SHORMANN MATHEMATICS

TEACHER GUIDE

PDF



# PRE-ALGEBRA

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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. If multiplication facts to 9 have not been memorized, please see: Multiplication Mastery

4. Decide: Hybrid Offline Method for Practice Sets

5. Print and read these Instruction Sheets with your student.

    - 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

7. Required Materials:

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

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

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.

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Teacher Guide

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*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, step-by-step solutions on video solutions ,and Q&A email support.*

*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 so doing, 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!*

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## Important Resources

Grade Changes and Resets

Contact Tech Support

Transcripts & Credits

Contact a Consultant

Ask Dr. Shormann

NCAA

Comparison to Saxon 8/7

Official Course Descriptions

## Prerequisite

Regardless of what curriculum your student previously used, if they are a good math student in 7th Grade or higher AND they have memorized multiplication tables to 9, they should be ready for Shormann Pre-Algebra. Please take this Placement Test to confirm: Placement Test for Pre-Algebra

## Credits:

1 Pre-Algebra Credit

## Official Course Description

*Shormann Pre-Algebra is a 21st Century course that* teaches all the concepts required to build a firm foundation for upper level mathematics courses. Reviewing arithmetic calculation, measurements, geometry and other skills, this course introduces pre-algebra, square roots, ratios, prime and composite numbers, probability and statistics. Students learn adding/subtracting/multiplying fractions, equivalent fractions, the metric system, repeating decimals, scientific notation, Pi, graphing inequalities, multiplying algebraic terms, the Pythagorean Theorem, the slope-intercept form of linear equations, discrete mathematics, and more. See the full Scope & Sequence

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## Honors or Standard Course Options

Shormann Pre-Algebra 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 Pre-Algebra is for everyone!

Learn More: Credits & Transcripts  Honors Course Descriptions

| 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 |

## Using Shormann Math in a Classroom or Co-op

- Shormann Math for Schools
- How to use Shormann Math in a Co-op

### Standardized Test Prep

While *Shormann Pre-Algebra* helps students use math to become more creative like their Creator, glorifying Him and serving others, it also provides excellent preparation for all standardized tests, like the Stanford Achievement Test and other end of year exams.

*This course does not teach specific* topics on the PSAT, SAT, and ACT. It lays a firm foundation that prepares students to learn those topics in Shormann

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Algebra 1 and 2. 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!**

### 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

Students use the PDF of the textbook to complete the 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 Pre-Algebra is set up on a 36 week schedule.

### 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

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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?

**Don't Expect Immediate Mastery**

I strongly discourage incorporating "immediate mastery" methods into Shormann Math. 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.

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.

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There is a link to a similar example problem and a link to the video lecture that teaches that concept. Then, after all the questions have been attempted and the assignment is submitted, use the solutions to relearn the missed concepts. In the beginning, this process may be slow and laborious. Be patient, use the timed method, and eventually math will be faster and easier.

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## Course Components

I. **Lessons:** A daily lesson consists of 4 parts:
   - Read Rules and Definitions: Instruction Sheet
   - Watch Video Lecture and Take Notes: Instructions for Lectures
   - Practice Set:
     - Hybrid Offline Instructions
     - Practice Set Instructions
   - Facts Practice Drills

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:

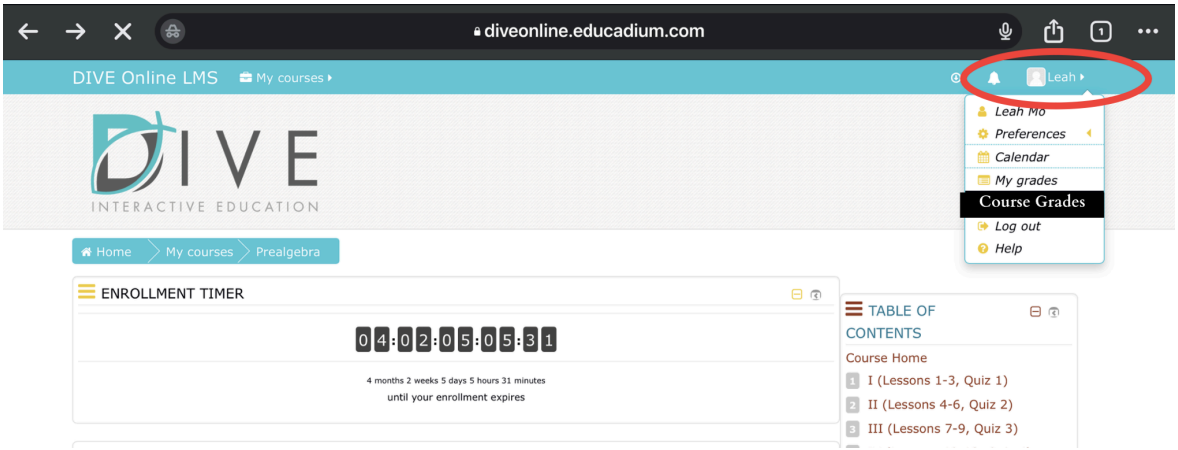
- **Family Grading Subscription:** Allows parents to login to one account to view all of their children's grades and allows them to change grades and reset assignments for all of their students. Learn More
- **Hard Copy of the eTextbook**
- **Hard Copy of the ePractice Set Booklet**

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# 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) | | | |

