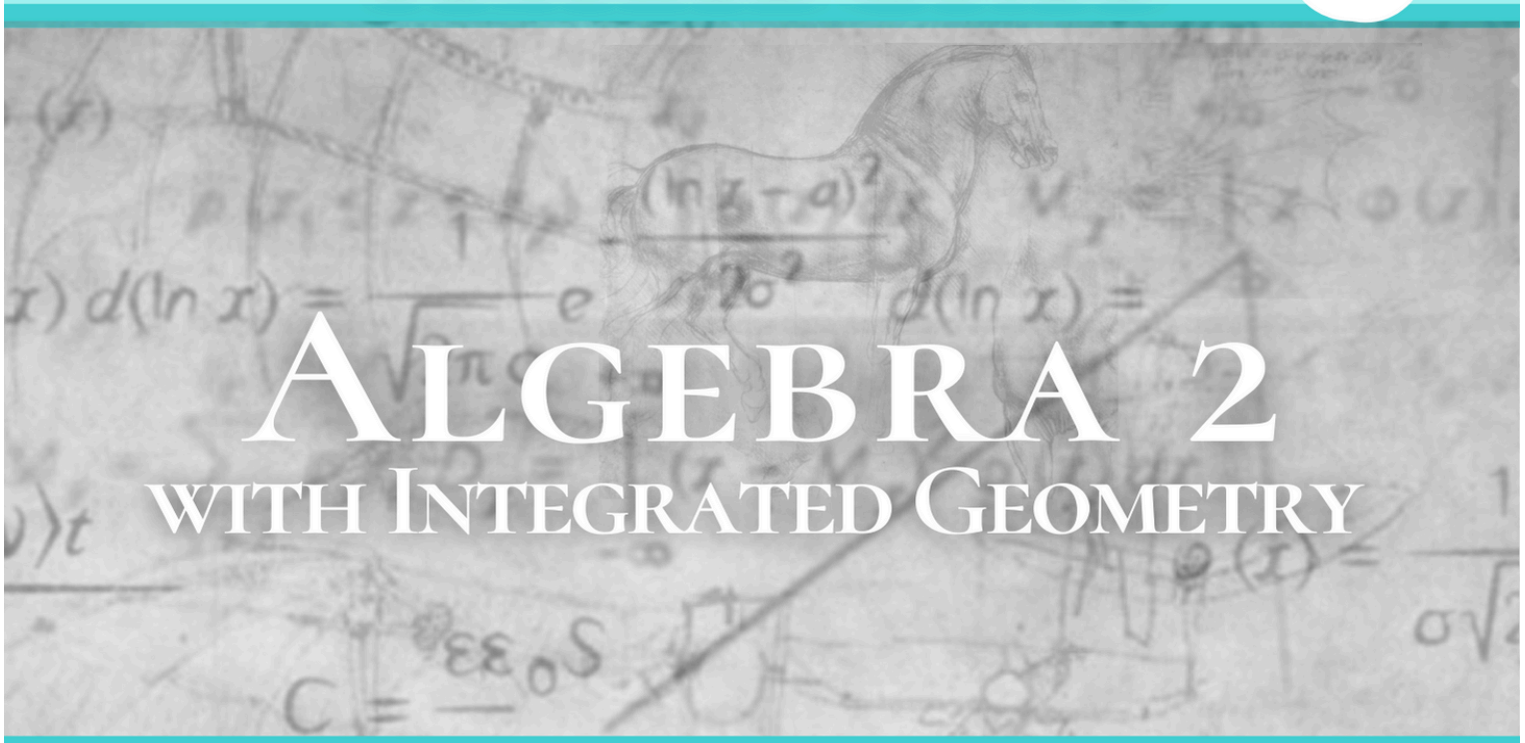
SHORMANN MATHEMATICS

TEACHER GUIDE

PDF



# ALGEBRA 2
## WITH INTEGRATED GEOMETRY

DAVID SHORMANN, PHD

DIVE

# Parents: Course Setup & Login

While the instruction, grading, and Q&A support are provided, a parent or teacher should supervise to ensure the student follows the course instructions and check their written work. Don't worry, you don't need to do any grading or know anything about math! Simply follow these steps:

1. Please watch with your student: Getting Started

2. **CRITICAL**: Read Parent Responsibilities & How to Check Student Work

3. Saxon Algebra 1, Third Edition Users Read: Prep Course

4. To ensure your device is setup for our eLearning system, please follow the: Computer & Device Setup Instructions

5. Print and read these Instruction Sheets:

- Reading Assignment Instruction Sheet
- Note-Taking Instruction Sheet
- Practice Set Instruction Sheet
- Quiz Instruction Sheet
- Study for Exams Instruction Sheet

6. Read: The Timed Method, Algebra Prep Drills, & Family Grading Subscription

**7. Required Materials:**

- Select one: Geometry App or a Ruler & Drawing Compass
- Select a Recommended Calculator
- 2-inch binder and 3-hole paper (blank or college-ruled)
  OR a spiral notebook (for lectures and corrections) and copy paper for practice lessons
- Small spiral notebook (4x6) for formulas
- Computer or tablet with Internet access and headphones or speakers

8. Decide: Hybrid Offline Method for Practice Sets

9. After you receive the login email, follow the steps under **PARENTS** to continue setting up the course. To find out when your login email will be sent, see: eCampus

10. There is no separate parent login. Parents use the same login the student uses. Learn More.

# Table of Contents

*Shormann Math combines tried and true teaching methods with 21st Century technology. It is a user-friendly course with video lectures, interactive homework, automated grading, grade recording, video solutions, and Q&A email support.*

*Shormann Algebra 1 and 2 integrate one full credit of geometry. When finished with both, one full credit of algebra 1, 2, and geometry are earned! All the concepts required for a variety of standardized tests, including the redesigned PSAT and SAT, the ACT, and the CLEP College Algebra and College Mathematics exams, are taught and then continually reviewed, developing fluency and raising standardized test scores.*

*After completing Shormann Algebra 1 and 2, students can spend 2-3 weeks using our CLEP Professor College Algebra, a short prep course included in the Shormann Algebra 2 eCourse, to prepare for the CLEP exam and earn up to 3 college credits.*

*My primary goal is to teach students how math connects to their world and their Creator. I do this by teaching math as the language of science and a tool for understanding God and the world He created. In doing so, I pray that our courses will strengthen the student's relationship with Christ in ways that will help them be productive members of society who seek to glorify God in all they do!*

## Important Resources

Grade Changes and Resets

Ask Dr. Shormann a Homework, Test, or Quiz Question

Contact Tech Support

Contact a Consultant

Official Course Descriptions

NCAA

Advanced Placement

Transcripts & Credits

## Credits Earned

1 Algebra 2 Credit

1/2 Geometry Credit (Saxon Algebra 1 Users: see Credits)

Up to 3 CLEP College Algebra Credits - See CLEP Professor

## Pre-requisites

**Completion of:**

- **Algebra 1 and ½ of Geometry*** (any publisher)
- Or **Saxon Algebra 1, 3rd Edition** or **Shormann Algebra 1**

**CRITICAL:** To verify readiness, see the **Placement Test**

*Student has not taken a Geometry Course.

