Kolbe Academy
Home School

GRADE EIGHT OR NINE
ALGEBRA I (K)
Foerster Algebra 1

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COURSE TITLE: Algebra I

COURSE TEXTS:

- ❖ *Algebra I Expressions, Equations, and Applications,* Paul A. Foerster, © 2006 (T4100)

COURSE DESCRIPTION:

This course plan includes a one year course in Algebra I (K). Parents should preview the course plans to gain a better understanding of what each course entails.

The beginning Algebra I (K) course moves at a very quick pace as much of the material in the first 2 chapters is review of Pre-Algebra. A review of decimals, fractions, and percentages is not included so parents should be sure the student is comfortable with those topics before beginning the course. Students who do well in the Algebra I (K) course will find themselves ready for the study of Algebra II (K) or Algebra II/Trig (H) during the following year.

SCOPE AND SEQUENCE:

Algebra I
1. Expressions and Equations
2. Operations with Negative Numbers
3. Distributing, Axioms, and Other Properties
4. Harder Equations
5. Some Operations with Polynomials and Radicals
6. Quadratic Equations
7. Expressions and Equations Containing Two Variables
8. Linear Functions, Scattered Data, and Probability
9. Properties of Exponents
10. More Operations with Polynomials
11. Rational Algebraic Expressions
12. Radical Algebraic Expressions
13. Inequalities
14. Functions and Advanced Topics

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DIPLOMA REQUIREMENTS:

Summa Cum Laude diploma candidates are required to follow either the Kolbe Core course (K) or Kolbe Honors course (H) track outlined in this course plan. *Magna Cum Laude* and *Standard* diploma candidates may choose to pursue the (H) or (K) designation, but are not required to do so, and instead have the option of altering the course plan as they choose. *Summa* students must complete 4 years of mathematics during their high school course of study including Algebra I, Geometry, Algebra II, and Pre-Calculus (or higher). *Magna* students must complete 3 years of mathematics during their high school course of study including Algebra I, Geometry, and Algebra II (or higher). *Standard* diploma students must complete 2 years of mathematics including Algebra I. Please see below for specific course titles, semester reporting requirements and transcript designations for Algebra II (K) and Algebra II/Trigonometry (H).

SEMESTER REPORTING REQUIREMENTS:

Designation*		K
Course Title	Algebra I	Algebra I
Semester 1	Any TWO samples of written and graded work from Semester 1.	1) Completed Midterm 1 Core Exam 2) Completed Semester 1 Core Exam
Semester 2	Any TWO samples of written and graded work from Semester 2.	1) Completed Midterm 2 Core Exam 2) Completed Semester 2 Core Exam

*Designation refers to designation type on transcript. K designates a Kolbe Academy Core course. H designates a Kolbe Academy Honors course.

If the student wishes to have the course distinguished on the transcript with a (K) as a Kolbe Academy Core course please be sure to send the correct exams and components each semester for verification as specified above. **If no designation on the transcript is desired, parents may alter the lesson plan and any written sample work is acceptable to receive credit for the course each semester.** If you have any questions regarding what is required for the (K) designation or diploma type status, please contact the academic advisory department at 707-255-6499 ext. 5 or by email at advisors@kolbe.org.

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COURSE PLAN "AT A GLANCE" OUTLINE:

Core Algebra I (K)

Semester 1

    Weeks 1-8: Chapters 1-5 section 3

    Week 9: Midterm 1 Exam

    Weeks 10-17: Chapters 5 section 3 to 8 to

    Chapter 7 section 7

    Week 18: Semester 1 Exam

Semester 2

    Weeks 1-8: Chapter 7 section 8 to Chapter 11

    section 7

    Week 9: Midterm 2 Exam

    Weeks 10-17: Chapters 11-13, select topics in

    Chapter 14

    Week 18: Semester 2 Exam

Please note that some chapters are not covered in their entirety. Be sure to refer to the course plan that follows for specific guidance.

COURSE PLAN METHODOLOGY:

Mastery in mathematics is achieved through constant practice, so these course plans are written such that math is visited everyday (5 days/week). Each section, when assigned, is usually meant to be done in 1 day. In some instances, however, section assignments are longer, in which case there may be 3 or 4 days of assignments in a week. During these weeks, longer assignments may be broken up into two days. It is recommended that students keep to a 5 day/week schedule with mathematics despite the scheduling of their other courses.