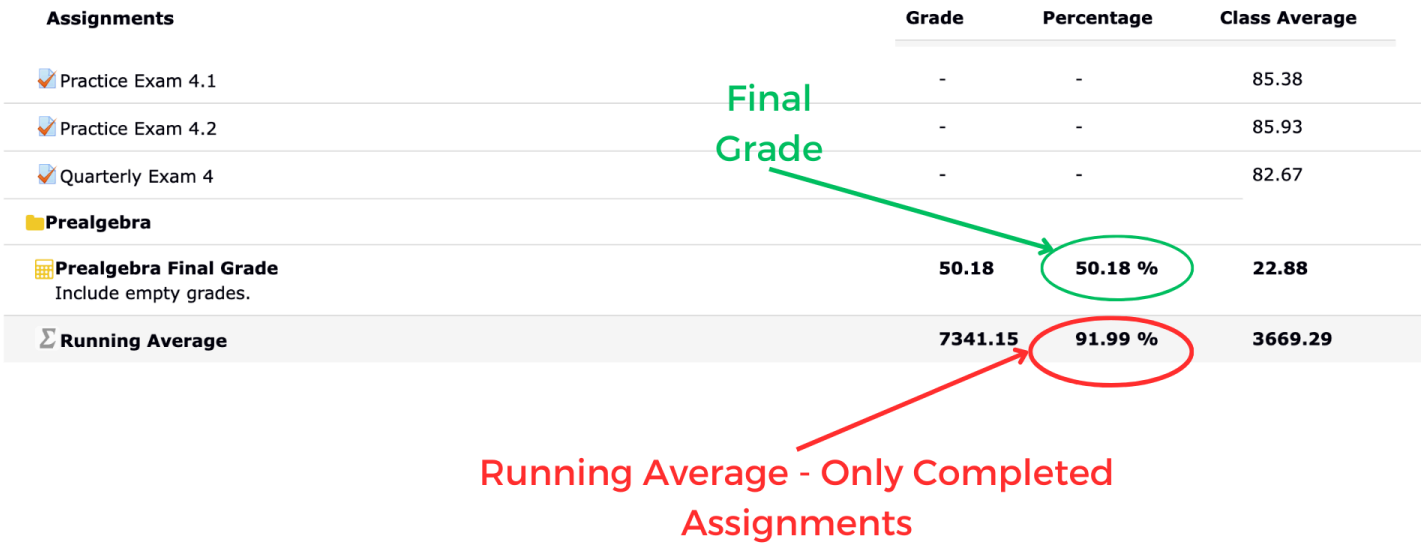
**Grade:** This is your student's grade in points.

**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

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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”.

Facts Practice (Drills) = 5%
Practice Sets & Practice Exam: 25%
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 2 attempts with a hint at each question

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where they can earn partial credit. For example, if they solve the problem on paper then, enter their answer and it is wrong, they get a hint that tells them the first step of the solution. They can also 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 the second time, they get 1/2 credit for that answer. 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 you would still like to 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. 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.

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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.

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## Exams: How to Modify the Time

Parent Supervision Required: The exams are limited to one hour. This method doubles the time to two hours.

1. Study using the  Study Instructions 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:
    a. Use the “Simplified Grade Recording Method” below.
    b. Use the new Family Grading subscription that allows parents to change grades and reset assignments. See: **Family Grading**
    c. 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:

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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**.

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**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 Facts Practices, Quizzes, Practice Sets, and Exams. 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, Quizzes and Facts Practices, 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. (.25) + Facts Practice Avg. (.05)

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

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## 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 this level of detail on student performance.** We are pleased to provide it for you.

### Overall performance

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

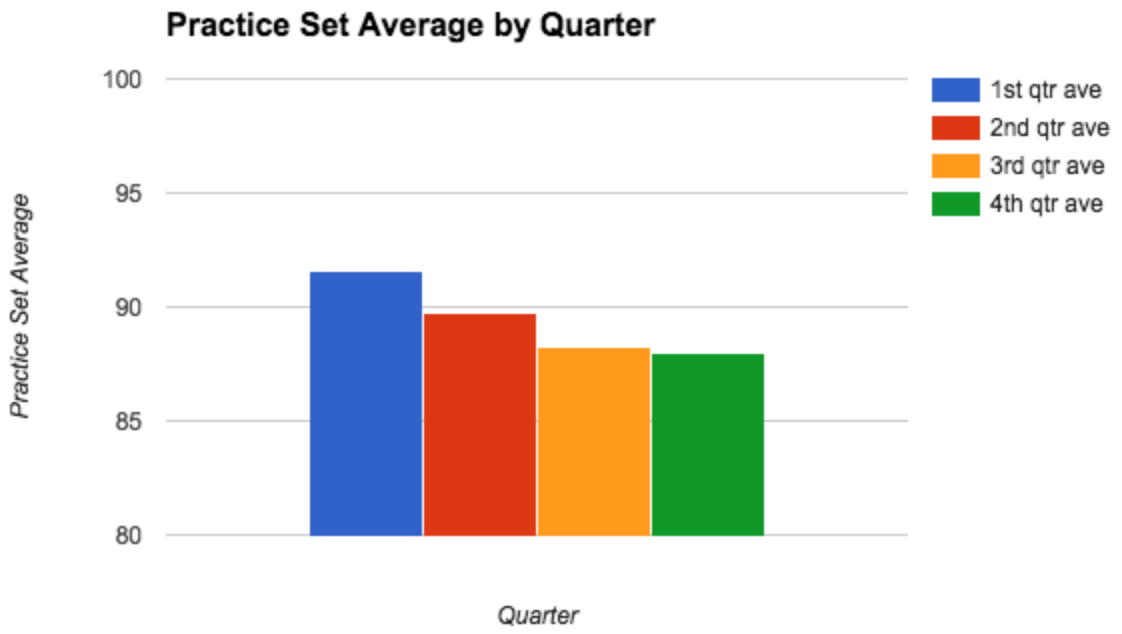
Discussion: The average student in our beta test made an A in the class! Because each new Shormann Math course is beta-tested in a live online class setting, Dr. Shormann gets to know the students on more than just a "numbers only" basis. And we all know that God doesn't make clones, so the fact that not every student performed the same should

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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).