## Course Descriptions

- Honors Algebra 2 with Integrated Geometry Course Description
- Standard Algebra 2 with Integrated Geometry Course Description

# Honors or Standard Course Options

While Shormann Algebra 2 teaches all the topics required for an honors level course (Scope & Sequence). However, it is easily modified for use as a standard course by using the Standard Grade Scale. Also, our unique teaching methods of incremental bite-sized lessons and continual review, along with the Timed Method and state-of-the-art eLearning tools like instant feedback and Help links, make learning math faster and easier! Therefore, Shormann Algebra 2 is for everyone!

On the **CLEP College Algebra exam** (use our CLEP Prep Course) Shormann Algebra 2 can be listed as an honors course. Official Course Description: Honors Algebra 2 with Integrated Geometry Course Description

| Honors Grade Scale | Standard Grade Scale |
|---|---|
| A – 93-100 | A – 90 -100 |
| B –84 – 92 | B –80 – 89 |
| C – 74 – 83 | C – 70 – 79 |
| D – 65 – 73 | D – 60 – 69 |
| F – 64 or below | F – 59 or below |
| I – Incomplete | I – Incomplete |

## Schools & Co-op

- How to Use Shormann Math in a Co-op
- How to Use Shormann Math in a School

## Standardized Test Prep: PSAT, SAT, and ACT

While *Shormann Math* helps students use math to become more creative like their Creator, glorifying Him and serving others, it also provides excellent preparation for standardized tests. By the time a student finishes *Shormann* Algebra 1 and 2, they will have covered all the math concepts presented on the redesigned PSAT and SAT, as well as the ACT, CLEP College Algebra and CLEP College Math exams! **The Math section of the PSAT & SAT contributes 50% of the total score!**

From Lessons 26-100, Practice Set problem #15 will ask a question about a concept covered on either the SAT, ACT, CLEP College Math, or CLEP College Algebra exam. These concepts will only appear in the Practice Set after they have been taught in a lesson. Learn more at the link below. PSAT, SAT, and ACT Test Prep Recommendations

## Parent Responsibilities

While the eLearning course provides all the instruction and grading, it is the parent's responsibility to check their student's work to ensure the student is using the course as directed and to supervise students during the 4 exams. Please follow these steps after each lesson is completed: How to Check Student Work

### Optional: Hybrid Offline Method for Practice Sets

In the eLearning course, students should solve each problem on paper before entering their answers. However, some students struggle with guessing. This can be solved by supervising your student and/or checking their handwritten work against the solutions manual (available upon request). Students can use the PDF of the textbook to complete Practice Sets on paper, then login to the eLearning system to enter their answers for grading and grade recording. For details, see: Hybrid Offline Method

## Scheduling

Shormann Algebra 2 is set up on a 30 week schedule. Since a school year is generally 36 weeks, there are six additional weeks that can be used when extra time is needed to grasp a concept. A good way to ensure the student has time to relearn, as needed, is to use the timed method (below). Strong math students should work on math a minimum of 4 days per week and struggling or reluctant math students should work on math a minimum of 5 days per week.

### Timed Method: Frustration Free Math

Working beyond the brain's developmental ability to retain and process new information has the same effect as skipping the material. This leads to "careless" mistakes, frustration, and gaps in understanding.

Before starting math each day, set a timer for one hour. At the end of this time, regardless of how much of the lesson is completed, stop and have them pick-up where they left off the next day.

This allows the student to learn at their own pace, giving them extra time, when needed, to grasp a new concept or relearn forgotten concepts by rewatching video lessons, studying the help links, etc. When a student is **required** to complete a lesson per day, they quickly realize that going back and relearning forgotten concepts can make the lesson last longer and they will likely skip this critical step. I cannot overemphasize the importance of relearning in the process of developing fluency (speed and accuracy). As fluency develops, the student will complete more and more of the lesson each day. Learn More: How will they finish on time?

## If I use the timed method, how will my student finish on time?

The timed method usually has the opposite effect than what parents expect. Once the student knows that they only have to work on math for the specified amount of time, they are free to focus on learning instead of wondering, "how long is this going to take?" While a strong math student will usually complete the course in 30-34 weeks, an average math student may take 36-45 weeks. However, since Shormann Algebra 1 & 2 earn 3 semesters of math credits each (see chart below), taking up to 54 weeks (3 semesters) is perfectly fine. While Shormann Math is not Common Core, CC recommends an integrated geometry/algebra approach which spreads Algebra and Geometry over three years. While their approach is more like mixing than true integration, colleges are now familiar with the integrated approach and are not surprised or confused when these credits are listed on the transcript. Learn More About Transcripts

## Two or Three Semester Course

Because one and a half credits are earned (1 Algebra 2 and ½ Geometry), this course can also be stretched to a three semester course . If a 50 or higher is earned on the CLEP College Algebra exam, an additional high school math credit can be listed on the transcript. This means the course can be stretched even longer. Each eLearning subscription is good for 24 months so every student can successfully complete the course. Instead of scheduling the lessons over three semesters, let the student learn at their own pace by using the timed method above.

### Don’t Expect Immediate Mastery

I strongly discourage incorporating “immediate mastery” methods into Shormann Math (Saxon Math, too!). For example, some parents and teachers will not let the student progress to the next lesson unless they have completely mastered the current lesson. This can cause discouragement and exasperation as well as negatively affect fluency.

Just like in sports or music, it takes time to learn a skill. Most students need to practice a skill over several days before mastery is achieved. That’s why the Practice Sets review previous concepts over a long period of time. So, please use the system like it was designed, and give your student time to patiently practice and build their skills!

## Focus on Fluency

Fluency means speed and accuracy. The only way to develop fluency is by practicing the skill correctly over a long period of time. Think of a baseball pitcher or a concert pianist. How many times do they practice the same pitch or piece? How many times do they do it wrong while they are learning? Don’t be surprised when your child gets the same problem wrong multiple times while they are learning. The key is to relearn the concept and try again.

Conversely, giving the solution before relearning will erode mastery.  So instead of “helping” or letting the student see the answer, encourage students to relearn by using the links above each Practice Set question. There is a link to a similar example problem and a link to the video lecture that teaches that concept. If they still don’t understand, they should skip it as they will relearn by watching the video solutions and solving the problem correctly on paper. In the beginning this process may be slow and laborious. Be patient, use the timed method, and eventually math will become faster and easier!

