



Basic Algebra 2A: 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 2. In this course, the student will continue to study higher level mathematics. The student will begin by reviewing basic real number operations and properties as well as linear equations, linear inequalities, and functions. Next, the student will study linear systems, graphing, and matrices. Finally, the student will build upon previous knowledge of quadratic equations and functions, as well as begin to explore polynomials and their functions.

Throughout the course the student will be introduced to many problem-solving strategies, exposed to various technologies, and taught test-taking strategies.

Unit 1: Tools of Algebra

In this unit, you will review previously learned mathematical principles and extend prior mathematical knowledge. 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 review basic properties of real numbers. You will focus on the properties of operations, equality, and inequalities, as well as use these properties to solve one-variable equations and inequalities. You will also review and solve equations and inequalities that involve absolute value.

Lessons

1. Properties of Real Numbers
2. Algebraic Expressions
3. Solving Equations: 1
4. Solving Equations: 2

5. Solving Inequalities: 1
6. Solving Inequalities: 2
7. Absolute Value Equations and Inequalities: 1
8. Absolute Value Equations and Inequalities: 2
9. Tools of Algebra Review
10. Tools of Algebra Test

Unit 2: Functions, Equations, and Graphs: Part 1

In this unit, you will define and graph relations and functions using verbal descriptions, lists, tables, and mapping diagrams. Specifically, you will examine linear functions and solve linear equations using slope. You will also learn how to model many real-world situations using linear models.

Lessons

1. Relations and Functions: 1
2. Relations and Functions: 2
3. Linear Equations: 1
4. Linear Equations: 2
5. Using Linear Models: 1
6. Using Linear Models: 2
7. Functions, Equations, and Graphs: Part 1 Review
8. Functions, Equations, and Graphs: Part 1 Test

Unit 3: Functions, Equations, and Graphs: Part 2

Lessons

1. Absolute Value Functions and Graphs: 1
2. Absolute Value Functions and Graphs: 2
3. Families of Functions: 1
4. Families of Functions: 2
5. Two-Variable Inequalities: 1
6. Two-Variable Inequalities: 2
7. Functions, Equations, and Graphs: Part 2 Review
8. Functions, Equations, and Graphs: Part 2 Test

Unit 4: Linear Systems

In this unit, you will continue your study of linear equations by solving systems of linear equations and inequalities. You will determine if the system of linear equations or inequalities can be solved graphically or algebraically. In addition, you will solve real-world problems that require to apply these skills.

Lessons

1. Graphing Systems of Equations: 1
2. Graphing Systems of Equations: 2
3. Solving Systems Algebraically: 1
4. Solving Systems Algebraically: 2
5. Systems of Inequalities: 1
6. Systems of Inequalities: 2
7. Organizing Data Into Matrices
8. Adding and Subtracting Matrices: 1
9. Adding and Subtracting Matrices: 2
10. Linear Systems Review
11. Linear Systems Test

Unit 5: Quadratic Equations and Functions

In this unit, you will explore quadratic equations and functions. You will study the properties of parabolas and use these properties to graph, find the maximum and minimum values of quadratic functions, and translate parabolas. You will learn how to factor quadratic expressions and solve quadratic equations by factoring, finding square roots, and graphing. At the end of the unit, you will be introduced to complex numbers and solve quadratic expressions by completing the square and by using the Quadratic Formula.

Lessons

1. Modeling Data with Quadratic Functions: 1
2. Modeling Data with Quadratic Functions: 2
3. Properties of Parabolas: 1
4. Properties of Parabolas: 2
5. Translating Parabolas: 1
6. Translating Parabolas: 2
7. Factoring Quadratic Expressions: 1
8. Factoring Quadratic Expressions: 2
9. Quadratic Equations: 1
10. Quadratic Equations: 2
11. Complex Numbers: 1
12. Complex Numbers: 2
13. The Quadratic Formula: 1
14. The Quadratic Formula: 2
15. Quadratic Equations and Functions Review
16. Quadratic Equations and Functions Test

Unit 6: Algebra 2 A 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 2 A Final Review
2. Algebra 2 A Final Exam

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