

## How to Read a Math (or Science) Textbook

*NOTE: This passage was written with math textbooks*

move from each line to the next of the operations. Your version of the solution will probably have more lines than the author's. That's good. It may sometimes take you two or three steps to accomplish what the author does in one.

Working solved problems does take a lot of time. It is not unusual to spend an hour or two on a single page. Try to be patient.

After you can work through the solved problems on your own, the homework exercises will give you little trouble, for they are usually very similar. Exam questions, too, will mostly follow the same pattern. In short: time spent on problems the author has solved for you will pay off in high grades.

Some students are discouraged to see how easily the author sails through a tough problem. "I never would have thought to do that." "How did s/he know that adding  $x^2$  to both sides would make it come out?" "If we're supposed to do this on an exam, I'm finished." These are common reactions. But what you see in the book is only the author's final product, carefully cleaned up for publication. He or she produced wastebaskets full of scratch paper to find that clean solution. And teachers do the same when preparing for a lecture. We math people make math look easy because we work hard at it when you aren't looking.

Remember that you will not be expected to invent a new problem-solving technique on the exam. Your task is to do the techniques already shown to you in class and in the book.

Some math texts use pictorial illustrations, and some do not. Like the words, the picture needs slow and careful study. A quick glance will not do, as it might in a biology text. Every line, every symbol is there for a specific reason, and you should take the time to understand the picture thoroughly – in detail. This is especially true of graphs and charts, which often contain a great deal of information in a small space.

As you can see, you do not merely read a math test – you work through it! The information has to be dug out, not just skimmed from the surface. It is a slow business, and the only good way to understand what the math text is trying to tell you.