# Course Components

I. **Lessons:** A daily lesson consists of 3 parts:
   - Read Rules and Definitions: Instruction Sheet
   - Video Lecture: Instructions for Lectures
   - Practice Set:
     - Hybrid Offline Instructions
     - Practice Set Instructions

II. **Quizzes:** Quiz Instruction Sheet

III. **Quarterly Exams:** Quarterly Exams Instruction Sheet

IV. **eTextbook:** A printable PDF of the complete textbook with the full lesson and practice sets. It is linked on the Course Home page under "Resources". A hard copy can be purchased here: Textbook

V. **Solutions Manual for Practice Sets:** To prevent student access, this is available by sending an email from the parent email address to support@diveintomath.com with the student's username and course title.

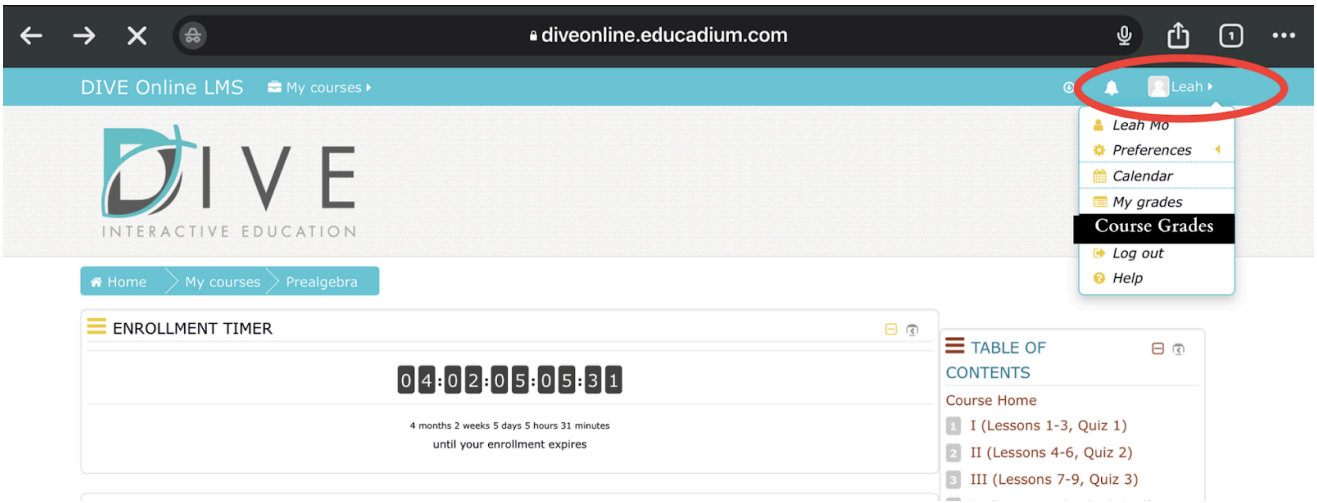
## Optional Resources for Purchase:

- **Family Grading Subscription:** Allows parents to login to one account to view all of their children's grades and allows them to change grades and reset assignments for all of their students. Learn More
- **Hard Copy of the eTextbook**
- **Hard Copy of the ePractice Set Booklet**

# Online Grade Book & Grading

Note: If your student has a learning disability or you are not using the course as instructed (skipping assignments, giving more time on exams, etc.), also, see the Learning Disabilities section below.

1. Login using the same login as the student, select “My Courses” in the top menu, then select the course title.
2. In the top right corner, select the student’s name, then “Course Grades”.




3. The grade book will open.

**Grade Book: Joe Smith**

*Your Student's Grades* — *Average Grade of All Students in this Course*

| Assignments | Grade | Percentage | Class Average |
|---|---|---|---|
| **Grading Shormann Prealgebra** | | | |
| Lesson 1 Practice Set | 90.00 | 90.00 % | 86.95 |
| Lesson 2 Practice Set | 85.00 | 85.00 % | 84.59 |
| Lesson 3 Practice Set | 95.00 | 95.00 % | 91.60 |
| Quiz 1(Lessons 1-3) | 10.00 | 100.00 % | 9.71 |
| Lesson 4 Practice Set | 90.00 | 90.00 % | 93.36 |
| Lesson 5 Practice Set | 97.50 | 97.50 % | 94.04 |
| Lesson 6 Practice Set | 92.50 | 92.50 % | 91.64 |
| Quiz 2(Lessons 4-6) | | | |

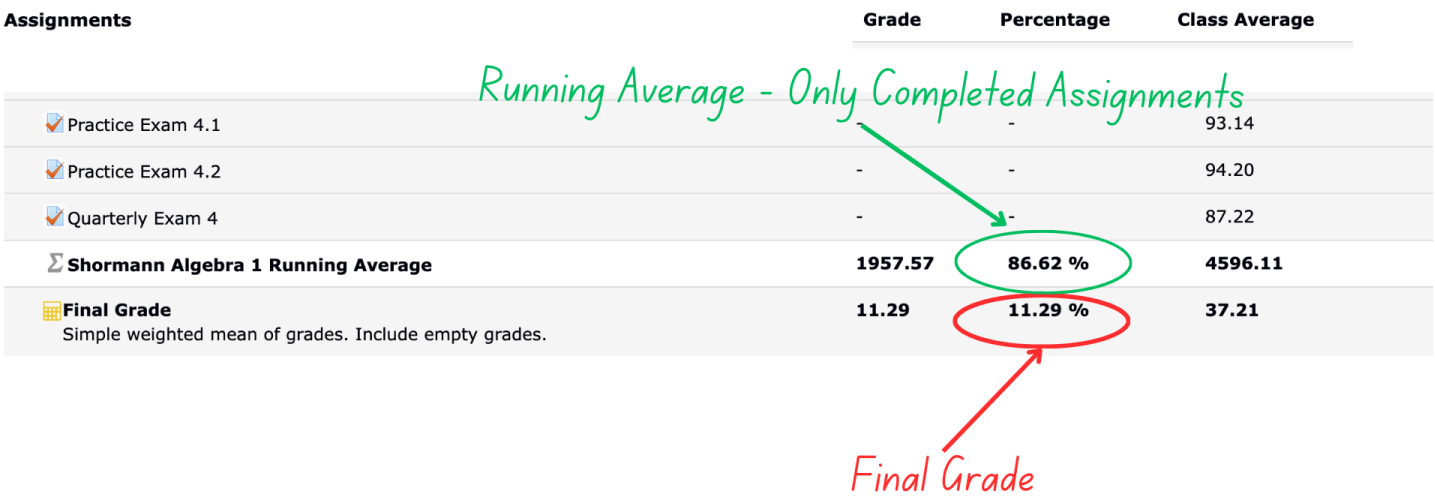
**Grade:** This is your student's grade in points.

**Percentage:** This is your student's grade as a percentage.

**Class Average:** This is **NOT** your student's grade. It's the average grade of ALL the students who have taken this assignment.

