Advanced Math II

Seton Home Study School

Lesson Plan ◆ Answer Keys ◆ Tests ◆ Quarter Report Forms

Course Manual

MAT415_18A

Quarter Report Forms are after the Tests.

Revised December 2017

Outer Cover: *Charity of St. Elizabeth of Hungary*, by Leighton Edward Blair

Inner Cover: *Madonna and Child*, by Sassoferrato

TEXT:

Advanced Mathematics, An Incremental Development, 2nd ed. (Saxon)

Advanced Mathematics, An Incremental Development: Solutions Manual, 2nd edition (Saxon)

INTRODUCTION

Teaching Tips

Saxon Teaching Method: Incremental Development and Continuous Practice

The Saxon Advanced Math program has two important aspects: incremental development and continuous practice. *Incremental development* refers to the division of concepts into small, easy-to-understand pieces that are taught over several lessons. Thus, a major concept is not taught in only one lesson, but rather is developed over time. Students are not expected to fully understand the complete concept the first time it is taught, just the incremental aspects of the concept taught in that lesson. *Continuous practice* means that fundamental skills and concepts are practiced and reviewed throughout the year.

The twin ideas of incremental development and continuous practice fall under the educational concept of *distributed learning*. Testing has proven that distributed learning is more effective than *massed learning*. Looking at material several times in smaller increments makes a more lasting impression on the brain than looking at material only once for an extended period of time.

Therefore, to gain the maximum benefit from this approach, it is important that students try to maintain a schedule of studying *two days per lesson*, while doing *all* the problems after each lesson when feasible.

Basic Outline of the Textbook

Although Advanced Math I and Advanced Math II use the same textbook, they are two separate courses, each worth 1 academic credit. Advanced Math I covers Lessons 1-68 and Tests 1-16. Advanced Math II covers Lessons 65-125 and Tests 17-31. **The successful completion of Advanced Math I is a prerequisite for Advanced Math II. The course material in this Course Manual relates to Advanced Math II. Students are normally expected to complete this course in one academic year.**

Students should familiarize themselves with the general organization of the textbook and the aids available. The basic outline is as follows:

- **Table of Contents:** what is contained in the textbook
- **Preface:** an overview of the textbook and its general goal
- **Lessons 1-125:** titles of the lessons (and concepts) covered, each followed by a Problem Set
- **Appendix:** proofs of selected trigonometric formulas
- **Answers:** answers to all Problem Set exercises
- **Index:** alphabetical listing of important concepts and persons covered in the textbook

Although the main section of the textbook comprises 125 lessons, students in Advanced Math II are required to study only Lessons 65 through 125. Each lesson presents a concept or concepts, followed by a ***Problem Set*** of exercises based on the present lesson and any lessons previously presented.

Details of Study Schedule and Procedure

Daily Schedule:
1 period in Morning
1 period in Afternoon

Parents might remember their own high school math classes and the homework they had to complete once they came home from school. The classes usually lasted about 50 minutes, and the homework took about that long as well. One lesson was studied per day, and the next day the class moved on to the next lesson. Textbooks were written with this schoolwork/homework template in mind. Saxon textbooks are no different.

With this in mind, and considering that this course must be adapted to a home environment, we recommend that students schedule two Advanced Math periods per day: one in the morning, and one in the afternoon or evening. The goal is to **complete one lesson and corresponding Problem Set every two days**, so that students can complete the 61 lessons required for this course in one year.

Each Period:
50 Minutes

Each period should be about 50 minutes, since experience has demonstrated that to go beyond 50-60 minutes in one session is counterproductive.

Daily Lesson Plan:
1. Read the Lesson.
2. Do the Problem Set.
3. Check and redo, as necessary.

For the first period, students should read and understand each lesson and then do the Problem Set that follows the lesson, until the 50 minutes are up. Students should continue where they left off for the second 50-minute period. On the second day, students should continue until they have completed the entire Problem Set. Proceed in order from Lesson 65 through Lesson 125; do not skip around.

Optional CD-ROMs:
- *DIVE for Saxon Advanced Math*
- *Saxon Teacher Advanced Math*

Consider using the optional *DIVE for Saxon Math* CD-ROMs or *Saxon Teacher Advanced Math* CD-ROMs. These computer aids feature a teacher explaining each lesson throughout the entire textbook. The teacher verbally explains each concept while writing on a blackboard. This "human element" approach can be very helpful to students. The student should view the CD-ROM lesson prior to, or in place of, the textbook lesson before beginning work on the Problem Set.

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