

# Kolbe Academy Home School

## GRADE SEVEN MATHEMATICS *Sadlier-Oxford Fundamentals of Algebra*

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**COURSE TITLE:** Mathematics 7: Sadlier-Oxford

**COURSE TEXTS:**

**Full Year:**

Sadlier-Oxford Fundamentals of Algebra Sourcebook (Textbook)  
Sadlier-Oxford Fundamentals of Algebra Practice Book (Workbook)  
Optional Teacher's Edition (Available for Purchase to Enrolled Families Only).

**TEXT DESCRIPTIONS**

Components	
<b>Sourcebook (Textbook)</b>	The sourcebook contains the learning tasks for students to do with adult supervision and interaction. This text is a non-consumable book and to be used along with the consumable practice book at minimum. Answers to both the sourcebook and practice book are available in the Teacher's Edition.
<b>Practice Book (Workbook)</b>	The practice book is consumable and should be used along with the sourcebook. They contain the exercises the student does independently after each learning task. Answers to workbook questions are in the Teacher's Edition.
<b>Teacher's Edition</b>	The Teacher's Edition is optional, but strongly recommended. More than a simple answer key for the sourcebook and practice book, the text provides teaching strategies and solutions for common errors. The teacher's edition is available for purchase through the Kolbe Bookstore to Kolbe-enrolled families.

**COURSE DESCRIPTION:**

The goal of *Fundamentals of Algebra* is to develop student's mathematical problem solving skills both in practical and abstract concepts. The series presents mathematical concepts in a linear manner, in an alternative to the review method presented in other programs, to provide an alternative for a family that prefers to teach mathematics without constant review. In addition, the series provides opportunities for strong math students to approach concepts that may be skipped in other series. Upon completion of the course, students will be ready to move into 8<sup>th</sup> grade Mathematics or Algebra I, depending on his or her readiness to move into more abstract thought. The textbook is arranged into 14 chapters with lessons arranged to review concepts introduced in previous math programs while advancing students toward readiness for algebra. Through diagnostic pre-tests, the home educator can make informed decisions about student progress and, using the teacher's edition, make targeted suggestions for remediation or adjust pacing to challenge a student who has already mastered a given concept. In addition to computational skills, the program focuses on problem-solving strategies, making unpacking problems explicit so that students can be ready for future mathematics programs and standardized tests they may have to take for state requirements and/or college or high school entrances. We hope that, through this series, students will develop important logic and reasoning skills that will be invaluable in future mathematics courses and throughout life.

**SKILLS TO BE DEVELOPED:**

- Readiness for eighth grade mathematics or Algebra I, depending on the individual student's gifts

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**OPTIONAL ENRICHMENT SUGGESTIONS:**

Some material in the textbook involves connections to standardized test preparation and advanced mathematical concepts not essential to master. These sections will provide an advanced student additional opportunities to strengthen understanding of mathematical concepts. These sections will be identified as optional activities.

Because many families have students at multiple age levels, consider asking your learner to help you teach the younger learners at home. By teaching the material to another student or explaining the concept to the parent, the student will be able to deepen his her own understanding while giving younger siblings a preview of math in a fun atmosphere.

**SCOPE AND SEQUENCE**

## ❖ Quarter 1

Weeks 1-4: Chapter 1: Integers

Weeks 4-7: Chapter 2: Expressions and Equations

Weeks 7-9: Chapter 3: Inequalities

Weeks 22-25: Chapter 7: Percent and Consumer Applications

Week 26-27: Chapter 8: Data Analysis and Statistics

## ❖ Quarter 2

Weeks 10-13: Chapter 4: Rational Numbers: Decimals

Weeks 14-18: Chapter 5: Rational Numbers: Fractions

## ❖ Quarter 4

Weeks 28-30: Chapter 9: Two-Dimensional Geometry and Chapter 10: Two-Dimensional Geometry and Measurement Applications

Weeks 31-33: Chapter 11: Three-Dimensional Geometry

Weeks 34-36: Chapter 12: Probability; Chapter 14: Polynomials, Equations, and Inequalities; and Algebra Readiness Test

## ❖ Quarter 3

Weeks 19-21: Chapter 6: Ratio and Proportion

**COURSE PLAN METHODOLOGY:**

Kolbe Academy has worked diligently to create the best possible course plans with the home schooling family in mind. Remember, however, that our program is intended to be flexible. Per the principle of subsidiarity, these course plans are a **suggested** course of study. As the teacher, you should adapt and modify these course plans to meet the individual learning needs of your child. **Do not feel obligated to follow these course plans exactly.**

There are several books used in this course. A list of abbreviations follow to help aid you in reading the Kolbe Academy course plan.