## Running Average:

Scroll down to the bottom of the grade book and find the Running Average. This is the grade for all the assignments that have been completed so far. It does not include the zero for assignments that have not been completed. So, as long as the student has not skipped any assignments, this is where you would see the student's current grade based on the assignments they have completed.




## Final Grade:

This is the grade used at the end of the course for the final grade. It includes the zeros for assignments that were not completed. In this example, only a few of the assignments have been completed so the final grade is very low. At the end of the course, if all assignments are completed, the Final Grade and Running Average are the same. If they are not, see the "Issues" below.

### Add Extra Credit to the Final Grade

For details, see "Optional Extra Credit" below.

### Transcripts & Credits

For a free transcript template and detailed instructions, see Transcripts & Credits

# ISSUES WITH THE GRADE BOOK

**Issue 1: Final Grade and Running Average Are Not the Same**

This means one or more assignments were not completed. Scroll through the grade book and look for assignments in the "Percentage" column that don't have a grade. See the next section to resolve this issue.

**Issue 2: No Grade in the Percentage Column**

1. Select the title of the assignment in the Grade Book.
2. If there is a button that says "Continue Last Attempt", this means the student opened and/or started the assignment but did click Submit All & Finish. Select the "Continue Last Attempt" button, "Finish Attempt" then, "Submit All & Finish".
3. If there is a "Start Quiz" button, this means the student did not start the assignment. You can either leave it as a 0 or have the student do the assignment, which will raise the final grade.

## Grade Weights

The following describes how the grades are “weighted”.

Practice Sets & Practice Exams: 30%
Weekly Quizzes: 30%
Quarterly Exams: 40%

## Optional: Add Extra Credit

Keep in mind, as the parent and/or teacher, you are responsible for assigning grades. Our grade book is a tool to help you. You are not required to use the grades in the eLearning grade book or follow any of our recommendations. Use the course like you would any other textbook based curriculum, like Abeka or Bob Jones.

We don’t recommend adding extra credit for correcting missed Practice Set problems as they have already had 4 attempts at each question where they can earn partial credit. For example, if they solve the problem on paper then, enter their answer and it is wrong, they can use the help links above each question to re-learn the concept, correct their work, then enter their answer again. If they get it right, they get partial credit for that answer. If they get it wrong, they get two more attempts to earn partial credit..

Because Practice Sets are just practice, they are a smaller percentage of the overall grade. Therefore, adding extra credit is like giving double extra credit. However, if would like give extra credit, here are some options:

**Option 1:** Add up to 3 points to the Final Grade in the Grade Book. (The final grade should not be more than 100.)

**Option 2:** Use the "Simplified Grading Method" below.

This extra credit cannot be added to the grade book. Simply add the points to your student's final grade, then put the new grade on the Certificate of Completion (see below).

## Certificate of Completion

Upon course completion, a certificate of achievement can be printed. Go to the Course Home page, scroll down the left menu, then click ***Certificate***. There are detailed instructions on how to save, edit, and print the certificate.

## Learning Disabilities: How to Modify the Timed Quizzes and Exams

While we cannot change the timer on the exams or quizzes, you can give the student more time by following these steps. We also have a new Family Grading Subscription that allows parents to change grades and reset assignments for all of their students.

### Quizzes: How to Modify the Time

Parent Supervision Required: After the first attempt, the Results Page with all the answers is displayed. Quizzes have a 20 minute time limit and four questions which only takes most students about 10 minutes. So you may want to try it normally first. To double the time to 40 minutes, follow these steps:

1. The student should study using the Study Instructions just above the link to the quiz.
2. Have the student take the quiz twice. In the first attempt, complete only the first two questions. In the second attempt, complete the last two questions.
3. Add the scores of each attempt. Then, do one of the following:
    i. Use the "Simplified Grade Recording Method" below.
    ii. Use the new Family Grading subscription that allows parents to change grades and reset assignments. See: **Family Grading**
    iii. Use the "Request Grade Change & Resets" form to request a grade change.
4. **Critical:** Have the student correct missed problems by following the steps on the "Quiz Instruction Sheet", linked above the quiz.

**Exams: How to Modify the Time**

The exams are limited to one hour. This method doubles the time to two hours.

1. Study using the “Study Instruction Sheet” linked just above the exam.
2. Have the student take the exam twice. In the first attempt, complete only the first half of the exam. In the second attempt, complete the second half. This gives the student 2 hours to complete the exam.
3. Add the two scores together.
4. Have the student correct all missed problems on paper.
5. Optional: If you want to compensate for the fact that students normally get two full attempts and the grades are averaged, you can do the following: If they correct all missed problems, add 100 points to their grade and divide by two. So if they made a 40 on attempt 1 and 45 on attempt 2, their grade would be 85+100 divided by 2 = 92.5.

6. For grade recording you can do one of the following:
    i. Use the “Simplified Grade Recording Method” below.
    ii. Use the new Family Grading subscription that allows parents to change grades and reset assignments. See: **Family Grading**
    iii. Use the "Request Grade Change & Resets” form to request a grade change.

## Grading for Learning Challenged Students

Because students with learning challenges often require many accommodations, grade changes, and resets, we offer two options to simplify grade recording:

i. Use the "Request Grade Change & Resets” form to request a grade change.

ii. Instead of submitting multiple grade change requests:
    - Use the “Simplified Grade Recording Method” below.
    - Use the new Family Grading subscription that allows parents to change grades and reset assignments. See: **Family Grading**

## Simplified Grading Method

If you allow your student to skip assignments, modify the time for learning disabilities, etc, the online grade book will not accurately calculate a final grade. Instead, you can either use the Family Grading Subscription or use this simple method to give a completion grade of 90 for all Quizzes and Practice Sets. This way, you don't need to submit multiple grade change requests or manually record all the scores. All you need to record are the four exam grades. Then, use the formula below. This new grade can be added to the Certificate.

**Exam Average:** Add the exam grades and divide by 4.
**Final Grade** = **Exam Average (.40) + 54**
**For Example:** If the exam average is a 70, it would be: 70 (.40) + 54 = 82

To use a different completion grade for the Practice Sets and Quizzes, use this formula: Final Grade = Exam Average (.40) + Completion Grade (.60)

To calculate an exact score manually, record all the grades, then use this formula:

Exam Avg. (.40) + Quiz Avg. (.30) + Practice Set Avg. (.30)

You can also request a grade change for each assignment by using the "Request A Grade Change Form" on the Course Home page.

## Results of Former Students

### Why do results matter?

Shormann Math builds on a solid foundation of time-tested teaching methods, including the incremental development + continual review format pioneered by John Saxon(1923-1996). And not just Saxon's teaching methods, but his teaching thoughts as well, including his thought that "Results, not methodology, should be the basis of curriculum decisions."

