to put something in your own words is a good way to gauge what you know and don't know, which is an important part of the learning process.

Work through examples

- Don't just skim (or worse, skip!) the examples. Instead, devote more of your focus to the examples. Working through them and verbalizing the main ideas behind them is a great way to test to make sure you're understanding what you're reading.
- Read with a pencil and paper in your hand and when you get to an example, work it out! Try not to look at the solution until you are done.
- When checking your work, make sure you understand each step and why.
- Practice the examples BEFORE you attempt homework problems and then try to do your homework without referring back to the example.

Fill in the gaps

- Math textbooks, especially for higher-level classes, tend to leave out details they think are obvious. What might seem obvious to the textbook author is not obvious to everyone!
- If you are reading through a proof or a step-by-step solution to an example, and you can't see how the author got from one step to the next, try to fill in the missing details yourself. If you can't figure them out on your own, ask someone else (a classmate, peer tutor, TA, or professor).

Try the problems at the end of the chapter

- Answering the questions and working through the problems at the end of the chapter is a great way to test your understanding. Too many students skip this great opportunity.

- Look at how the questions are organized— sometimes they are increase in difficulty or are arranged by topic.
- Make sure you try a diverse assortment of problems, not just all one topic or all of the easy ones.

Re-visit the reading

- Have you ever seen a movie twice and understood so much more the second time? The same thing works for textbooks!
- Try reading through a section before you cover it in class to give yourself some context for the lecture. Focus mostly on "big picture" ideas and one or two examples.
- Return to what you read after class to help reinforce what you learned in and prepare for the homework assignment.
- You can always use your textbook as a reference when you forget a definition, theorem, or problem solving technique as well—just make sure to take the time to think through it yourself.