



## Basic Algebra 1 A: Full Course Summary

Note: If this course is intended to be a Credit Recovery course, the following assumptions apply:

- This course is a core course at the “Basic” level in Connections Academy’s system, which titles courses as Basic, Standard, Honors, or Advanced Placement (AP).
- The student has previously taken this or a similar course but did not achieve a passing grade based on his/her school’s grading scale.
- This course will be modified by the teacher in order to skip over areas in which the student shows understanding of the material, leaving more time to focus on gaps in the student’s knowledge or understanding.
- Because Credit Recovery courses will be shortened and/or modified based on individual student needs, these courses are generally **not** appropriate for students who have **not** previously taken this or a similar course, nor for students wishing to accelerate their high school studies.

If a student wishes to take this course for the first time he/she will be expected to cover all material in the course without the above-noted modifications. Students must discuss this option with the NaCA Admission and Support Representative prior to enrolling in the course for the first time.

### Course Summary

This is the first of two courses that comprise Basic Algebra 1. This course teaches the topics of algebra from a problem-solving approach. The student will explore the properties of real numbers, rational and irrational numbers, inequalities, ratios, and proportions. Then, the student will define and solve problems involving slope, y-intercept, Pythagorean Theorem, and the distance and midpoint formulas. The student will be introduced to the coordinate plane and use this knowledge to graph linear equations and inequalities. Finally, the student will learn and solve problems using the perimeter and area formulas.

A major goal of this course is to provide a learning environment that will allow the student to see applications of mathematics to practical problems. Activities in this course will involve the use of calculators or computers, physical and pictorial models, drawing aids, and other equipment.

**Prerequisites:** Math 7 and/or Pre-Algebra

### Unit 1: Working with Real Numbers

In this unit, you will learn the necessary skills to establish a solid algebra foundation. Concepts emphasized in this unit will reappear throughout the course, so take the time to complete each lesson carefully.

As you work through the unit, you will have the opportunity to classify, add, subtract, multiply, and divide real numbers. You will define and solve equations using the properties of algebraic equations, including the distributive, associative, reflexive, and identity properties, as well as applying the order of operations. Next, you will learn how to solve equations and inequalities involving variables and solve inequalities with positive and negative integers. You will be introduced to a few of the fundamental concepts of probability including ratios, rates, and proportions. Finally, you will calculate percentage and apply this knowledge to solve many real-world applications.

### Lessons

1. Let's Get Real
2. Let's Get Real Activity

3. Building Blocks
4. Building Blocks Activity
5. Assignment 1
6. Hot Properties
7. Hot Properties Activity
8. Order of Operations
9. Order of Operations Activity
10. Variables and Expressions
11. Variables and Expressions Activity
12. Do it Again
13. Do it Again Activity
14. Assignment 2
15. Do the Math
16. Do the Math Activity
17. Ratios and Proportions
18. Ratios and Proportions Activity
19. Assignment 3
20. Get it 100%
21. Get it 100% Activity
22. What's the Problem?
23. What's the Problem? Activity
24. Assignment 4

## **Unit 2: Linear Graphing and Working with Formulas**

In this unit, you will be introduced to and use the coordinate plane to plot points and decide in which coordinate a point exists. You will define slope, x-, and y-intercept. You will calculate the slope of a linear equation, find equation of a line, and solve various linear inequalities. You will expand your knowledge by graphing linear equations and inequalities. Then, you will examine different types of graphs, including line graphs, bar graphs, circle graphs, and line plots, and learn why one format is preferred over another. Finally, you will learn about the Pythagorean Theorem, distance and midpoint formula, and perimeter and area formulas and solve problems involving these concepts.

### **Lessons**

1. Coordinate Plane
2. Coordinate Plane Activity
3. Slope and X- and Y-Intercepts
4. Slope and X- and Y-Intercepts Activity
5. Assignment 1
6. Graphing Linear Equations
7. Graphing Linear Equations Activity
8. Graphing Linear Inequalities
9. Graphing Linear Inequalities Activity
10. Assignment 2
11. Systems of Equations
12. Systems of Equations Activity
13. Tables, Graphs, and Line Plots
14. Tables, Graphs, and Line Plots Activity
15. Assignment 3
16. Pythagorean Theorem

17. Pythagorean Theorem Activity
18. Distance and Midpoint Formula
19. Distance and Midpoint Formula Activity
20. Assignment 4
21. Perimeter and Area Formula
22. Perimeter and Area Formula Activity
23. Volume Formula
24. Volume Formula Activity

### **Unit 3: Basic Algebra 1A Final**

In this unit, you will have the opportunity to prepare for and take the final exam. Since this is a comprehensive exam, it may be helpful to organize your notes in the order of the course outline before you begin to review. Using the test-taking strategies that you have previously learned can help you be successful with both objective and essay questions.

#### **Lessons**

1. Basic Algebra 1 A Final Review
2. Basic Algebra 1 A Final