One of the primary reasons John Saxon developed his math curriculum in the 1980s was because new ways of teaching math were not working. Math "educrats" at the time were promoting their untested "visions" of math teaching. But with 3 engineering degrees, John was a math user before he became a math teacher. Not only that, he was a test pilot. If anyone knew the extreme value and importance of testing a new product, it was John!

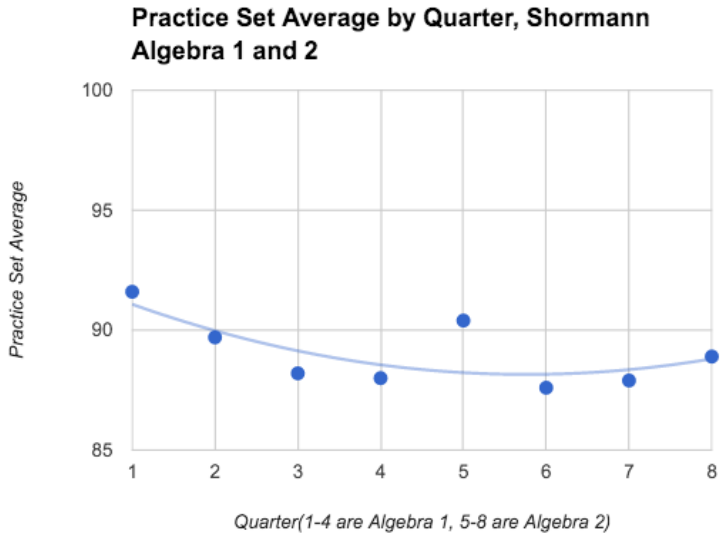
Results matter because they reveal whether or not a new product really works. And while statistics certainly don't reveal everything about a new product, they can certainly reveal many things. **Most math curricula don't provide any details of student performance.** We are pleased to provide it for you.

**Overall performance (Algebra 1)**

| | |
|---|---|
| **Overall Average** | **90.3%** |
| **Range(lowest to highest)** | **81.0-97.9%** |
| **% Students making an A(90%+)** | **67%** |

Discussion: The average student in our beta test made an A in the class! Because each new Shormann Math course is beta-tested in a live online class setting, Dr. Shormann gets to know the students on more than just a "numbers only" basis. And we all know that God doesn't make clones, so the fact that not every student performed the same should not be a surprise. Natural talent definitely matters, but so do things like attitude and maturity. Dr. Shormann spends time during the video lectures encouraging students to develop fruits like patience and self-control (Galatians 5:22-23), as well as persevering with joy (James 1:2-3), and gratefulness (I Thessalonians 5:18).

**Practice Sets**



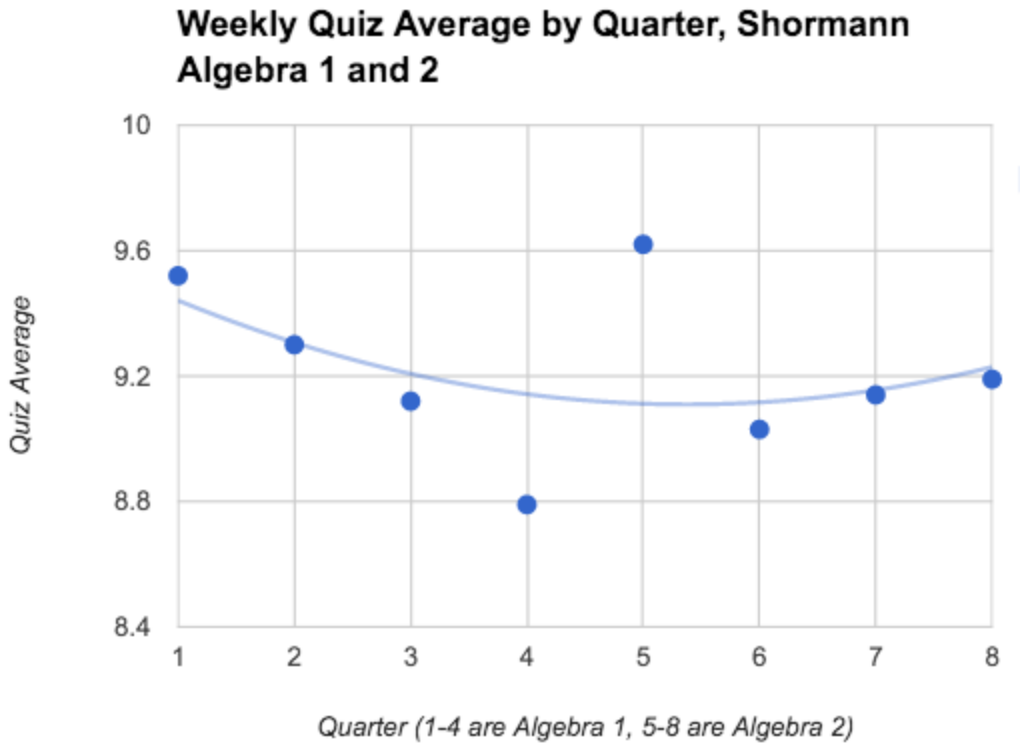

Discussion: You've probably never seen statistics on student performance in a math class before, which is why it is important to discuss the data! We had hoped the average student would achieve a Practice Set average above 85%, and that was achieved in all 8 quarters! 85% is a good cutoff for determining whether students are understanding, and retaining most of the concepts learned.

Note also the high first quarter average in both Algebra 1 (Quarter 1) and Algebra 2(Quarter 5). Because Shormann Math is built on John Saxon's method of integrating geometry and algebra, students using Saxon Math 8/7 or Saxon Algebra ½ will be most comfortable starting Shormann Algebra 1. However, not all beta-test students used Saxon previously, and not all Shormann Algebra 2 students used Shormann Algebra 1(most used Saxon). Therefore, the high first quarter averages are a good indication that students who successfully completed any pre-algebra course should do just fine in Shormann Math, and non-Shormann Math Algebra 1 students can succeed in Shormann Algebra 2.

