A.J. SADLER

MATHEMATICS SPECIALIST

UNITS 1&2

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A. J. Sadler

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Preface.

This text targets units one and two of the West Australian course *Mathematics Specialist.* Chapters one to eight cover the content of Unit One and chapters nine to thirteen cover Unit Two.

UNIT ONE	**UNIT TWO**	UNIT THREE	UNIT FOUR

The West Australian course, *Mathematics Specialist,* is based on the Australian National Curriculum Senior Secondary course *Specialist Mathematics.* At the time of writing there are only small differences between the content for units one and two of the West Australian course and units one and two of the Australian Curriculum course, so this text would also be suitable for anyone following units one and two of the Australian Curriculum course, *Specialist Mathematics.* The main differences being that the West Australian units include vertical translations of trigonometric graphs, solving linear equations in two variables by matrix methods, and when considering converse and contrapositive statements the inverse is also covered.

The book contains text, examples and exercises containing many carefully graded questions. A student who studies the appropriate text and relevant examples should make good progress with the exercise that follows.

The book commences with a section entitled *Preliminary work.* This section briefly outlines work of particular relevance to this unit that students should either already have some familiarity with from the mathematics studied in earlier years, or for which the brief outline included in the section may be sufficient to bring the understanding of the concept up to the necessary level.

As students progress through the book they will encounter questions involving this preliminary work in the *Miscellaneous Exercises* that feature at the end of each chapter. These miscellaneous exercises also include questions involving work from preceding chapters to encourage the continual revision needed throughout the unit.

Some chapters commence with a "Situation" or two for students to consider, either individually or as a group. In this way students are encouraged to think and discuss a situation, which they are able to tackle using their existing knowledge, but which acts as a fore-runner and stimulus for the ideas that follow. Students should be encouraged to discuss their solutions and answers to these situations and perhaps to present their method of solution to others. For this reason answers to these situations are generally not included in the book.

At times in this series of texts I have found it appropriate to perhaps go a little outside the confines of the syllabus for the unit involved. In this regard readers will find that in unit two I consider $\sin P \pm \sin Q$ and $\cos P \pm \cos Q$, and when considering matrix equations of the form $AX = B$, my considerations go beyond X and B being column matrices. I also include shear transformations and mention proof by exhaustion.

Alan Sadler

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Unit One.

Unit Two.

Important note.

This text has been written based on my interpretation of the appropriate Mathematics Specialist syllabus documents as they stand at the time of writing. It is likely that as time progresses some points of interpretation will become clarified and perhaps even some changes could be made to the original syllabus. I urge teachers of the Specialist Mathematics course, and students following the course, to check with the appropriate curriculum authority to make themselves aware of the latest version of the syllabus current at the time they are studying the course.

Alan Sadler