

Math (Grade 6-8)

Math002-Algebra 1

Algebra 1 aims to improve math proficiency and problem solving skills to prepare students for higher mathematics such as Geometry and Algebra 2. Topics include:

- Algebraic foundations
- Variables and Expressions
- Ratios and percentages
- Functions and graphing
- Linear equations and inequalities
- Quadratic equations and factorization

Contents

COMPLETE Section 0: Introduction

1. Intro: people intro, course run through, algebra foundation review
 - a. Review important vocabulary associated with algebra and basic skills
 - b. Review arithmetic operations
 - c. Exponents rules

COMPLETE Section 1: Variables and Expressions

2. Variables
 - a. Distribution
 - b. Factorization
3. Expressions: Fractions, exponents, radicals
 - a. Fractions review
 - b. Rational and Irrational numbers
 - c. Square root and radicals

COMPLETE Section 2: Ratios and Proportions

4. Ratios and proportions percentages
 - a. Ratios, proportions, unit rates fractions, and percentages review
 - b. Solving proportions Operations with ratios
 - c. Word problems
5. Proportions and unit conversion
 - a. Direct and inverse proportions
 - b. Changing units

COMPLETE Section 3: Linear Equations

6. Linear equations
 - a. Intro Graphing and forms of linear equations
 - i. Graphing linear equations
 1. Slope, intercepts

- ii. Slope intercept form, standard form, point-slope form
- b. Solving linear equations
- 7. Word problems
 - a. Standard single-variable linear equation word problems
 - b. Distance word problems
 - c. Mixture problems
- 8. Multivariable linear equations
 - a. Multiple variables
 - b. Systems of equations
 - c. Word problems

COMPLETE Section 4: Functions, Graphing, and Inequalities

- 9. Functions
 - a. Intro to functions
 - b. Domain and range
- 10. Inequalities
 - a. Basics, interval notation, and set-builder notation
 - b. Graphing (on number lines and graphs, along with systems of inequalities)
- 11. Advanced functions
 - a. Absolute value functions
 - b. Piecewise functions
 - c. Exponential functions

COMPLETE Section 5: Quadratic Equations

- 12. Intro to Quadratic equations
 - a. Form
 - b.
- 13. Graphing Quadratic equations
 - a. Vertex
 - b. x-intercept
- 14. Distributing and Factorization
 - a. Distributing
 - b. Practice for factorization
 - c. Special factorizations
- 15. Advanced Quadratic equations
 - a. Quadratic formula
 - b. Rational zeroes theorem (i.e. all rational roots are in the form $\pm a/c$)

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Teachers: <https://school.thinkland.ai/teacher>

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