Finally, in the trendline shown, notice the dip in the middle of both courses. This seems like a natural pattern if you consider the facts that, during this time,

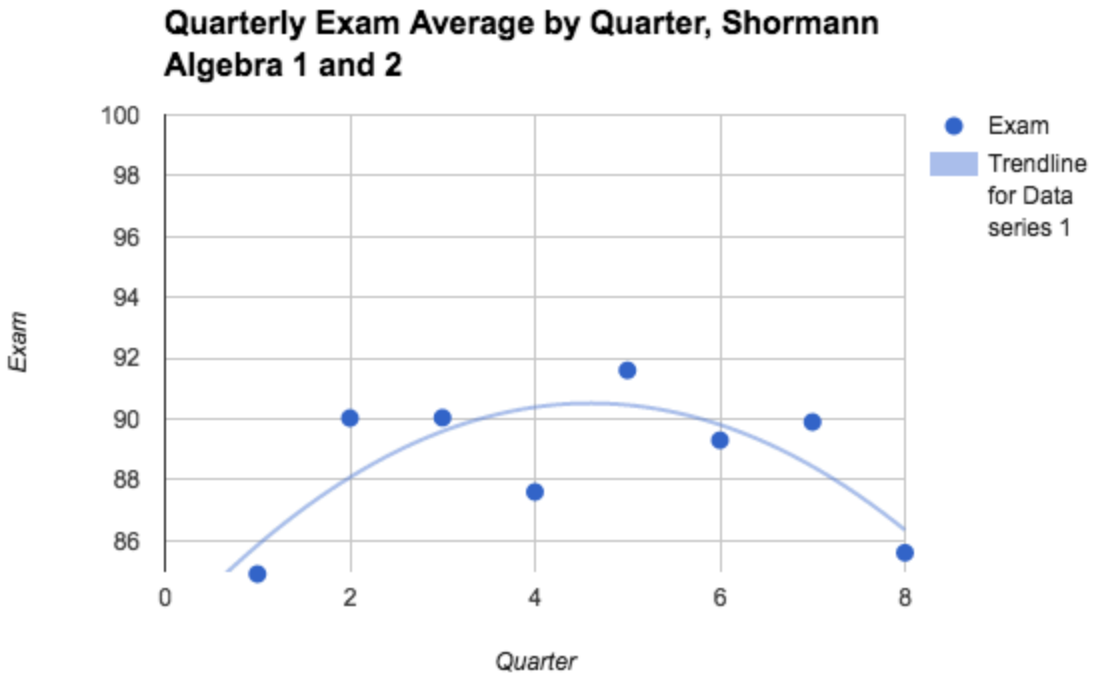
1. Young students are being exposed to new and increasingly complex concepts.
2. As time progresses, students mature and begin to learn what it takes to study, and retain, increasingly complex concepts.
3. Becoming proficient at a subject takes time, so don't quit too soon if it seems challenging! Completing Shormann Algebra 1 and 2 also includes a geometry credit, so if you are doing the self-paced option, it's perfectly fine to take up to 3 semesters to complete the course. Learn more: Two or Three Semester

## Weekly Quizzes




Discussion: Weekly Quizzes show a similar trend to the Practice Sets, which affirms what we discussed in 1-3 above. A score of 8 out of 10 or higher is a good indication of whether students understood the lessons covered that week. We are pleased that scores were well above this in all eight quarters!

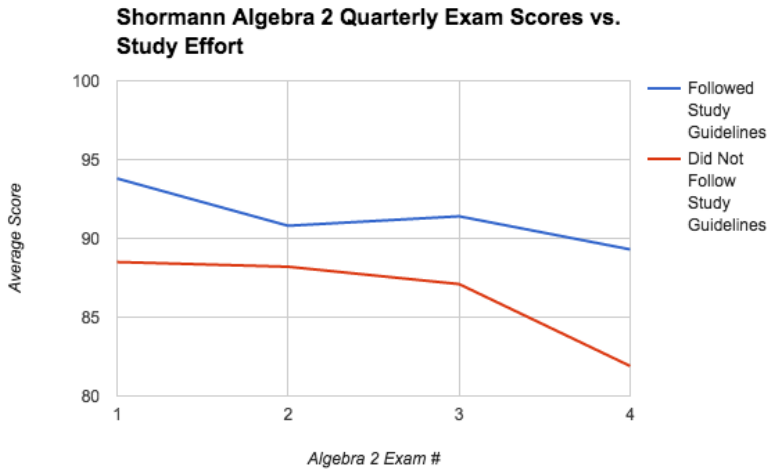
## Quarterly Exams




Discussion: The trend for quarterly exams is not the same for Practice Sets and Weekly Quizzes, as the trend is for maximum scores in the 5th Quarter, which is the introductory quarter of Algebra 2. One of the big reasons for this trend has to do with not giving the students enough practice prior to Quarterly Exam 1 in Algebra 1. This is one reason we beta-tested the course prior to releasing it to the general public, so we could make any adjustments we believed were necessary. After Exam 1, we started providing students with two practice exams, and afterwards, all quarterly exam averages improved.

Another big reason for the trend is that not all students took advantage of the practice exams, and/or did not follow instructions for studying. On the week of a quarterly exam, students are given study tips. **The main thing students need to do is practice, as there is simply no substitute to success in mathematics, or pretty much anything else you want to be good at, than to practice. A lot**.

Two key steps in properly studying include 1) retake all Weekly Quizzes and 2) complete both Practice Exams. Because our eLearning campus provides detailed information on each student's Quiz and Practice Exam attempts, I was able to determine which students studied properly (completed both 1) and 2) above) from those who did not (completed either 1) or 2) or neither). Results are shown below for the beta-test students in Shormann Algebra 2.




The conclusion from the above graph is obvious: students who study harder do better in Shormann Math! Students who followed the study guidelines averaged at or well above 90% (A), while students who did not follow the guidelines averaged below 90% (B). The results also show that Shormann Math is providing the tools students need to become fluent in mathematics.

Finally, 85%+ is an indicator of good retention and understanding of concepts covered in a quarter. For all 8 quarters, student averages shown in the Quarterly Exam Average by Quarter chart were at, or well above 85%. Because of Shormann Math's format of continual review, we are basically asking students to be responsible for "all their math, all the time." These results show that on average, students in the beta courses responded very well!

Keep in mind, too, that these students did the "high performance level" version of Shormann Math, where the course is completed in 30 weeks (37 weeks if you count the breaks), and they did not have as much time to complete the quizzes or quarterly exams. In the standard course, students have 5 extra minutes per quiz, and 15 minutes extra on quarterly exams. You also receive a 2-year subscription per course, almost 3 times more time than beta-test students were allowed.

# Course Sequence

## For Shormann Algebra 2 with Integrated Geometry

| Lesson | Assignments |
|---|---|
| 1 | Numbers Part I: What is Mathematics? -A Brief History of Number - Types Of Numbers |
| 2 | Numbers Part II: Special Number Types - Arithmetic Operations - Exponents |
| 3 | Ratio Part I of II: The History Of Ratio - Rational and Irrational Numbers - Simplifying Complex Fractions- Fractions And Square Roots-Logarithms |
| 4 | Ratios Part II: Proportion and the Christian Adventure - Word Problems and Proportion - Rate |
| | **Quiz 1** |
| 5 | Algebra, Part I of IV: Rules of Algebra- Like Terms- Factoring and Canceling- Evaluating Algebraic Expressions |
| 6 | Algebra, Part II of IV: Factoring and Expanding Polynomials - Solving Algebraic Equations- Consecutive Integer Word Problems |
| 7 | Algebra, Part III of IV: Systems of Linear Equations - Factoring Quadratic Polynomials- Systems of Non-Linear Equations |
| 8 | Algebra, Part IV: Finding Roots of Polynomial Equations - Completing the Square- Combined Operations with Whole Number, Variable, and Fractional Exponents |
| | **Quiz 2** |
| 9 | Geometry, Part I of III: Geometry Fundamentals- Triangle Similarity- Triangle Congruency - Geometry in Art and Architecture |
| 10 | Geometry, Part II of III: Inductive Reasoning and Construction Basics - Euclid, Deductive Reasoning and Proof- Euclid's Propositions. |
| 11 | Geometry, Part III: Circles and Angles, Circles and Segments- Application to Design |

