

Elementary Algebra



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Source	Author(s) (Text or Video)	Title(s)	Link (where applicable)
OpenStax	Lynn Marecek, Santa Ana College MaryAnne Anthony-Smith, Formerly of Santa Ana College	Elementary Algebra	Elementary Algebra: OpenStax
Mathispower4u Videos	James Sousa	MathIsPower4U	Mathispower4u Videos

Alta Elementary Algebra was developed to meet the scope and sequence of a typical one-semester algebra course. To develop the course, Knewton used three main sources of content: OpenStax, videos created by a Math Professor we have partnered with, and a team of Subject Matter Experts. The SMEs come from diverse backgrounds and are all academics in the field of mathematics.

Alta Elementary Algebra has two instructional sequences for every learning objective, giving students multiple opportunities to learn new concepts. Between our OpenStax text, video content, and Knewton SMEs, we were able to solicit ideas from math instructors and students at all levels of higher education. Alta Elementary Algebra covers the typical breadth of algebra topics, and also provides the necessary depth to ensure the course is manageable and engaging for instructors and students alike.

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Chapter 1: Foundations

1.1 Introduction to Whole Numbers

- Place Values and Rounding
 - Identify the place value of a digit and write a whole number using words or digits
 - Round whole numbers
- Prime Factorization and Least Common Multiples
 - Identify multiples and apply divisibility tests
 - Find the prime factorization of a number
 - Find the least common multiple of two numbers

1.2 Use the Language of Algebra

- Use Variables and Algebraic Symbols
 - Translate algebraic expressions, equations, and inequalities into English and recognize expressions and equations
 - Evaluate a whole number raised to a power and understand the terminology
- Order of Operations and Simplifying Expressions
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 - Evaluate an expression
 - Identify coefficients and identify and combine like terms
- Rewrite English Phrases into Algebraic Expressions
 - Translate an English phrase to an algebraic expression
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1.3 Add and Subtract Integers

- Introduction to Integers and Absolute Value
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 - Simplify expressions with integers using order of operations
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1.5 Visualize Fractions

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- Adding and Subtracting Fractions
 - Add or subtract fractions with a common denominator
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1.7 Decimals

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1.8 Square Roots and the Real Number System

- Square Roots and the Real Number System
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 - Locate decimals on a number line and write inequality statements involving decimals (*11)

1.9 Properties of Real Numbers

- Properties of the Real Number System
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 - Identify additive and multiplicative inverses of a number
-

- Understand the multiplication and division properties of zero
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- The Distributive Property
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 - Simplify expressions by distributing a negative number

1.10 Systems of Measurements

- Unit Conversion in the US System
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 - Make unit conversions in the metric system
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Chapter 2: Solving Linear Equations and Inequalities

2.1 Solve Equations Using the Subtraction and Addition Properties of Equality

- Solve Equations with the Subtraction and Addition Properties of Equality
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 - Solve an equation that require simplification using the subtraction and addition properties of equality
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- Solve Equations with the Division and Multiplication Properties of Equality
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 - Application Problems and the Division and Multiplication Properties of Equality
 - Translate an English sentence to an algebraic equation and solve using the division and multiplication properties of equality
 - Use the division and multiplication properties of equality to solve application problems
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2.3 Solve Equations with Variables and Constants on Both Sides

- Solving Linear Equations
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 - Express an inequality using interval notation
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Chapter 3: Math Models

3.1 Use a Problem-Solving Strategy

- An Introduction to Problem Solving
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-

3.2 Solve Percent Applications

- Percent Problems and Percent Increase and Decrease
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3.5 Solve Uniform Motion Applications

- Uniform Motion
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3.6 Solve Applications with Linear Inequalities

- Problem Solving with Linear Inequalities
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 - Solve applications with linear inequalities

Chapter 4: Graphs

4.1 Use the Rectangular Coordinate System

- Reading Graphs and the Rectangular Coordinate System
 - Plot points on a rectangular coordinate system (*22)
 - Verify the solution to an equation in two variables
 - Complete a table of solutions to a linear equation in two variables
 - Find solutions to a linear equation

4.2 Graph Linear Equations in Two Variables

- Graphing Linear Equations
 - Recognize the relationship between the solutions of an equation and its graph
 - Graph a linear equation by plotting points (*23)
 - Graph a linear equation in standard form by plotting points (*23)
 - Graph vertical and horizontal lines (*24)
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4.3 Graph with Intercepts

- Intercepts on the Coordinate Plane
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4.4 Understand Slope of a Line

- Understanding Slope
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 - Find the slope of horizontal and vertical lines
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4.7 Graphs of Linear Inequalities

- Graphing Linear Inequalities
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 - Recognize the relationship between the solutions of an inequality and its graph
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Chapter 5: Systems of Linear Equations

5.1 Solve Systems of Equations by Graphing

- Solving Systems of Linear Equations by Graphing
 - Determine whether an ordered pair is a solution of a system of linear equations
 - Solve a system of linear equations by graphing (*13)
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- Determine the number of solutions of a linear system
- Solve applications of systems of linear equations by graphing

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- Solving Systems of Linear Equations by Substitution
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 - Solve applications of systems of linear equations by substitution

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- Solving Systems of Linear Equations by Elimination
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- Adding and Subtracting Polynomials
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 - Add and subtract monomials
 - Add and subtract polynomials
 - Evaluate a polynomial for a given value

6.2 Use Multiplication Properties of Exponents

- Product Properties of Exponents
 - Simplify numerical expressions containing exponents
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-

6.3 Multiply Polynomials

- Multiplying Polynomials
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- Special Products of Binomials
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-

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8.6 Solve Rational Equations

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-

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