



- A Liberty University Educational Resource -

Algebra I

Essential Skills

MAT0910

Course Description

Algebra 1 Essential Skills is a resource course for students interested in strengthening their Algebra 1 math skills before they get to Algebra 2. The students can work at their own pace without a teacher and only work on lessons they feel they need help with. The course is designed such that students take a module pre-test to see what problems they need help with. On each problem from the pre-test, the corresponding lesson number is given so students can go directly to that lesson number and review only the material they need help with. They are welcome to do every lesson if they want for the most thorough review.

Rationale

Doing well in Algebra 2 is a very important for the student's future success in higher math classes. Students who have not tested well on the Algebra 2 entrance assessment exam or who did not do well in Algebra 1 should take this resource course to help them be best prepared to take Algebra 2.

Course Materials

See Ember's [Systems Requirements](#) for computer specifications necessary to operate this curriculum.

This course makes use of third-party digital resources to enhance the learning experience. Ember's staff and faculty have curated these resources. Students can safely access them to complete coursework. Please ensure that internet browser settings, pop-up blockers, and other filtering tools allow for these resources to be accessed. See Technologies and Resources Used in this Course below for a specific list.

- Note: Embedded YouTube videos may be utilized to supplement Ember's curriculum. YouTube videos are the property of the respective content creator, licensed to YouTube for distribution and user access. As a non-profit educational institution, Ember is able to use YouTube video content under the YouTube Terms of Service. For additional information on copyright, please contact the [Jerry Falwell Library](#).

Materials Required for Purchase

The following materials are required in this course:

- Scientific or graphing calculator

- Paper for working out problems
- Graph paper for graphing equations and other solutions to problems

Technologies and Resources Used in this Course

The following resource(s) are used throughout this course:

- Thinkwell

Course Policies

Types of Assessments

To simplify and clearly identify which policies apply to which assessment, each assessment has been categorized into one of four categories: Lesson, Assignment, Quiz, or Test. Each applicable item on the course Modules page has been designated with an identifier chosen from among these categories. Thus, a Quiz on the American Revolution may be designated by the title, “1.2.W Quiz: The American Revolution.”

- **Lesson:** *Any item on the Modules page designated as a “Lesson”*
These include instructional content and sometimes an assessment of that content. Typically, a Lesson will be the day-to-day work that a student completes.
- **Assignment:** *Any item on the Modules page designated as an “Assignment”*
Typical examples of Assignments include, but are not limited to, papers, book reports, projects, labs, and speeches. Assignments are usually something that the student should do his or her best work on the first time.
- **Quiz:** *Any item on the Modules page designated as a “Quiz”*
This usually takes the form of a traditional assessment where the student will answer questions to demonstrate knowledge of the subject. Quizzes cover a smaller amount of material than Tests.
- **Test:** *Any item on the Modules page designated as a “Test”*
This usually takes the form of a traditional assessment where the student will answer questions to demonstrate knowledge of the subject. Tests cover a larger amount of material than Quizzes.

Resubmission Policy

Students are expected to submit their best work on the first submission for every Lesson, Assignment, Quiz, and Test. However, resubmissions may be permitted in the following circumstances:

- **Lesson:** Students are automatically permitted two attempts on a Lesson. Students may freely resubmit for their first two attempts without the need for teacher approval.

If a student feels that he or she deserves a resubmission on a Lesson, Assignment, Quiz, or Test due to a technical issue such as a computer malfunction, the student should message his or her teacher to make the request. With Ember, the teacher may be a physical school teacher or the student’s parent/guardian. The teacher can give another attempt from his or her Canvas account. For more information on how to do this, please review the Ember

orientation course.

Scope and Sequence

Algebra 1

Module 1: Real Numbers, Order of Operations, and Simplifying Expressions

Week 1: Foundations for Algebra
Week 2: Tools for Algebra
Week 3: Simplifying Expressions and Introduction to Functions
Week 4: Solving One and Two-Step Equations

Module 2: Solving Equations, Percents, and Inequalities

Week 5: Solving Two-Step and Multi-Step Equations
Week 6: Literal and Absolute Value Equations, Proportions
Week 7: Percents
Week 8: Inequalities

Module 3: Linear Equations, Sequences, and Rate of Change

Week 9: Solving Inequalities
Week 10: Linear Functions and Applications of Functions
Week 11: Applications and Characteristics of Linear Functions
Week 12: Rate of Change, Slope, the Midpoint and Distance Formulas

Module 4: Slope-Intercept, Point Slope, and solving Systems of Equations by Substitution and elimination

Week 13: Finding Slope
Week 14: Slopes of Parallel and Perpendicular Lines and Transforming Functions
Week 15: Solving Systems of Equations by Substitution & Elimination
Week 16: Solving and Applying Systems

Module 5: Linear Inequalities

Week 17: Direct Variation and Systems of Inequalities
Week 18: Semester Review and Exam

Module 6: Exponents and Polynomials

Week 19: Properties of Exponents
Week 20: Properties and Applications of Exponents
Week 21: Polynomials
Week 22: Monomials and Binomials

Module 7: Factoring Methods and Quadratic Functions and Equations

Week 23: Factoring Methods
Week 24: Applying Factoring Methods
Week 25: Quadratic Functions
Week 26: Solving Quadratic Equations

(Continued on next page)

Module 8: The Quadratic Formula, Probability and Graphing Data

Week 27: Working with Quadratic Equations and the Quadratic Formula

Week 28: Probability

Week 29: Graphing Data

Week 30: Data Analysis

Module 9: Exponential, Radical and Rational Functions

Week 31: Geometric Sequences and Exponential Functions

Week 32: Radical Functions, Expressions, and Equations

Week 33: Radical Expressions and Equations

Week 34: Variation, Rational Functions and Expressions

Module 10: Solving Rational Equations

Week 35: Solving Rational Equations

Week 36: Semester Review and Exam