<b>Legend</b>	
<b>SB</b>	<i>Fundamentals of Algebra, Sourcebook (Textbook)</i>
<b>PB</b>	<i>Fundamentals of Algebra, Practice Book (Workbook)</i>
<b>DAY</b>	<input type="checkbox"/>
	Assignments and activities that are a recommended part of the course are included in each day's schedule.
<b>OPT</b>	<input type="radio"/>
	Optional assignments and/or activities that can be used as reinforcement for a skill not yet mastered or enrichment for a child that wants to go that extra step. Some lessons are designated as "OPT" because they are not essential to move on to 8 <sup>th</sup> grade in either Algebra or Mathematics; however, if you have the time, these lessons will make later mathematics courses smoother. These are located in each day's optional schedule indicated by "OPT."

Each weekly assignment is summarized in the first rows of the week's daily course plan along with the goals, notes, and suggested materials for that week. The specific daily assignments for the student are outlined in the following lines indicated by the **DAY 1, DAY 2, DAY 3,** and **DAY 4** abbreviations and include a  checkbox. The assignments in the **OPT** box are meant to be **OPTIONAL** and coincide with that particular day's assignments. These optional assignment that are included for reinforcement or enrichment are indicated with the symbol . See the legend above to help you determine whether your child might benefit from the optional assignments. Parent daily guidelines are given to the right of the student assignments. These guidelines are meant to be flexible. Feel free to combine lessons when able, or slow down where desired. A family's schedule can and should vary as needed. This schedule is on a four-day week except for the first chapter (when many concepts are review). This schedule frees the family up to allow one extra day per week to review or re-teach lessons, as needed. The fifth day could also be a day spent mentoring a younger student on mathematical concepts, which will reinforce the student's own mathematical skills.

This mathematics course contains 36 weeks broken into four 9-week quarters. The tests focus on the material covered in both units for in-depth examination of that specific material. Three tests are given in Quarter 1, two in Quarter 2, three tests for Quarter 3 and three tests for Quarter 4, for a total of eleven tests for the year. In addition, at the year's end, a placement test is included to determine whether the student should move on to 8<sup>th</sup> Grade Mathematics or Algebra I next year.

Daily Assignments consist of a lesson or group of lessons from the sourcebook, some practice problems in the sourcebook ("Try These") and some written assignments from the practice book. Because some assignments will

be long, some items will be identified as “Try Together.” These are items from the Practice Book that can be changed into oral assignments for you to try a few more sample problems together, out loud. These “Try Togethers” will help reduce “seat time” so students can be more successful in mathematics because they don’t feel overwhelmed, but you as a home educator can still determine whether the student is mastering the skill. Consider actually working out the problems on your own in your notebook or having an older student try them if they cannot be done orally. When you’re done, compare your answers. This way, the student can see the proper strategy and it will be easier for you to spot mistakes (if any!). Some savvy teachers will make a mistake on purpose in their own work to provide an opportunity for the student to correct his or her teacher’s work. Correcting an error can help a student demonstrate true concept mastery.

If you choose to make your own assignments, strive for an average of 20-25 problems per assignment, but be flexible about where you assign them. If you cover 3 units in one lesson, spread those 25-30 problems out over the 3 units, and do not feel you need to assign, say, 5 problems in a skill that the student has demonstrated mastery in through the “Try These” problems. For enrolled families, the “Practice and Apply” section in the Teacher’s Edition will give you some idea about what problems to assign if you want to individualize assignments. If you are using the Teacher’s Edition, select problems from “Decelerated” if your student needs extra time to master the concept. Select “Average” if your student made a few mistakes in the “Try These,” and you know that he or she needs just a little more practice to really master the skill. If your student seemed to master the “Try These” material, select problems from the “Accelerated” category.