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**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! The decreasing trend over time is exactly what we expected. Two big factors are responsible for the trend: 1) There's more review of previously-learned concepts at the beginning, so it's easier and 2) student effort tends to decrease the closer you get to the end of the year!

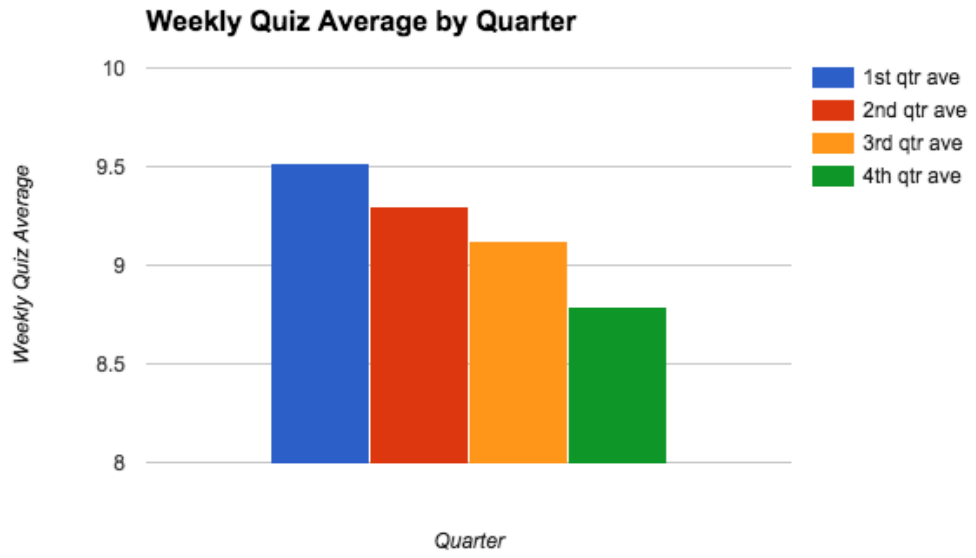
What we had hoped for was a Practice Set average above 85%, and that was achieved in all 4 quarters! 85% is a good cutoff for determining whether students are understanding, and retaining most of the concepts learned.

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

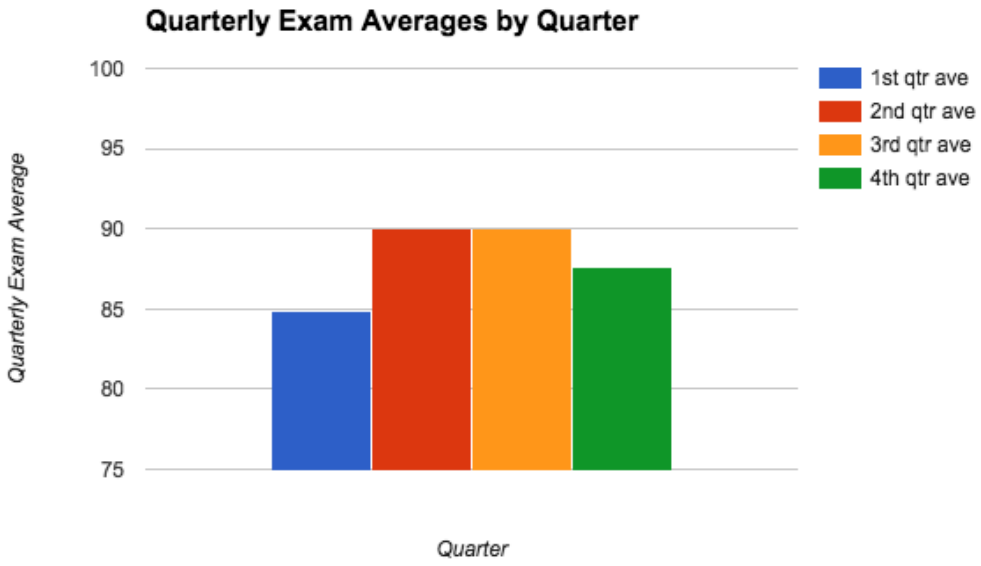
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### Weekly Quizzes




Discussion: Weekly Quizzes show a similar trend to the Practice Sets, challenging the students more as the year progressed. 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 four quarters!

### Quarterly Exams




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Discussion: Notice the Quarterly Exams do not follow the same trend as Practice Sets or Weekly Quizzes, with Quarter 1 having the lowest average. And this is where beta-testing a new product is so valuable. We realized that we were asking a lot for 9th-grade level students, most of which had never taken a cumulative exam like this. The solution? Practice exams! Just like when learning a sport, a musical instrument, etc., good practice results in good performance. The beta-test students clearly performed best on first quarter Practice Sets and Quizzes. Most likely, if they were given practice exams prior to their quarterly exam 1, this would have been their highest exam average. Now, all quarterly exams have two practice exams that students use to study for their actual exam.

85%+ is an indicator of good retention and understanding of concepts covered in a quarter. For all 4 quarters, student averages 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 are responding very well!