The *Oral Practice* problems that appear at the beginning of the exercises with each lesson are assigned in this course plan only occasionally. In the sections in which they are not assigned, parents may still desire to use these to check for understanding during a lesson or may want to use them as short quiz grades or participation grades, if desired.

The *Exercise Assignments* for each section generally include most or all odd numbered problems. Most odd numbered problems are answered in the back of the student text to aid students in understanding whether they have understood the methodology of the problem. If additional work is needed, students may want to pick more of the odd or a few of the even numbered problems for further practice.

At the end of every chapter, a *Chapter Review* is assigned. The Chapter Review could be used as a test for the student. The Chapter Review questions, if used as a test, should be completed in less than one hour. One set of comprehensive *Exams* for Kolbe Core (K) students is included at the end of the course plan to be taken quarterly. A full two hours should be allotted for the student to complete Kolbe Academy's Mid Semester and Semester Exams. All questions are taken from the Test bank provided by the author.

♦ COURSE PLAN ♦

♦♦♦ FIRST SEMESTER ♦♦♦

WEEK 1	
♦♦♦ **Chapter 1** ♦♦♦	
Expressions and Equations	
	Chapter 1 sections 1 through 5 should be a review of Pre-Algebra
1-1	Operations with Numbers. Read section 1-1. Do exercises 1 – 31 odd
1-2	Variables. Read section 1-2. Do exercises 1, 3, 7, 11, 15, 19, 23, 25, 29, 35
1-3	Powers and Exponents. Read section 1-3. Do exercises 1a, f, h, i, j, 5, 9, 11, 15, 19, 27, 35, 45
1-4	Order of Operations. Read section 1-4. Do exercises 1 – 25 odd, 33, 35

Chapter 1-1 through 1-5 should be a review of Pre-Algebra.
Many problems are assigned this week. The fifth day is left open in the event that more than one day might be needed to finish an assignment.

The exercises that are assigned are those of the exercise at the end of the section, and do not include the oral practice unless specifically stated.

Notes

WEEK 2	
1-5	Expressions from Word Statements. Read section 1-5. Do exercises 1 – 29 odd.
1-6	Introduction to Equations. Read section 1-6. Do exercises 1, 3.
1-7	Solving Equations. Read section 1-7. Do exercises 1 – 21 odd, 41, 47
1-7	Do section 1-7 exercises 23 – 39 odd, 43, 49
1-8	Problems That Lead to Equations. Read section 1-8. Do exercises 1, 5, 9, 11, 15, 19

Note the difference between the problems in section 1-5 and those in section 1-6, 1-7, and 1-8. The exercises in 1-5 give a value for the variable and as the student to evaluate an expression. Those in 1-6, 1-7, and 1-8 give an equation and ask the student to work backwards to find the value of the variable.

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WEEK 3	
1-9	Problems That Lead to Expressions and Equations. Read section 1-9. Do problems 1, 5, 9
1-10	Chapter 1 Review. Do problems T1, T2 i, T3 a, T4 b, c, T5 d, T6 b, T7 d, g, T8, T10
Test	Chapter 1 Test
2-1 to 2-3	Introduction to Negative Numbers. (Optional sections. If students are very familiar with negative numbers, 2-1 through 2-5 can be skipped. Be sure to read the note at the end of Week 3. These sections will be represented on the Quarter 1 Exam.)

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♦ COURSE PLAN ♦

	Operations with Negative Numbers. Sections 2-1 through 2-3 are a review of addition and subtraction of negative numbers. Student should be familiar with this material, and the three sections should be easy to go over in one day. Do odd exercises in sections 2-1, 2-2, and 2-3. Note in particular the blue box on page 52 entitled TO SUBTRACT SIGNED NUMBERS. The concept of changing a subtraction to adding the opposite will be used in section 2-6.
2-4 to 2-5	Multiplying and Dividing Signed Numbers. Read section 2-4 and do odd exercises 1 to 39, 41 – 49 part a. only, 51. Read section 2-5, do odd exercises 1 to 39 odd, 41 to 49 part a. only, 53.

The purpose of section 1-9 is to guide the student to write equations from word problems. Students should write down the expression in part a, the equation in part b, and then use the equation in part b to solve the subsequent parts. Do not give one number answers before writing the equation in part b.

Note in particular the blue box on page 52 entitled TO SUBTRACT SIGNED NUMBERS. The concept of changing a subtraction to adding the opposite will be used in section 2-6.

Notes

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