

Introduction

Here you are, perusing a book on the essentials of Algebra II. You'll find here, as Joe Friday (star of the old *Dragnet* series) said, "The facts, ma'am, just the facts." For those of you too young to remember *Dragnet*, just think of this essentials book as being the Twitter version — not too detailed but with all the necessary information. In this book, you find the information you need with enough examples to show you the processes, but not a bunch of nitty-gritty details that tend to get in the way.

About This Book

A book on Algebra II isn't a romance novel (although I do love math), and it isn't science fiction. You could think of this book as a cross between a travel guide and a mathematical laboratory manual. How do travel and math go together? Let me try some situations that may fit:

- ✔ You just finished working through Algebra I and feel eager to embark on a new adventure.
- ✔ You haven't worked with algebra in a while, but math has always been your strength, so you think that a little prepping with some basic concepts will bring you up to speed.
- ✔ You're helping a friend or family member with Algebra II and want just the most necessary information — no frills or extra side-trips.

Even though I've pared the material in this book down to the basics, I haven't lost sight of the fact that other math areas are what drive Algebra II. Algebra is the passport to studying calculus, trigonometry, number theory, geometry, and all sorts of good mathematics. Algebra is basic, and the algebra you find here will help you grow your skills and knowledge so you can do well in math courses and possibly pursue other math topics.

Conventions Used in This Book

To help you navigate this book, I use the following conventions:

- ✓ I *italicize* special mathematical terms and define them right then and there so you don't have to search around.
- ✓ I use **boldface** text to indicate keywords in bulleted lists or the action parts of numbered steps. I describe many algebraic procedures in a step-by-step format and then use those steps in an example or two.

Foolish Assumptions

Algebra II is essentially a continuation of Algebra I, so I need to make some assumptions about readers of this book.

I assume that a person taking on Algebra II has a grasp of working with operations on signed numbers, simplifying radical expressions, and manipulating with rational terms. Another assumption I make is that your order of operations is in order. You should be able to work your way through algebraic equations and expressions using the ordering rules. I also assume that you know how to solve basic linear and quadratic equations and can make quick sketches of basic graphs. Even though I lightly cover these topics in this book, I assume that you have a general knowledge of the necessary procedures.

If you feel a bit over your head after reading through some chapters, you may want to refer to *Algebra I For Dummies*, 2nd Edition (Wiley), or *Algebra II For Dummies* (Wiley) for a more complete explanation of the basics. My feelings won't be hurt; I wrote those, too!

Icons Used in This Book

The icons that appear in this book are great for calling attention to the hot topics when doing algebra.



This icon provides you the rule or law or instruction on how to proceed whenever encountering the particular mathematical situation. The algebra rule given is “the law” — it always applies and always must be followed.



When you see the Example icon, you know that you'll find the result of an attempt at working out an equation or concept. An example often has a hidden agenda — it shows you more of a process than a basic rule can get across by itself.



This icon is like the sign alerting you to the presence of something special to watch out for on your adventure. It can save you time and energy. Use this information to cut to the chase and avoid unnecessary detours.



This icon helps you bring back information that you may have misplaced along the way. The information is needed to get you from here to the goal.



This icon alerts you to common hazards and stumbling blocks that could trip you up — cause accidents or get you into trouble with the math police. Those who have gone before you have found that these items can cause a big problem — so pay heed.

Where to Go from Here

You can use the table of contents at the beginning of the book and the index in the back to navigate your way to the topic that you're most interested in. You may want to start with some problem solving — in the form of equations or inequalities. If that's the case, then look at Chapter 2 for linear equations and inequalities or Chapters 3 and 4 for quadratic and other degree equations. Chapter 5 is your destination if you want to see what constitutes a function and its characteristics. And specific functions such as linear and quadratics are found in Chapter 6; polynomials are found in Chapter 7, rationals in Chapter 8, and exponentials and logs in Chapter 9. I saved the imaginary for last, in Chapter 12. But you could stop off and look at conics in Chapter 10, if those curves are of interest. Also, systems of equations incorporate several types of functions, and you find them in Chapter 11.

And, if you're more of a freewheeling type of guy or gal, take your finger, flip open the book, and mark a spot. No matter your motivation or what technique you use to jump into this book, you won't get lost because you can go in any direction from there.

Enjoy!

The 5th Wave

By Rich Tennant



"We're both mathematicians, Sheldon, so let me explain it this way: Where r denotes the ordinate of our relationship at the time, t , above the point x , where b denotes boring, o denotes over, m denotes moving on. . . . Are you starting to get any of this?"