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# Scope & Sequence

## Shormann Pre-Algebra

To jump to the Course Sequence: Course Sequence

| What is Mathematics? |
|---|
| Comparing abstract and concrete |
| Describing mathematics as “the language of science” |
| Using the Bible to understand mathematics |
| God’s attribute of unity and diversity, and connection to mathematics |
| Discuss math history and founders of modern mathematics |
| **Numbers and Operations** |
| **Numeration** |
| Digits |
| Reading and writing numbers |
| Ordinal Numbers |
| Place value |
| Number line |
| Expanded notation |
| **Operations** |
| **Addition** |
| Addends and sum |
| Adding whole numbers |
| Regrouping |
| Adding decimals |
| Adding fractions and mixed numbers |
| Adding signed numbers |
| **Subtraction** |
| Difference, subtrahend, and minuend |

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| |
|---|
| Subtracting whole numbers |
| Regrouping (borrowing) |
| Subtracting decimals |
| Subtracting fractions and mixed numbers |
| Subtracting signed numbers |
| Mental subtraction strategies |
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| Multiplication table |
| Regrouping |
| Multiplication notations: a x b, a · b, and a(b) |
| Multiplying whole numbers |
| Multiplying decimals |
| Multiplying fractions and mixed numbers |
| Multiplying signed numbers |
| Mental multiplication strategies |
| Using “Invisible ones” as factors |
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| Dividend, divisor, and quotient |
| Dividing with whole numbers |
| Remainders |
| Dividing with decimals |
| Dividing with fractions and mixed numbers |
| Dividing with signed numbers |
| Mental division strategies |
| Division notations: division box, division sign, and division bar |
| Using “Invisible ones” in the denominator to create a fraction |
| **Powers** |
| Powers as repeated multiplication |

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| |
|---|
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| Powers of decimals |
| Powers of fractions |
| Negative exponents |
| Scientific notation |
| Relationship of place value to powers of 10 |
| Using “Invisible ones” as exponents |
| **Roots** |
| Square roots |
| Cube roots |
| Index |
| Using a calculator to find roots |
| Mastering basic facts |
| Order of operations |
| Inverse operations |
| **Fraction Concepts** |
| **Fractions and Mixed Numbers** |
| Reading and writing fractions and mixed numbers |
| Numerator and denominator |
| Fractional part of a whole, group, set, or number |
| Comparing and ordering fractions |
| Equivalent fractions |
| Reducing |
| Improper fractions |
| Least common denominator |
| Converting fractions to decimals and percents |
| Reciprocals |
| Complex fractions |
| **Decimals** |

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| |
|---|
| Reading and writing decimals |
| Comparing and ordering decimals |
| Converting decimals to fractions and percents |
| **Percents** |
| Reading and writing percents |
| Identify/find percent of a whole, group, set, or number |
| Converting percents to fractions and decimals |
| Percents greater than 100% |
| Percent of change |
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| Ratios and proportions |
| Rates |
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| Rounding mixed numbers |
| Estimating sums |
| Estimating differences |
| Estimating products |
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| Estimating roots |
| Using estimation to verify reasonableness of calculations |
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| Factors, multiples, and divisibility |
| Prime and composite numbers |
| Greatest common factor (GCF) |
| Least common multiple (LCM) |
| Divisibility tests |

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| |
|---|
| Prime factorization |
| Infinity |
| Infinitesimals |
| **Number Sets and Number Systems** |
| Counting numbers (natural numbers) |
| Whole numbers |
| Decimal number system |
| Negative numbers |
| Integers |
| Rational numbers |
| Irrational numbers |
| Real numbers |
| Roman numerals |
| Base 2 |
| **Measurement** |
| **Units** |
| **U.S. Customary** |
| Length (inch, foot, yard, mile) |
| Capacity (cup, pint, quart, gallon) |
| Weight (ounce, pound, ton) |
| **Metric** |
| Prefixes (milli-, centi-, deci-, deka-, hecto-, kilo-) |
| Length (meter) |
| Capacity (liter) |
| Mass (kilogram) |
| **Temperature** |
| Fahrenheit scale |
| Celsius scale |
| **Time** |

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| |
|---|
| Seconds, minutes, and hours |
| **Time Value of Money** |
| Interest rate, savings and debt |
| Simple interest |
| What the Bible says about savings and debt |
| **Other Measurement Concepts** |
| Square units |
| Cubic units |
| Degrees of arc |
| Magnetic compass heading |
| Standard abbreviations |
| Nonstandard units |
| **Unit Conversion** |
| Conversion in the U.S. Customary System |
| Conversion in the metric system |
| Conversion between systems |
| Simplifying mixed measures |
| Unit multipliers |
| Conversion between temperature scales |
| Using rate as a conversion factor |
| Currency (money) exchange rates |
| **Measuring** |
| Length |
| Angles |
| Benchmarks for measurements |
| Measurement activities |
| Estimating activities |
| Selecting appropriate units |
| Using metric scales to reinforce decimal concepts |
| Determining whether measures are reasonable |

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| |
|---|
| Determining the precision of a measuring tool |
| **Indirect Measure** |
| Scale factor |
| Using similar triangles |
| Transversals and proportions |
| Scale drawings (two-dimensional) |
| **Tools** |
| Ruler (U.S. Customary and metric) |
| Protractor |
| Compass (drawing) |
| Compass (magnetic) |
| Thermometer |
| What the Bible says about correct use of measurement tools |
| The idea that mathematics is a God-given tool for us to use |
| **Geometry** |
| **Basic Terms** |
| Points |
| Segments |
| Rays |
| Lines |
| Angles |
| Planes |
| **Lines** |
| Parallel, perpendicular, and intersecting |
| Horizontal, vertical, and oblique |
| Slope |
| **Angles** |
| Acute, obtuse, right, and straight |
| Complementary and supplementary |

