

Reading Your Textbook

Linear Algebra with Applications, Otto Bretscher, 3rd Ed., Pearson Prentice Hall
Linear Algebra, Math 52, Brown University, Spring 2006, Instructor Stange

Reading mathematics is an active, not a passive, endeavour. This is particularly so for our text, which is organised by “Definitions” and “Facts” (more commonly known as theorems), as well as “Examples” As you read your textbook, you should be stopping to ask yourself questions to test your own understanding. This is a skill that takes time to develop, so here are some beginning strategies:

- 1. After reading a Definition**, stop to *come up with an example of something which satisfies* the definition. Also *come up with an example or two of things which don't*, and ponder which part(s) of the definition they fail.
- 2. After reading a Fact**, stop to *review the reasoning* used to reach the conclusion stated in the Fact. Often this is contained in the paragraphs you just finished reading, but sometimes it is listed afterward in a more formal “Proof”. *Isolate the main steps* of the reasoning, and note these in the margin. Take careful *note of the hypotheses* of the theorem, and try to *invent examples* which don't satisfy the conclusion, and evaluate which of the hypotheses they fail (if they fail the conclusion, they *must* fail one of the hypotheses). Sometimes the textbook just gives a few examples as a means of convincing you of a Fact. If this is the case, and especially if you are interested in pursuing mathematics at a higher level, you can try to come up with a proof by yourself (but this is not required for the course).
- 3. When you come upon an Example**, read the problem and then *try to work out the solution by yourself* before you continue reading. If you can't do it, then try to *outline the ideas that will be used* in the solution, based on what you just read, and note these in the margin. Then, as you read the solution, *compare* your ideas to their solution method.
- 4.** To save time later, and to get a head start on your learning, **make a review sheet** listing the Definitions and Facts from your reading right when you finish. Commit these to memory right away, and then look for them during lecture.