12 Analytical Geometry,Part I of IV: Foundations of Analytical Geometry- Graphing Linear Equations- Functions (Graphic and Symbolic Forms) - Functions, Roots, and Intercepts

**Quiz 3**

13 Analytical Geometry, Part II of IV: Modeling Functions Numerically- Modeling Functions Verbally- Operations with Functions - Evaluating Functions

14 Analytical Geometry, Part III of IV: Domain and Range from Symbolic Forms - Parallel and Perpendicular Lines- Graphing Linear and Non-Linear Inequalities

15 Analytical Geometry, Part IV: Domain and Range from Graphs- Systems of Equations from Word Problems- Systems of Equations and Their Graphs-

16 Measurement, Part I of II : Why Standards Matter - Unit Conversions - Scientific Notation - Arc Lengths and Sectors

**Quiz 4**

17 Measurement, Part II: Length, Area, and Volume Conversions, Perimeter, Area, Surface Area, and Volume

18 Trigonometry, Part I of II: Trigonometry Basics - Special Triangles - Pythagorean Theorem - Trig Identities

19 Trigonometry, Part II: Inverse Trig Functions- The Unit Circle - The Parallelogram Law - Graphing Sinusoids

**Quiz 5**

20 Calculus, Part I of III: Calculus is About Changing Rates - To Understand Calculus, Believe in Infinitesimals - Limits

21 Calculus, Part II of III : Evaluating $f(x + \Delta x)$ - Derivative Means Slope - Derivative of $f(x) = x2$ -

22 Calculus, Part III : More on Limits - Derivative Applications - The Integral -

**Quiz 6**

23 Statistics, Part I of II: The Normal Distribution - Measures of Central Tendency - Probability -

24 Statistics, Part II : Equation of a Line from a Scatterplot - Statistical Tools - Evaluating Reports and Surveys

25 Computer Mathematics : Sums - Sequences - Series - Matrices

**Quiz 7**

**Exam Week:** Practice Exam 1.1 & 1.2, Quarterly Exam 1

26 The Algebra of Classes (Sets) : The Algebra of Classes - Union and Intersection of Sets -

27 Disjoint Sets, Equivalent Sets, Sets and Number Types : Disjoint Sets, Equivalent Sets - Sets and Number Types -

28 Products and Quotients of Rational Expressions; Ratios and Chemical Compounds: Products and Quotients of Rational Expressions - Ratios and Chemical Compounds

29 More on Similar Triangles; Overlapping Right Triangles : More on Similar Triangles - Overlapping Right Triangles

**Quiz 9**

30 Transversals and Proportion; More on Uniform Motion : Transversals and Proportion - Uniform Motion and Unequal Distances

31 Functions and Relations; Even and Odd Functions : Functions and Relations - Even and Odd Functions -

32 Nonstandard Solutions in Algebra and Geometry; Nonstandard Evaluations: Nonstandard Solutions in Algebra and Geometry - Nonstandard Evaluations

33 Composite Functions; Inverse Functions : Composite Functions - Inverse Functions

**Quiz 10**

34 Quadratic Formula; Nonstandard Quadratic Solutions : Quadratic Formula - Nonstandard Quadratic Solutions

35 Creating Systems of Equations from Word Problems

36 Cartesian Product; More on Sets and Problem Solving : Cartesian Product - More on Sets and Problem Solving

37 Rational Equations

**Quiz 11**

38 More on Surface Area and Volume

39 Graphs and Transformations : Graphs and Symmetry - Graphs and Horizontal, Vertical Shifts

40 Euclid's Propositions 4 and 5 : Proposition 4 - Proposition 5

41 Exponential Equations : Solving Exponential Equations - Exponential Formulas and Word Problems

**Quiz 12**

42 Open and Closed Intervals

43 Distance Formula, Midpoint Formula : Distance Between Two Points - Midpoint Formula

44 Right Triangle Applications

45 Vectors : Rectangular to Polar Coordinates - Polar to Rectangular Coordinates

**Quiz 13**

46 Systems of Three Equations and Three Unknowns

47 Solving Radical Equations

48 Logic and Hypotheses, Conclusions, and Counterexamples; Syllogisms : Logic and Hypotheses, Conclusions, and Counterexamples - Syllogisms

49 Percent by Mass of Chemical Compounds and Solutions

50 Exponential Growth and Decay

**Quiz 14**

**Exam Week:** Practice Exam 2.1 & 2.2, Quarterly Exam 2

51 The Complex Plane; Operations with Complex Numbers : Graphing Complex Numbers - More on Operations with Complex Numbers

52 Complex Conjugates; Value Word Problems with 3 Unknowns : Complex Conjugates - Word Problems with 3 Equations and 3 Unknowns

53 More on Evaluating Scientific Formulas

70 Reciprocal Trig Ratios, Trig Identities II : Reciprocal Trig Ratios - Trig Identities II

71 Solving Trig Equations, Period and Phase Shift in Sinusoids : Solving Trig Equations - Period and Phase Shifts in Sinusoids

72 More on Limits : Infinity as a Limit : Some Special Limits

**Quiz 21**

73 Derivatives of Polynomials

74 Integrals, Part II

75 The Normal Distribution, Part II

**Quiz 22**

**Exam Week:** Practice Exam 3.1 & 3.2, Quarterly Exam 3

76 Linear Regression, Scatterplots : Linear Regression - Scatterplots and Nonlinear Patterns

77 Truth Tables I: Conjunctions and Disjunctions : Symbolic Logic and Truth Tables - Conjunctions and Disjunctions

78 Nonlinear Systems of Conic Equations, Part II

79 Truth Tables II: Implications and Negations

80 Permutations and Combinations : The Fundamental Counting Principle and Permutations - Combinations

**Quiz 24**

81 Truth Tables III: Necessary and Sufficient Conditions

82 Interest Rate, Savings and Debt

83 Product, Quotient, and Power Rule for Logarithms

84 Game Playing with Logarithm Laws; Logarithmic Equations : Game Playing with Logarithm Laws - Logarithmic Equations

**Quiz 25**

85 Sum and Difference of Two Squares, Two Cubes : Roots and Sum and Difference of Two Squares - Factoring Sum and Difference of Two Cubes Functions

86 Synthetic Division : Synthetic Division and the Remainder Theorem - Synthetic Division and the Factor Theorem

87 More Combined Operations with Algebraic Expressions; Infinite Series : More Combined Operations with Algebraic Expressions - Infinite Series