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| |
|---|
| Angles formed by transversals |
| Calculate to find unknown angle measures |
| Angle bisectors |
| Vertical |
| Adjacent angles |
| **Polygons** |
| Describing and classifying |
| Drawing |
| Sides and vertices |
| Perimeter |
| Area |
| Regular |
| Similarity and congruence |
| Complex figures |
| Interior and exterior angles |
| Sum of angle measures |
| Diagonals |
| **Triangles** |
| Perimeter and area |
| Acute, obtuse, and right |
| Equilateral, isosceles, and scalene |
| Proportional triangles |
| Pythagorean theorem |
| **Quadrilaterals** |
| Squares |
| Rectangles |
| **Circles** |
| Center |
| Radius and diameter |
| Circumference |

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| |
|---|
| Pi |
| Area |
| Arcs |
| **Solids** |
| Describing and classifying |
| Faces, edges, and vertices |
| Drawing |
| Volume |
| Surface area |
| Polyhedrons |
| Nets (maps) |
| **Perimeter** |
| Polygons |
| Circles |
| Complex figures |
| **Area** |
| Triangles |
| Rectangles |
| Parallelograms |
| Trapezoids |
| Circles |
| Semicircles and sectors |
| Complex figures |
| **Volume** |
| Prisms |
| Cylinders |
| Pyramids |
| Cones |
| Spheres |
| Estimating volume |

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| **Coordinate Geometry** |
| --- |
| Naming and graphing ordered pairs |
| Origin |
| Intercepts of a line |
| Slope of a line |
| Creating straight-line drawings |
| Solving a system of linear equations |
| **Patterns** |
| Defining mathematics as a God-given tool for measuring pattern and shape |
| **Constructions** |
| Circles |
| Congruent segments |
| Congruent angles |
| Angle bisectors |
| Perpendicular bisectors |
| Using technology (geometry apps) to do constructions |
| **Transformational Geometry** |
| Rotation |
| Reflection |
| Translation |
| Graphing transformations on the coordinate plane |
| **Geometry in Art** |
| Vanishing point |
| One-point perspective |
| Divine proportion |
| **Euclidean Geometry** |
| Euclid and foundations of modern geometry |
| Axioms |
| Postulates |

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| Deductive reasoning and Logic |
| --- |
| Aristotle and foundations of logic |
| Comparing inductive and deductive reasoning |
| Proof |
| Converse/inverse/contrapositive |
| Syllogism |
| Comparing logic and truth |
| **Trigonometry** |
| Basic trigonometry ratios (sine, cosine, tangent) |
| Connection of trigonometry to right triangles |
| Connection of trigonometry to proportion |
| hypotenuse |
| Using trigonometry buttons on a calculator |
| Trigonometry applications (measure height) |
| **Algebra** |
| **Patterns** |
| Numeric patterns |
| Geometric patterns |
| Story-problem patterns |
| **Sequences and Series** |
| Terms |
| Arithmetic sequences |
| Geometric sequences |
| Relationship between sequences and series |
| Arithmetic series |
| Geometric series |
| **Sums** |
| Summation Notation |
| Working with Sums |

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| **Integers** |
| --- |
| Adding and subtracting integers/signed numbers |
| Multiplying and dividing integers/signed numbers |
| Absolute value |
| **Algebraic Concepts and Procedures** |
| Variables |
| Symbols of inclusion |
| Evaluating |
| Substitution |
| Constants |
| Coefficients |
| Polynomials |
| Simplifying |
| Factoring |
| Combining like terms |
| **Equations** |
| Solving for an unknown |
| Solving multi-step equations |
| Writing an equation for a given word problem |
| Writing a word problem for a given equation |
| Transforming equations (using the addition rule and the multiplication rule) |
| “= means equal,” x=a and a=x are the same |
| Nonlinear equations |
| Solving simple quadratic equations |
| Literal equations |
| Creating and solving a system of equations |
| **Inequalities** |
| Solving |
| Graphing on a number line |
| Graphing on a coordinate plane |

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| Functions |
| --- |
| Formulas |
| Input-output tables |
| Function rules |
| Graphs |
| Linear functions |
| Creating a linear function to solve a problem |
| Nonlinear functions |
| Connecting symbolic forms to their graphical shapes |
| Analyzing functional relationships |
| Rates |
| Comparing functions and relations |
| **Properties** |
| Associative property of addition |
| Commutative property of addition |
| Associative property of multiplication |
| Commutative property of multiplication |
| Identity property of multiplication |
| Distributive property |
| Zero property of multiplication |
| **Graphing** |
| Number line |
| Coordinate plane |
| Origin |
| Quadrants |
| Graphing points |
| Graphing lines |
| Graphing parabolas |
| Graphing hyperbolas |
| Graphing absolute value functions |

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| |
|---|
| Graphing square root functions |
| Graphing cubic functions |
| Graphing exponential functions |
| Graphing inequalities |
| Slope-intercept form |
| Writing linear equations from graphs |
| Writing linear inequalities from graphs |
| Writing and graphing vertical and horizontal lines |
| **Statistics, Data Analysis, and Probability** |
| **Statistics and Data Analysis** |
| **Organizing and Analyzing Data** |
| Tables |
| Frequency tables |
| Average |
| Mean, median, mode, and range |
| Selecting the best measure of central tendency for a given situation |
| Identifying misleading graphs |
| Making predictions based on statistics |
| Linear regression and best fit |
| **Representing Data** |
| Legend (key) |
| Bar graph |
| Comparative bar graphs (double-bar graphs) |
| Histograms |
| Line graphs |
| Double-line graphs |
| Circle graphs (pie graphs) |
| Pictographs |
| Venn diagrams |