There are diagnostic pre-tests to be assigned at the beginning of each unit in the Teacher’s Edition, which can provide some assistance for individualized adjustments. For families not using the Teacher’s Edition, if you find that students are struggling with concepts that have been taught in previous years, particularly toward the beginning of the year, if you have younger children at home, consider having them co-teach lessons with you to younger siblings to reinforce previously taught concepts. Another option is to use videos available at Khan Academy (<https://www.khanacademy.org/>). Khan Academy videos provide straightforward demonstrations and some guided practice for most mathematical concepts at a student’s own pace. Typically, if students are struggling with one concept, you can keep moving forward in the lessons, however, so do not feel that you need to stop moving forward to remediate. Students typically find success in other chapters if one chapter is a little shaky, and that feeling of success will spur them to review concepts in a more receptive manner so they can more readily master past material. If you need more tips for remediation or reteaching strategies, consider reaching out to Kolbe Academy’s home school advisors for help.

Finally, begin every class with a prayer. This is a good way to help the child memorize new prayers. Repeat the same ones every day until they are known. Be sure to explain the meanings of the prayers. Repetition in all areas of study is most beneficial.

#### **ENHANCED CONTENT OPTION:**

The Sadlier-Oxford series is much larger than the Saxon or Singapore series and therefore covers more ground than strictly necessary. For some students, however, you may find there is plenty of time to cover additional chapters before the test. Starting in Chapter 8, additional lessons will be available in the back of the course plan. The following units have additional content found at the back of the Course Plan, and some units have alternative test forms, should you decide to use them:

**Chapter 8:**

- Stem-and Leaf Plots
- Box-and-Whisker Plots
- Venn Diagrams
- Multiple Line Graphs
- Scatter Plots

**Chapter 9:**

- Points, Lines, and Planes
- Classify and Measure Angles
- Angle Pairs
- Parallel Lines and Transversals
- Congruent Angles and Line Segments
- Line Constructions
- Polygons
- Triangles
- Congruent Triangles
- Triangle Constructions
- Quadrilaterals

**Chapter 10**

- Symmetry
- Tessellations

**Chapter 11:**

- Surface Area and Volume of Complex Three-Dimensional Figures

**Chapter 12:**

- Sample Space
- Fundamental Counting Principle and Factorials
- Experimental Probability
- Odds and Fairness
- Compound Events
- Permutations
- Combinations

**Chapter 13: (Entire Chapter is optional)****Chapter 14:**

- Polynomials
- Model Polynomials
- Add Polynomials
- Subtract Polynomials
- Solve Multistep Equations

◆◆◆ FIRST QUARTER ◆◆◆

WEEK 1				
Book	Weekly Breakdown	Goals and Notes for the Week		
SB/ PB	Chapter 1	<ul style="list-style-type: none"> <li>Explore Computation with Integers</li> </ul>		
Notes				
Student Daily Assignments		<input checked="" type="checkbox"/>	Parent Daily Guidelines	
DAY 1	SB and PB, Unit 1-1	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>Use the number line in the SB on page 2 to assess students' understanding of positive and negative numbers.</li> <li>Define Absolute Value</li> <li>Explore Try These for 1-1</li> <li>Try together: Practice Book 1-1 (2-18, evens).</li> </ul>	
	PB, 1-1	<input type="checkbox"/>	Assign: Practice Book: 20-52, even	
DAY 2	SB and PB, Unit 1-2	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>Compare and Order Integers</li> <li>Explore Try These for 1-2</li> <li>Try Together: Practice Book: 1-2: 2-14, even</li> </ul>	
	PB 1-2	<input type="checkbox"/>	Assign: Practice Book: 16-58 even; 59-60	
DAY 3	SB and PB, Unit 1-3	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>Adding Integers</li> <li>Hint: If you have counters with two colors or can make them with Legos or other building toys, consider using them. Sometimes students need to see that 4 positives plus 3 negatives equals 1 positive by "canceling out." Coins (heads vs. tails) could work.</li> <li>Explore Try these for 1-3</li> <li>Try Together: Practice Book: 1-3: 2-12, even</li> </ul>	
	PB, 1-3	<input type="checkbox"/>	Assign: 14-56, even; 57	
DAY 4	SB and PB, Unit 1-4	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>Subtract Integers</li> <li>Explore Try these for 1-4</li> <li>Try Together: Practice Book: 1-4: 2-12, even</li> </ul>	
	PB, 1-4	<input type="checkbox"/>	Assign 1-4: 14-46, even	
Week 1 Grade Book				
Assignments	Include <input checked="" type="checkbox"/>	(A) Points Earned	(B) Possible Points	A/B x100 =% (C)
PB: Unit 1-1	<input type="checkbox"/>			
PB: Unit 1-2	<input type="checkbox"/>			
PB: Unit 1-3	<input type="checkbox"/>			
PB: Unit 1-4	<input type="checkbox"/>			
Other:	<input type="checkbox"/>			
<b>Week 1 AVG</b>	<b>Add up column C &amp; divide by number of included <input checked="" type="checkbox"/> assignments =</b>			<b>%</b>

