



## Basic Algebra 1B: 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 Academic Program Advisor prior to enrolling in the course for the first time.

### Course Summary

This is the second of two courses that comprise Basic Algebra 1. This course teaches the topics of algebra from a problem-solving approach. The student will be introduced to probability and statistics concepts including sequences and series, permutations and combinations, measures of central tendency, and correlations. The student will examine and solve equations using direct and indirect variation. Then, the student will identify, add, subtract, multiply, and divide polynomial equations. The student will learn the laws of exponents, scientific notation, and the greatest common factor. Finally, the student will factor binomials and trinomials, as well as explore quadratic equations.

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: Probability and Statistics

In this unit, you will explore the difference between a series and sequence and distinguish between a geometric and an arithmetic sequence. You will explore and solve problems involving the fundamental counting principle, permutations, and combinations. You will be introduced to the probability as a number between zero and one, differentiate between independent and dependent events, and calculate all of the possible probable outcomes for a problem set. Then, you will learn the measures of central tendency including mean, median, and mode, and determine the range and standard deviation from a data set. Finally, you will interpret data using normal distribution and correlations.

### Lessons

1. Sequence and Series
2. Sequence and Series Activity
3. Fundamental Counting Principle
4. Fundamental Counting Principle Activity
5. Assignment 1
6. Permutations
7. Permutations Activity

8. Combinations
9. Combinations Activity
10. Assignment 2
11. Probability
12. Probability Activity
13. Independent and Dependent Events
14. Independent and Dependent Events Activity
15. Assignment 3
16. Measures of Central Tendency
17. Measures of Central Tendency Activity
18. Measures of Dispersion
19. Measures of Dispersion Activity
20. Assignment 4
21. Normal Distribution
22. Normal Distribution Activity
23. Correlations
24. Correlations Activity

## **Unit 2: Polynomials and Factoring**

In this unit, you will be introduced to and solve equations using direct and indirect variation. You will explore polynomials and solve equations with direct variables, equations with indirect variables, and simplify polynomials. You will expand your knowledge by adding, subtracting, and multiplying polynomials as well as dividing polynomials by monomials and binomials. Then, you will learn how to factor trinomials and binomials in order to solve the following types of equations: difference of two squares, sum of two cubes, and difference of two cubes. At the end of the unit, you will use the zero product property and quadratic formula to solve quadratic equations.

### **Lessons**

1. Direct and Indirect Variation
2. Direct and Indirect Variation Activity
3. Polynomials
4. Polynomials Activity
5. Adding and Subtracting Polynomials
6. Adding and Subtracting Polynomials Activity
7. Laws of Exponents
8. Laws of Exponents Activity
9. Assignment 1
10. Multiplying Polynomials
11. Multiplying Polynomials Activity
12. Greatest Common Factor
13. Greatest Common Factor Activity
14. Assignment 2
15. Dividing by Monomials and Binomials
16. Dividing by Monomials and Binomials Activity
17. Factor Trinomials
18. Factor Trinomials Activity
19. Assignment 3
20. Factor Binomials
21. Factor Binomials Activity
22. Solving Quadratic Equations
23. Solving Quadratic Equations Activity

## 24. Assignment 4

### **Unit 3: Basic Algebra 1B 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 B Final Review
2. Basic Algebra 1 B Final

National Connections Academy 1001 Fleet St. 5<sup>th</sup> Floor Baltimore MD 21202  
Toll-free 877-804-NACA (6222)

[www.connectionsacademy.com/national](http://www.connectionsacademy.com/national)

nacaadvisor@connectionsacademy.com