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| |
|---|
| Coordinate planes |
| Scatterplots and estimating rate of change |
| **Probability** |
| Notations for expressing probability |
| **Theoretical Probability** |
| Simple probability |
| Chance |
| Odds |
| Outcomes |
| Independent events |
| Dependent events |
| **Experimental Probability** |
| Performing probability experiments |
| Accuracy of predictions as affected by number of trials |
| Compound experiments |
| Experiment tables |
| **Computer Mathematics Basics** |
| Connection to binary numbers (base 2) |
| Pixels |
| Matrices |
| Connection of computers to idea of continuity and discreteness |
| Computer memory calculations |
| Sequences and Series |
| Sums |
| **Introductory Calculus ( Prealgebra level)** |
| **Limits** |
| Understanding Limits |
| Connecting limits and infinitesimals |
| Limits of discontinuous functions |

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| **Derivatives** |
| --- |
| Derivative means slope of a line |
| Notation for derivatives |
| Connecting derivatives and limits |
| Derivatives and tangent lines |
| Calculus and the study of speed (rate of change) |
| **Integrals** |
| Integrals and counting squares on a graph |
| Connecting integrals and infinitesimals |
| **Problem-Solving Strategies** |
| Break a problem into simpler parts |
| Act out the problem |
| Use logical reasoning |
| Draw a diagram |
| Draw a picture |
| Find a pattern |
| Work backward |
| Make a chart, graph, or list |
| Guess and check (trial and error) |
| Making an educated guess (hypothesis) |
| Distinguish between relevant and irrelevant information |
| Find missing information |
| Extend patterns |
| Apply solution strategies for simple problems to complex problems |
| Use an algorithm |
| Importance of using your imagination in problem solving |
| Importance of “invisible ones” in problem solving |

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# Course Sequence

## Shormann Pre-Algebra

| | |
|---|---|
| 1 | Welcome!; What is mathematics? |
| 2 | A Brief History of Mathematics |
| 3 | Thinking about Number; Origin of Modern Numerals and Arithmetic Symbols |
| | **Week 1 Quiz** |
| 4 | Place Value and Expanded Notation; Reading and Writing Whole Numbers |
| 5 | Types of Numbers; Number Lines; Sequences |
| 6 | Arithmetic with Whole Numbers and Money; Subtraction with Negative Results |
| | **Week 2 Quiz** |
| 7 | Adding and Subtracting Fractions with Common Denominators; Multiplication with Fractions and Reciprocals |
| 8 | Properties of Arithmetic Operations; Evaluating Expressions |
| 9 | Arithmetic with Missing Numbers |
| | **Week 3 Quiz** |
| 10 | Factors and Divisibility; Prime and Composite Numbers |
| 11 | Fractions and Percents |
| 12 | Points, Lines, Rays and Angles; Measuring Angles with a Protractor |
| | **Week 4 Quiz** |
| 13 | Addition and Subtraction with Decimal Numbers; Rounding to the Nearest Whole Number |
| 14 | Equivalent Fractions and Reducing; Improper Fractions; Addition with Mixed Numbers and Regrouping |
| 15 | Measuring with Inch and Metric Rulers; Subtraction with Mixed Numbers and Regrouping |
| | **Week 5 Quiz** |
| 16 | Story Problems About Addition and Subtraction |

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| | |
|---|---|
| 17 | Least Common Multiples; Equivalent Division Problems; Distributive Property of Multiplication |
| 18 | Multiplication and Division with Decimal Numbers; Reading and Writing Decimal Numbers |
| | **Week 6 Quiz** |
| 19 | Multiplication with Mixed Numbers, Including Exponents; Story Problems About Differences |
| 20 | Adding and Subtracting Fractions with Different Denominators |
| 21 | Reducing Fractions Using Prime Factorization; Least Common Multiples and Prime Factorization; Multiplying and Dividing Signed Numbers |
| | **Week 7 Quiz** |
| 22 | Order of Operations; Simplifying Exponents |
| 23 | Dividing Fractions; Division by Zero and by Infinitesimals |
| 24 | Division and Writing Answers as Mixed Numbers and Decimals; Dividing by Decimal Numbers |
| 25 | U.S. and Metric Length Conversions |
| | **Week 8 Quiz** |
| | **Exam 1** |
| 26 | Operations with Signed Numbers; Graphing Inequalities on a Number Line |
| 27 | Absolute Value; Story Problems About Equal Groups |
| 28 | The History of Ratio; Story Problems About Parts of a Whole; Two Part Story Problems |
| | **Week 10 Quiz** |
| 29 | Rational and Irrational Numbers; Number Sets and Number Lines; Prime Factorization and Addition/Subtraction |
| 30 | Working with Square Roots; Prime Factorization and Perfect Squares |
| 31 | More Operations with Fractions and Decimals; Repeating Decimals |
| | **Week 11 Quiz** |
| 32 | Fraction/Decimal/Percent Equivalents |