◆ COURSE PLAN ◆

WEEK 2				
Book	Weekly Breakdown	Goals and Notes for the Week		
SB/PB	Continue Chapter 1	<ul style="list-style-type: none"> <li>Continue Computation with Integers</li> <li>Explore Properties of Multiplication and Addition</li> <li>Explore Closure Properties</li> </ul>		
Notes				
Student Daily Assignments		<input checked="" type="checkbox"/>	Parent Daily Guidelines	
DAY 1	SB and PB, Unit 1-5	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>Consider using your manipulatives here, too, or a number line, to demonstrate the skill as shown in the sourcebook.</li> <li>Memorize the idea that negative times negative or positive times positive will result in a positive and that "mixed" (negative with a positive) must always be negative. Help students extend that to division.</li> <li>Explore Try these for 1-5</li> <li>Try Together: Practice Book: 1-5: 2-12, even</li> </ul>	
	PB 1-5	<input type="checkbox"/>	Assign: 1-5: 14-60, even	
DAY 2	SB and PB, Unit 1-6	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>Division with Integers</li> <li>Explore Try these for 1-6</li> <li>Try Together: Practice Book: 1-6: 2-12, even</li> </ul>	
	PB 1-6	<input type="checkbox"/>	Assign 1-6: 14-44, even; 45	
DAY 3	SB and PB, Unit 1-7	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>Addition and Multiplication properties</li> <li>Explore Try These for 1-7</li> <li>Try Together: Practice Book: 1-7: 2-8, even</li> </ul>	
	PB 1-7	<input type="checkbox"/>	Assign Practice Book 1-7: 10-34, even	
DAY 4	SB and PB, Unit 1-8	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>Closure Properties</li> <li>Explore Try These for 1-8</li> <li>Try Together: Practice Book: 1-8: 2-12, even</li> </ul>	
	SB and PB, Unit 1-8	<input type="checkbox"/>	Assign 1-8: 10-28, even; 30-31	
Week 2 Grade Book				
Assignments	Include <input checked="" type="checkbox"/>	(A) Points Earned	(B) Possible Points	A/B x100 =% (C)
PB: Unit 1-5	<input type="checkbox"/>			
PB: Unit 1-6	<input type="checkbox"/>			
PB: Unit 1-7	<input type="checkbox"/>			
PB: Unit 1-8	<input type="checkbox"/>			
Other:	<input type="checkbox"/>			
<b>Week 2 AVG</b>	<b>Add up column C &amp; divide by number of included <input checked="" type="checkbox"/> assignments =</b>			<b>%</b>



