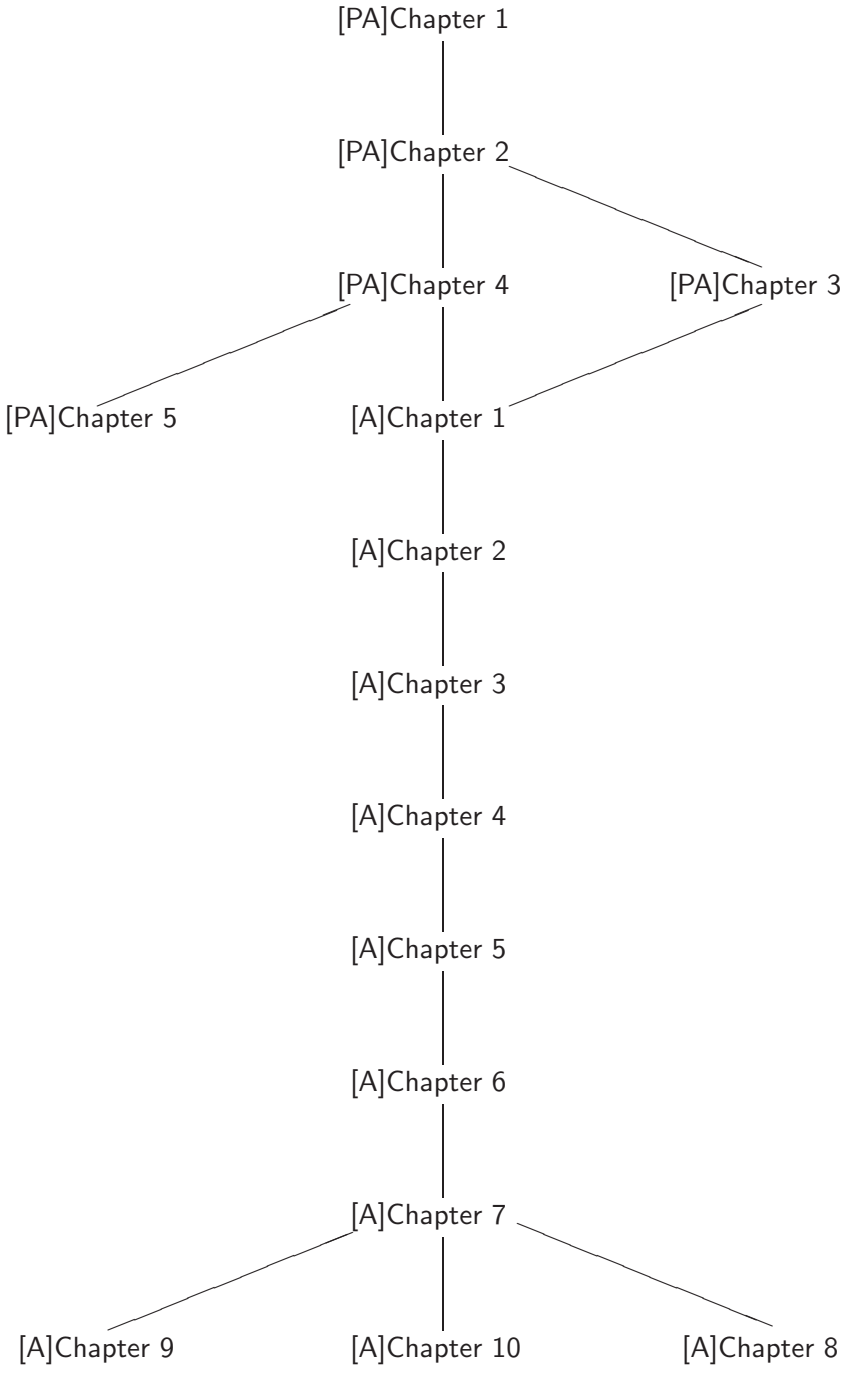
Chapters in the Companion Volume

Teaching School Mathematics: Algebra ([Wu-Alg])

Structure of the chapters in this volume ([PA]) and [Wu-Alg] ([A])



Suggestions on How to Read This Volume

The major conclusions in this book, as in all mathematics books, are summarized into **theorems**; depending on the author's (and other mathematicians') whims, theorems are sometimes called **propositions**, **lemmas**, or **corollaries** as a way of indicating which theorems are deemed more important than others (note that a formula or an algorithm is just a theorem). This idiosyncratic classification of theorems started with Euclid around 300 B.C., and it is too late to change now. The main concepts of mathematics are codified into **definitions**. Definitions are set in **boldface** in this book when they appear for the first time. A few truly basic definitions are even individually displayed in a separate paragraph, but most of the definitions are embedded in the text itself. Be sure to watch out for them.

The statements of the theorems as well as their proofs depend on the definitions, and proofs (= reasoning) are the guts of mathematics.

A preliminary suggestion to help you master the content of this book is for you to

> copy out the statements of every definition, theorem, proposition, lemma, and corollary, along with page references so that they can be examined in detail if necessary,

and also to

> summarize the main idea of each proof.

These are good study habits. When it is your turn to teach your students, be sure to pass on these suggestions to them. A further suggestion is that you might consider posting some of these theorems and definitions in your classroom.

You should also be aware that reading mathematics is not the same as reading a gossip magazine. You can probably flip through such a magazine in an hour, if not less. But in this book, there will be many passages that require careful reading and re-reading, perhaps many times. I cannot single out those passages for you because they will be different for different people. We do not all learn the same way. What is true under all circumstances is that you should accept as a given that mathematics books make for exceedingly slow reading. I learned this very early in my career.

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On my very first day as a graduate student many years ago, a professor, who was eventually to become my thesis advisor, was lecturing on a particular theorem in a newly published volume. He mentioned casually that in the proof he was going to present, there were two lines in that book that took him fourteen hours to understand and he was going to tell us what he found out in those long hours. That comment greatly emboldened me not to be afraid to spend a lot of time on any passage in my own reading.

If you ever get stuck in any passage of this book, take heart, because that is nothing but par for the course.