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| | |
|---|---|
| 33 | Fraction of a Whole Story Problems; Fraction/Decimal Part of a Number Story Problems, Part I of II |
| 34 | Average, Part I of II |
| | **Week 12 Quiz** |
| 35 | Rate; Working with Sales Tax |
| 36 | What is Algebra?; More Complex Evaluations; Invisible Ones |
| 37 | Similarity and Scaling; Rate as a Conversion Factor |
| | **Week 13 Quiz** |
| 38 | Unit Conversions: Capacity (Volume) |
| 39 | Simplifying Algebraic Expressions; Solving Basic Algebra Equations |
| 40 | Algebraic Subtraction |
| | **Week 14 Quiz** |
| 41 | Algebraic Word Problems |
| 42 | Perimeter |
| 43 | Simplifying Algebraic Expressions: Adding Like Terms |
| | **Week 15 Quiz** |
| 44 | Euclid; Classifying Triangles |
| 45 | Probability: Simple Events |
| 46 | Simplifying Algebraic Expressions: Multiplying; Expanding |
| | **Week 16 Quiz** |
| 47 | Inductive Reasoning; Construction; Estimating Magnetic Compass Headings |
| 48 | Simplifying Algebraic Expressions: Factoring |
| 49 | Finding Missing Angles |
| 50 | Unit Conversions: Temperatures and Exchange Rates |
| | **Week 17 Quiz** |
| | **Exam 2** |

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| | |
|---|---|
| 51 | The Coordinate Plane |
| 52 | More Decimal and Fraction Story Problems (Part II of III) |
| 53 | Comparing Similarity and Congruence; Similar Triangles; Polygons |
| | **Week 19 Quiz** |
| 54 | Product of Square Roots Rule; Pythagorean Theorem |
| 55 | Deductive Reasoning and Proofs; Average, Part II(Average Given) |
| 56 | More on Finding Missing Angles, Including Transversals; Transversals and Proportions |
| | **Week 20 Quiz** |
| 57 | Solids and Nets; Power Rule for Exponents |
| 58 | Foundations of Analytical Geometry; Percent of a Number Story Problems |
| 59 | Geometry in Art (Perspective); Scientific Notation with Large Numbers |
| | **Week 21 Quiz** |
| 60 | More on Polygons and Angles; Transformations |
| 61 | More Simplifying with Negative Exponents; More Order of Operations with Signed Numbers |
| 62 | Functions and Relations (no graphing) |
| | **Week 22 Quiz** |
| 63 | Fraction/Decimal/Percent of a Number Story Problems: Solving for P, D and F (Part III); Percent Increase |
| 64 | Scientific Notation with Small Numbers |
| 65 | Collecting Data; Making Tables and Graphs |
| | **Week 23 Quiz** |
| 66 | Domain and Range; Proportion Word Problems, Part I of II |
| 67 | Area |
| 68 | Functions with Graphing: Linear Functions and x-y Tables |
| | **Week 24 Quiz** |

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| | |
|---|---|
| 69 | Volume; Right and Oblique Solids with a Given Base Area |
| 70 | Functions with Graphing: Linear Functions and Slope-Intercept Method |
| 71 | Proportion Word Problems, Part II: Ratios Involving Totals, Including Percent |
| 72 | Operations with Scientific Notation |
| | **Week 25 Quiz** |
| 73 | Functions with Graphing: Nonlinear Functions |
| 74 | Data Interpretation and Representation with Charts |
| 75 | The Binary Numeral System; Pixels |
| | **Week 26 Quiz** |
| | **Exam 3** |
| 76 | Functions with Graphing: Domain and Range from Graphs; Dividing Terms and Canceling |
| 77 | More on Linear Functions: Creating a Linear Equation to Solve a Problem |
| 78 | Simplifying More Complex Operations with Exponents; Evaluating Scientific Formulas |
| 79 | More on Linear Functions: Creating a Linear Equation from a Graph |
| | **Week 28 Quiz** |
| 80 | More on Linear Functions: Horizontal and Vertical Lines |
| 81 | Logic: Converse, Inverse and Contrapositive; What is Calculus? |
| 82 | Two Step Equations, Inequalities |
| | **Week 29 Quiz** |
| 83 | More on Linear Functions: Linear Inequalities |
| 84 | Systems of Equations; More on Roots and Radical Signs |
| 85 | Addition and Subtraction with Mixed Measures; Simplifying Complex Fractions |
| | **Week 30 Quiz** |
| 86 | Trigonometry Basics |
| 87 | Word Problems and Data from a Chart; Bits, Bytes and Binary Numbers |

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| | |
|---|---|
| 88 | Logic: The Syllogism; Surface Area |
| | **Week 31 Quiz** |
| 89 | Infinitesimals and the Limit |
| 90 | The Derivative and Slope; Solving Multivariable Equations |
| 91 | Calculus and the Trinity; Area and Volume Conversions |
| | **Week 32 Quiz** |
| 92 | More on Derivatives and Tangent Lines; Calculus and the Study of Speed |
| 93 | Interest Rate, Savings and Debt |
| 94 | The Integral and Counting Squares; Imaginary Numbers |
| | **Week 33 Quiz** |
| 95 | Mean, Median, Mode and Range |
| 96 | Probability: Compound Events |
| 97 | Linear Regression and Best Fit |
| | **Week 34 Quiz** |
| 98 | Sequences and Series |
| 99 | Sigma Means Sum |
| 100 | Matrices |
| | **Week 35 Quiz** |
| | **Exam 4** |

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# Assignment Chart

Shormann Pre-Algebra

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

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| Lesson | | | | | |
|---|---|---|---|---|---|
| **19** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **20** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **21** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **Quiz 7** | ❑ Study | ❑ Take Quiz | ❑ Facts Drill | ❑ Corrections | |
| **22** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **23** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **24** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **25** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **Quiz 8** | ❑ Study | ❑ Take Quiz | ❑ Facts Drill | ❑ Corrections | |
| **Practice Exam 1** | ❑ Study | ❑ Practice Exam 1 | ❑ Corrections | | |
| **Practice Exam 2** | ❑ Study | ❑ Practice Exam 2 | ❑ Corrections | | |
| **Exam 1** (Attempt 1) | ❑ Study | ❑ Take Exam 1 | ❑ Corrections | | |
| **Exam 1** (Attempt 2) | ❑ Study | ❑ Take Exam 1 | ❑ Corrections | | |
| **26** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **27** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **28** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **Quiz 10** | ❑ Study | ❑ Take Quiz | ❑ Facts Drill | ❑ Corrections | |
| **29** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **30** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **31** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **Quiz 11** | ❑ Study | ❑ Take Quiz | ❑ Facts Drill | ❑ Corrections | |
| **32** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **33** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **34** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **Quiz 12** | ❑ Study | ❑ Take Quiz | ❑ Facts Drill | ❑ Corrections | |