◆ COURSE PLAN ◆

WEEK 3				
Book	Weekly Breakdown	Goals and Notes for the Week		
SB/PB	Continue Chapter 1	<ul style="list-style-type: none"> <li>• Explore Exponents</li> <li>• Explore Order of Operations</li> <li>• Explore The Coordinate Plane</li> <li>• Explore the Problem Solving Strategy: Guess and Check</li> </ul>		
Notes				
Student Daily Assignments		<input checked="" type="checkbox"/>	Parent Daily Guidelines	
DAY 1	SB and PB, Unit 1-9	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Exponents</li> <li>• Explore Try These for 1-9</li> <li>• Try Together: Practice Book: 2-8, even</li> </ul>	
	PB 1-9	<input type="checkbox"/>	Assign: 2-8: 10-38, even; 39	
DAY 2	SB and PB, Unit 1-10	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Order of Operations</li> <li>• Explore Try These for 1-10</li> <li>• Try Together: Practice Book 1-10: 2-12, even</li> </ul>	
	PB 1-10	<input type="checkbox"/>	Assign 1-10: 14-34, even	
DAY 3	SB and PB, Unit 1-11	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• The Coordinate Plane (Be sure to have graph paper!)</li> <li>• Explore Try These for 1-11</li> <li>• Try Together: Practice Book 1-11: 2-18, even</li> </ul>	
	PB 1-11	<input type="checkbox"/>	Assign Practice Book 1-11: 20-32, even; 33-35	
DAY 4	SB and PB, Unit 1-12	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>• Guess and Test</li> <li>• Explore the extended strategy together</li> <li>• Try Together: Practice Book 1-3, all</li> </ul>	
	PB 1-12	<input type="checkbox"/>	Assign Practice Book 1-12: 4-10, all	
Week 3 Grade Book				
Assignments	Include <input checked="" type="checkbox"/>	(A) Points Earned	(B) Possible Points	A/B x100 =% (C)
PB: Unit 1-9	<input type="checkbox"/>			
PB: Unit 1-10	<input type="checkbox"/>			
PB: Unit 1-11	<input type="checkbox"/>			
PB: Unit 1-12	<input type="checkbox"/>			
Other:	<input type="checkbox"/>			
Other:	<input type="checkbox"/>			
<b>Week 3 AVG</b>	<b>Add up column C &amp; divide by number of included <input checked="" type="checkbox"/> assignments =</b>			<b>%</b>

◆ COURSE PLAN ◆

WEEK 4				
Book	Weekly Breakdown	Goals and Notes for the Week		
SB/PB	Finish Chapter 1; Begin Chapter 2	<ul style="list-style-type: none"> <li>Review and Test Chapter 1</li> <li>Begin Mathematical Expressions</li> </ul>		
Notes				
Student Daily Assignments		<input checked="" type="checkbox"/>	Parent Daily Guidelines	
DAY 1	PB: Practice Chapter 1 Test	<input type="checkbox"/>	Try Together: Have Students Select 10 problems from the Practice Chapter 1 Test to try together.	
	PB: Vocabulary Development and Practice Chpt 1 Test	<input type="checkbox"/>	Assign: Complete Vocabulary Development for Chapter 1; Complete remaining 32 problems from the Practice Chapter 1 Test	
DAY 2	TEST	<input type="checkbox"/>	CHAPTER 1 TEST	
DAY 3	SB and PB, Unit 2-1	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>Explore Mathematical Expressions ("Translating" words to mathematical symbols). This is often a difficult concept even though many texts spend a lot of time on it, so expect to need to review these even with advanced students.</li> <li>Do Try These in SB together</li> <li>Try Together: PB 2-12, even</li> </ul>	
	PB: 2-1	<input type="checkbox"/>	Assign Practice Book: 14-34, even and 35-36	
DAY 4	SB and PB, Unit 2-2	<input type="checkbox"/>	<ul style="list-style-type: none"> <li>Explore Simplifying and evaluating algebraic equations (2-2) POSSIBLE PITFALL: Students sometimes believe that <math>x</math> and <math>xy</math> are the same when they are not. Bring out a collection of similar toys or coins. Demonstrate that you can only combine, say, dimes with dimes. Yes, they are all coins, but they are not all dimes. (Or they are all Legos, but you can only combine blue Legos with blue Legos, or <math>1 \times 2</math> with a <math>1 \times 2</math> Lego, etc.)</li> <li>Explore 2-2: Try These</li> <li>Try Together: Practice Book 2-2: 2-12, even</li> </ul>	
	PB: 2-2	<input type="checkbox"/>	Assign 14-30, even	
Week 4 Grade Book				
Assignments	Include <input checked="" type="checkbox"/>	(A) Points Earned	(B) Possible Points	A/B x100 =% (C)
PB: Practice Test/Vocabulary	<input type="checkbox"/>			
TEST: Chapter 1 Test	<input type="checkbox"/>			
PB: Unit 2-1	<input type="checkbox"/>			
PB: Unit 2-2	<input type="checkbox"/>			
Other:	<input type="checkbox"/>			
<b>Week 4 AVG</b>	<b>Add up column C &amp; divide by number of included <input checked="" type="checkbox"/> assignments =</b>			<b>%</b>