



Arkansas Mathematics Frameworks

Matched to

SkillsTutor & SkillsBank: Algebra

Grades 8th – 12th

Grade 8th

STRAND: NUMBER SENSE, PROPERTIES, AND OPERATIONS

CONTENT STANDARD 2

The student will demonstrate and apply knowledge of numbers and numerical relationships to real-world situations.

NPO.2.4. Explain the relationship of numbers in one and two dimensional graphs (e.g., number lines and coordinate graphs), with and without appropriate technology such as graphing calculators.

Functions, Graphing, and Systems of Equations:

Functions, Graphing, and Systems of Equations: Lesson 1: Relations and Functions

Functions, Graphing, and Systems of Equations: Lesson 2: Evaluating Functions

Functions, Graphing, and Systems of Equations: Lesson 3: Graphing Linear Equations

Functions, Graphing, and Systems of Equations: Lesson 5: Equations of Lines

Functions, Graphing, and Systems of Equations: Lesson 4: Slope of a Line

Functions, Graphing, and Systems of Equations: Lesson 6: Graphing Linear Inequalities

Functions, Graphing, and Systems of Equations: Lesson 7: Systems of Linear Equations: Graphing

Functions, Graphing, and Systems of Equations: Lesson 8: Systems of Linear Equations: Substitution

Functions, Graphing, and Systems of Equations: Lesson 9: Systems of Linear Equations: Linear Combination

Functions, Graphing, and Systems of Equations: Lesson 10: Applications of Systems of Equations

Functions, Graphing, and Systems of Equations: Lesson 11: Systems of Linear Inequalities

STRAND: DATA ANALYSIS, STATISTICS AND PROBABILITY

CONTENT STANDARD 1

The student will perform the steps that comprise data analysis, from gathering information to communicating results.

DSP.1.2. Construct, read and interpret tables, charts and graphs (including stem-and-leaf, histogram, bar graph, pie graph, box and whiskers, line graph, scatter plots) with and without technology.

Functions, Graphing, and Systems of Equations:

Functions, Graphing, and Systems of Equations: Lesson 1: Relations and Functions

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Functions, Graphing, and Systems of Equations: Lesson 11: Systems of Linear Inequalities

CONTENT STANDARD 3

The student will apply probability and statistical concepts in problem-solving and decision-making situations.

DSP.3.3. Model the use of probability and statistical methods in decision making using technology presentation materials (e.g., LCD, graphing calculators, spreadsheets, etc.).

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STRAND 5: PATTERNS, ALGEBRA AND FUNCTIONS

CONTENT STANDARD 1

The student will use the language/symbols of algebra to represent patterns and functions.

PAF.1.1. Represent arithmetic as algebra (change $25 = \underline{\quad} + 13$ to $25 = m + 13$).

Equations, Inequalities, and Polynomials

Equations, Inequalities, and Polynomials: Lesson 1: Linear Equations in One Variable
Equations, Inequalities, and Polynomials: Lesson 2: Applications of Linear Equations

PAF.1.2. Through the use of manipulatives and computer technology, develop the concepts of variables, expressions, and equations (algebra tiles, two color counters, graphing calculators, balance scale model, etc.).

Equations, Inequalities, and Polynomials

Equations, Inequalities, and Polynomials: Lesson 1: Linear Equations in One Variable
Equations, Inequalities, and Polynomials: Lesson 2: Applications of Linear Equations

PAF.1.3. Analyze and represent (through calculator use) situations and number patterns with tables, graphs, and equations (e.g., identifying linear, exponential, and quadratic patterns).

Equations, Inequalities, and Polynomials

Equations, Inequalities, and Polynomials: Lesson 1: Linear Equations in One Variable
Equations, Inequalities, and Polynomials: Lesson 2: Applications of Linear Equations
Equations, Inequalities, and Polynomials: Lesson 3: Direct and Inverse Variation
Equations, Inequalities, and Polynomials: Lesson 4: Literal Equations
Equations, Inequalities, and Polynomials: Lesson 5: Linear Inequalities in One Variable
Equations, Inequalities, and Polynomials: Lesson 6: Combined Inequalities
Equations, Inequalities, and Polynomials: Lesson 7: Absolute Value Equations and Inequalities
Equations, Inequalities, and Polynomials: Lesson 8: Monomials and Properties of Exponents
Equations, Inequalities, and Polynomials: Lesson 9: Adding and Subtracting Polynomials
Equations, Inequalities, and Polynomials: Lesson 10: Multiplying a Polynomial by a Monomial
Equations, Inequalities, and Polynomials: Lesson 11: Multiplying a Polynomial by a Binomial
Equations, Inequalities, and Polynomials: Lesson 12: Dividing Polynomials

Factoring and Rational Expressions:

Factoring and Rational Expressions: Lesson 1: Common Monomial Factors
Factoring and Rational Expressions: Lesson 2: Factoring Trinomials
Factoring and Rational Expressions: Lesson 3: Factoring Completely
Factoring and Rational Expressions: Lesson 4: Solving Equations by Factoring
Factoring and Rational Expressions: Lesson 5: Simplifying Rational Expressions
Factoring and Rational Expressions: Lesson 6: Multiplying and Dividing Rational Expressions
Factoring and Rational Expressions: Lesson 7: Adding and Subtracting Rational Expressions I
Factoring and Rational Expressions: Lesson 8: Adding and Subtracting Rational Expressions II
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Functions, Graphing, and Systems of Equations: Lesson 8: Systems of Linear Equations: Substitution
Functions, Graphing, and Systems of Equations: Lesson 9: Systems of Linear Equations: Linear Combination
Functions, Graphing, and Systems of Equations: Lesson 10: Applications of Systems of Equations
Functions, Graphing, and Systems of Equations: Lesson 11: Systems of Linear Inequalities

Content Standard 2

The student will use algebraic concepts to model, to solve, and to test solutions of mathematical and real-world problems.

PAF.2.2. Identify variables and relationships and translate them into mathematical statements or other mathematics representations to construct a model (e.g., converting from graphs, tables, words, and expressions).

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Equations, Inequalities, and Polynomials: Lesson 3: Direct and Inverse Variation

Equations, Inequalities, and Polynomials: Lesson 4: Literal Equations
Equations, Inequalities, and Polynomials: Lesson 5: Linear Inequalities in One Variable
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PAF.2.3. Write and solve equations and inequalities (using manipulatives and technology).

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PAF.2.4. Communicate in written and verbal form a verification of the solution and the process used to obtain the solution.

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PAF.2.5. Use a calculator to display, to determine, and to make inferences from linear relationships in slope-intercept form.

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Grades 9th – 12th

STRAND 5: PATTERNS, ALGEBRA AND FUNCTIONS

CONTENT STANDARD 1

The student will use the language/symbols of algebra to represent patterns and functions.

PAF.1.2. Use open sentences, equations, absolute value, algebra tiles, inequalities, absolute value inequalities, number lines, rectangular coordinate systems and matrices as representational tools.

Equations, Inequalities, and Polynomials

Equations, Inequalities, and Polynomials: Lesson 1: Linear Equations in One Variable
Equations, Inequalities, and Polynomials: Lesson 2: Applications of Linear Equations
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Factoring and Rational Expressions:

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PAF.1.3. Use appropriate notation and terminology to describe functions and their properties.

Equations, Inequalities, and Polynomials

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CONTENT STANDARD 2

The student will use algebraic concepts to model, to solve, and to test solutions of mathematical and real-world problems.

PAF.2.1. Use equations, absolute value equations, inequalities, absolute value inequalities, and systems of equations and inequalities to solve mathematical and real-world problems.

Equations, Inequalities, and Polynomials

Equations, Inequalities, and Polynomials: Lesson 1: Linear Equations in One Variable

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PAF.2.3. Solve equations with real and complex roots using a variety of algebraic and graphical methods and using appropriate tools.

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PAF.2.5. Apply function concepts to model, graph and deal with real-world situations.

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Functions, Graphing, and Systems of Equations: Lesson 9: Systems of Linear Equations: Linear Combination
Functions, Graphing, and Systems of Equations: Lesson 10: Applications of Systems of Equations
Functions, Graphing, and Systems of Equations: Lesson 11: Systems of Linear Inequalities

PAF.2.7. Add, subtract, multiply, and divide polynomials and solve polynomial equations by factoring and graphing.

Equations, Inequalities, and Polynomials

Equations, Inequalities, and Polynomials: Lesson 1: Linear Equations in One Variable

Equations, Inequalities, and Polynomials: Lesson 2: Applications of Linear Equations

Equations, Inequalities, and Polynomials: Lesson 3: Direct and Inverse Variation

Equations, Inequalities, and Polynomials: Lesson 4: Literal Equations

Equations, Inequalities, and Polynomials: Lesson 5: Linear Inequalities in One Variable

Equations, Inequalities, and Polynomials: Lesson 6: Combined Inequalities

Equations, Inequalities, and Polynomials: Lesson 7: Absolute Value Equations and Inequalities

Equations, Inequalities, and Polynomials: Lesson 8: Monomials and Properties of Exponents

Equations, Inequalities, and Polynomials: Lesson 9: Adding and Subtracting Polynomials

Equations, Inequalities, and Polynomials: Lesson 10: Multiplying a Polynomial by a Monomial

Equations, Inequalities, and Polynomials: Lesson 11: Multiplying a Polynomial by a Binomial

Equations, Inequalities, and Polynomials: Lesson 12: Dividing Polynomials