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| Lesson | | | | | |
|---|---|---|---|---|---|
| **35** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **36** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **37** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **Quiz 13** | ❑ Study | ❑ Take Quiz | ❑ Facts Drill | ❑ Corrections | |
| **38** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **39** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **40** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **Quiz 14** | ❑ Study | ❑ Take Quiz | ❑ Facts Drill | ❑ Corrections | |
| **41** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **42** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **43** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **Quiz 15** | ❑ Study | ❑ Take Quiz | ❑ Facts Drill | ❑ Corrections | |
| **44** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **45** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **46** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **Quiz 16** | ❑ Study | ❑ Take Quiz | ❑ Facts Drill | ❑ Corrections | |
| **47** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **48** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **49** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **50** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **Quiz 17** | ❑ Study | ❑ Take Quiz | ❑ Facts Drill | ❑ Corrections | |
| **Practice Exam 1** | ❑ Study | ❑ Practice Exam 1 | ❑ Corrections | | |
| **Practice Exam 2** | ❑ Study | ❑ Practice Exam 2 | ❑ Corrections | | |
| **Exam 2** (Attempt 1) | ❑ Study | ❑ Take Exam 2 | ❑ Corrections | | |
| **Exam 2** (Attempt 2) | ❑ Study | ❑ Take Exam 2 | ❑ Corrections | | |
| **51** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **52** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |

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| Lesson | | | | | |
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| **53** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **Quiz 19** | ❑ Study | ❑ Take Quiz | ❑ Facts Drill | ❑ Corrections | |
| **54** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **55** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **56** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **Quiz 20** | ❑ Study | ❑ Take Quiz | ❑ Facts Drill | ❑ Corrections | |
| **57** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **58** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **59** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **Quiz 21** | ❑ Study | ❑ Take Quiz | ❑ Facts Drill | ❑ Corrections | |
| **60** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **61** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **62** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **Quiz 22** | ❑ Study | ❑ Take Quiz | ❑ Facts Drill | ❑ Corrections | |
| **63** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **64** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **65** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **Quiz 23** | ❑ Study | ❑ Take Quiz | ❑ Facts Drill | ❑ Corrections | |
| **66** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **67** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **68** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **Quiz 24** | ❑ Study | ❑ Take Quiz | ❑ Facts Drill | ❑ Corrections | |
| **69** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **70** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **71** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **Quiz 25** | ❑ Study | ❑ Take Quiz | ❑ Facts Drill | ❑ Corrections | |
| **72** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **73** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **74** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |

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| **75** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **Quiz 26** | ❑ Study | ❑ Take Quiz | ❑ Facts Drill | ❑ Corrections | |
| **Practice Exam 1** | ❑ Study | ❑ Practice Exam 1 | ❑ Corrections | | |
| **Practice Exam 2** | ❑ Study | ❑ Practice Exam 2 | ❑ Corrections | | |
| **Exam 3** (Attempt 1) | ❑ Study | ❑ Take Exam 3 | ❑ Corrections | | |
| **Exam 3** (Attempt 2) | ❑ Study | ❑ Take Exam 3 | ❑ Corrections | | |
| **76** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **77** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **78** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **79** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **Quiz 28** | ❑ Study | ❑ Take Quiz | ❑ Facts Drill | ❑ Corrections | |
| **80** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **81** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **82** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **Quiz 29** | ❑ Study | ❑ Take Quiz | ❑ Facts Drill | ❑ Corrections | |
| **83** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **84** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **85** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **Quiz 30** | ❑ Study | ❑ Take Quiz | ❑ Facts Drill | ❑ Corrections | |
| **86** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **87** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **88** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **Quiz 31** | ❑ Study | ❑ Take Quiz | ❑ Facts Drill | ❑ Corrections | |
| **89** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **90** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **91** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **Quiz 32** | ❑ Study | ❑ Take Quiz | ❑ Facts Drill | ❑ Corrections | |

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| **92** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **93** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **94** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **Quiz 33** | ❑ Study | ❑ Take Quiz | ❑ Facts Drill | ❑ Corrections | |
| **95** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **96** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **97** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **Quiz 34** | ❑ Study | ❑ Take Quiz | ❑ Facts Drill | ❑ Corrections | |
| **98** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **99** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **100** | ❑ Reading | ❑ Lecture | ❑ Facts Drill | ❑ Practice Set | ❑ Corrections |
| **Quiz 35** | ❑ Study | ❑ Take Quiz | ❑ Facts Drill | ❑ Corrections | |
| **Practice Exam 1** | ❑ Study | ❑ Practice Exam 1 | ❑ Corrections | | |
| **Practice Exam 2** | ❑ Study | ❑ Practice Exam 2 | ❑ Corrections | | |
| **Exam 4** (Attempt 1) | ❑ Study | ❑ Take Exam 4 | ❑ Corrections | | |
| **Exam 4** (Attempt 2) | ❑ Study | ❑ Take Exam 4 | ❑ Corrections | | |

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