88 Quadratic Inequalities

**Quiz 26**

89 Proofs of the Pythagorean Theorem

90 Trapezoids and Their Midlines

91 Non-Euclidean Geometry

92 Systems of Nonlinear Inequalities

**Quiz 27**

93 Special Volume Conversions

94 Resultant Vectors: Force Applications

95 Absolute Value Inequalities

96 Hardy-Weinberg Equilibrium

**Quiz 28**

97 Piecewise Functions

98 Integrals, Part III

99 Operations with Matrices : Matrix Addition and Subtraction - Matrix Multiplication

100 Pascal's Triangle, Binomial Theorem : Pascal's Triangle - The Binomial Theorem

**Quiz 29**

**Exam Week:** Practice Exam 4.1 & 4.2, Quarterly Exam 4

Shormann Algebra 2

# Assignment Chart

| Lesson | | | | |
|---|---|---|---|---|
| **1** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **2** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **3** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **4** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **Quiz 1** | ❑ Study | ❑ Take Quiz | ❑ Corrections | |
| **5** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **6** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **7** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **8** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **Quiz 2** | ❑ Study | ❑ Take Quiz | ❑ Corrections | |
| **9** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **10** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **11** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **12** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **Quiz 3** | ❑ Study | ❑ Take Quiz | ❑ Corrections | |
| **13** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **14** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **15** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **16** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **Quiz 4** | ❑ Study | ❑ Take Quiz | ❑ Corrections | |
| **17** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **18** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **19** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **Quiz 5** | ❑ Study | ❑ Take Quiz | ❑ Corrections | |
| **20** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **21** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |

| **Lesson** | | | | |
|---|---|---|---|---|
| **22** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **Quiz 6** | ❑ Study | ❑ Take Quiz | ❑ Corrections | |
| **23** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **24** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **25** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **Quiz 7** | ❑ Study | ❑ Take Quiz | ❑ Corrections | |
| **Practice Exam 1.1** | ❑ Study | ❑ Practice Exam 1.1 | ❑ Corrections | |
| **Practice Exam 1.2** | ❑ Study | ❑ Practice Exam 1.2 | ❑ Corrections | |
| **Exam 1** (Attempt 1) | ❑ Study | ❑ Take Exam 1 | ❑ Corrections | |
| **Exam 1** (Attempt 2) | ❑ Study | ❑ Take Exam 1 | ❑ Corrections | |
| **26** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **27** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **28** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **29** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **Quiz 9** | ❑ Study | ❑ Take Quiz | ❑ Corrections | |
| **30** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **31** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **32** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **33** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **Quiz 10** | ❑ Study | ❑ Take Quiz | ❑ Corrections | |
| **34** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **35** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **36** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **37** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **Quiz 11** | ❑ Study | ❑ Take Quiz | ❑ Corrections | |
| **38** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **39** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |

| **Lesson** | | | | |
|---|---|---|---|---|
| **40** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **41** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **Quiz 12** | ❑ Study | ❑ Take Quiz | ❑ Corrections | |
| **42** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **43** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **44** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **45** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **Quiz 13** | ❑ Study | ❑ Take Quiz | ❑ Corrections | |
| **46** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **47** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **48** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **49** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **50** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **Quiz 14** | ❑ Study | ❑ Take Quiz | ❑ Corrections | |
| **Practice Exam 2.1** | ❑ Study | ❑ Practice Exam 2.1 | ❑ Corrections | |
| **Practice Exam 2.2** | ❑ Study | ❑ Practice Exam 2.2 | ❑ Corrections | |
| **Exam 2** (Attempt 1) | ❑ Study | ❑ Take Exam 2 | ❑ Corrections | |
| **Exam 2** (Attempt 2) | ❑ Study | ❑ Take Exam 2 | ❑ Corrections | |
| **51** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **52** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **53** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **54** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **Quiz 16** | ❑ Study | ❑ Take Quiz | ❑ Corrections | |
| **55** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **56** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **57** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **58** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **Quiz 17** | ❑ Study | ❑ Take Quiz | ❑ Corrections | |

| **Lesson** | | | | |
|---|---|---|---|---|
| **59** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **60** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **61** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **62** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **Quiz 18** | ❑ Study | ❑ Take Quiz | ❑ Corrections | |
| **63** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **64** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **65** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **66** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **Quiz 19** | ❑ Study | ❑ Take Quiz | ❑ Corrections | |
| **67** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **68** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **69** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **Quiz 20** | ❑ Study | ❑ Take Quiz | ❑ Corrections | |
| **70** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **71** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **72** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **Quiz 21** | ❑ Study | ❑ Take Quiz | ❑ Corrections | |
| **73** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **74** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **75** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **Quiz 22** | ❑ Study | ❑ Take Quiz | ❑ Corrections | |
| **Practice Exam 3.1** | ❑ Study | ❑ Practice Exam 3.1 | ❑ Corrections | |
| **Practice Exam 3.2** | ❑ Study | ❑ Practice Exam 3.2 | ❑ Corrections | |
| **Exam 3** (Attempt 1) | ❑ Study | ❑ Take Exam 3 | ❑ Corrections | |
| **Exam 3** (Attempt 2) | ❑ Study | ❑ Take Exam 3 | ❑ Corrections | |
| **76** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |

| Lesson | | | | |
|---|---|---|---|---|
| **77** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **78** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **79** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **80** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **Quiz 24** | ❑ Study | ❑ Take Quiz | ❑ Corrections | |
| **81** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **82** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **83** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **84** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **Quiz 25** | ❑ Study | ❑ Take Quiz | ❑ Corrections | |
| **85** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **86** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **87** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **88** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **Quiz 26** | ❑ Study | ❑ Take Quiz | ❑ Corrections | |
| **89** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **90** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **91** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **92** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **Quiz 27** | ❑ Study | ❑ Take Quiz | ❑ Corrections | |
| **93** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **94** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **95** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **96** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **Quiz 28** | ❑ Study | ❑ Take Quiz | ❑ Corrections | |
| **97** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **98** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **99** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |
| **100** | ❑ Reading | ❑ Lecture | ❑ Practice Set | ❑ Corrections |

| **Lesson** | | | | |
|---|---|---|---|---|
| **Quiz 29** | ❑ Study | ❑ Take Quiz | ❑ Corrections | |
| **Practice Exam 4.1** | ❑ Study | ❑ Practice Exam 4.1 | ❑ Corrections | |
| **Practice Exam 4.2** | ❑ Study | ❑ Practice Exam 4.2 | ❑ Corrections | |
| **Exam 4** (Attempt 1) | ❑ Study | ❑ Take Exam 4 | ❑ Corrections | |
| **Exam 4** (Attempt 2) | ❑ Study | ❑ Take Exam 4 | ❑ Corrections | |