

Knowre Math: Algebra 1 Curriculum

Chapter 1 Basics of Algebra

| Lesson | Topic | GA Standards of Excellence |
|------------------------------------|--|---|
| 1-1 Classifying Numbers | A) Identifying Types of Numbers | MGSE8.NS.1 |
| | B) Number Sets | |
| 1-2 Order of Operations | A) Expressions with Exponents | MGSE7.NS.3 |
| | B) Expressions with Grouping Symbols | |
| 1-3 Parts of Algebraic Expressions | A) Variables | MGSE9-12.A.SSE.1a |
| | B) Terms | |
| | C) Coefficients | |
| 1-4 Expressions and Equations | A) Identifying Expressions and Equations | MGSE9-12.A.SSE.1b, MGSE9-12.A.CED.1 |
| | B) Writing Expressions and Equations | |
| 1-5 Simplifying Expressions | A) Like Terms | MGSE9-12.A.SSE.1a, MGSE9-12.A.SSE.1b |
| | B) Multiplying Terms with Different Variables | |
| 1-6 Distributive Property | A) Distributive Property to Simplify Expressions | MGSE9-12.A.SSE.1b, MGSE9-12.A.SSE.2 |
| | B) Order of Operations with Variable Expressions | |
| 1-7 Relations | A) Identifying Relations | MGSE9-12.F.IF.5 |
| | B) Domain | |
| | C) Range | |
| 1-8 Functions | A) Identifying Functions | MGSE9-12.F.IF.5 |
| | B) Identifying Inputs and Outputs of Functions | |
| 1-9 Function Notation | A) Writing Function Notation | MGSE9-12.F.IF.1, MGSE9-12.F.IF.2 |
| | B) Input and Output in Function Notation | |
| | C) Evaluating Equations Written in Function Notation | |

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Chapter 2 Solving Equations

| Lesson | Topic | GA Standards of Excellence |
|-------------------------------------|--|--|
| 2-1 One-Step and Two-Step Equations | A) Solutions of One-Variable Equations | MGSE9-12.A.SSE.1b, MGSE9-12.A.CED.1, MGSE9-12.A.REI.1, MGSE9-12.A.REI.3 |
| | B) Solving One-Step Equations | |
| | C) Solving Two-Step Equations | |
| 2-2 Multi-Step Equations | A) Solving Multi-Step Equations | MGSE9-12.A.SSE.1b, MGSE9-12.A.CED.1, MGSE9-12.A.REI.1, MGSE9-12.A.REI.3, MGSE8.EE.7a |
| | B) Equations with Zero, One, or Many Solutions | |
| 2-3 Equations with Rational Numbers | A) Solving Equations with Rational Coefficients | MGSE9-12.A.CED.1, MGSE9-12.A.REI.3 |
| | B) Solving Equations with Grouping Symbols | |
| 2-4 Proportions | A) Writing Proportions | MGSE9-12.A.CED.1, MGSE9-12.A.REI.3 |
| | B) Solving Proportions | |
| | C) Proportions with Zero, One, or Many Solutions | |
| 2-5 Literal Equations | A) Solving One-Step Literal Equations | MGSE9-12.A.SSE.1b, MGSE9-12.A.CED.4 |
| | B) Solving Two-Step Literal Equations | |
| | C) Solving Multi-Step Literal Equations | |
| 2-6 Absolute Value Equations | A) Solving Absolute Value Equations with Single Variable Inside Absolute Value | MGSE9-12.A.SSE.1b, MGSE9-12.A.CED.4 |
| | B) Solving Absolute Value Equations with Linear Expression Inside Absolute Value | |
| | C) Writing Absolute Value Equations | |

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Chapter 3 Linear Functions

| Lesson | Topic | GA Standards of Excellence |
|--------------------------|---|---|
| 3-1 Direct Variation | A) Graphs and Tables of Direct Variation | MGSE9-12.A.CED.2, MGSE9-12.A.REI.10, MGSE9-12.F.IF.7a, MGSE9-12.F.LE.1a, |
| | B) Writing and Graphing Equations of Direct Variation | MGSE9-12.F.LE.2, MGSE9-12.F.LE.5 |
| 3-2 Standard Form | A) Solutions of Two-Variable Equations | MGSE9-12.N.Q.1.a, MGSE9-12.N.Q.1.c, |
| | B) Linear Equations in Standard Form | MGSE9-12.A.CED.2, MGSE9-12.A.REI.10, MGSE9-12.F.IF.4, |
| | C) x- and y-Intercepts | MGSE9-12.F.LE.1a, MGSE9-12.F.LE.5 |
| 3-3 Rate of Change | A) Rate of Change Equations | MGSE9-12.N.Q.1.a, MGSE9-12.N.Q.1.c, MGSE9-12.F.IF.6, |
| | B) Finding Rate of Change | MGSE9-12.F.LE.1a, MGSE9-12.F.LE.1b, MGSE9-12.S.ID.7 |
| 3-4 Slope | A) Classifying Slopes of Lines | MGSE9-12.F.IF.4, |
| | B) Slopes of Lines from Graphs | MGSE9-12.F.LE.1b, |
| | C) Slopes of Lines from Points | MGSE9-12.S.ID.7 |
| 3-5 Point-Slope Form | A) Linear Equations in Point-Slope Form | MGSE9-12.A.CED.2, MGSE9-12.F.IF.7a, |
| | B) Writing Equations in Point-Slope Form | MGSE9-12.F.IF.9, MGSE9-12.F.BF.3, |
| | C) Graphing Equations in Point-Slope Form | MGSE9-12.F.LE.2, MGSE9-12.F.LE.5 |
| 3-6 Slope-Intercept Form | A) Linear Equations in Slope-Intercept Form | MGSE9-12.N.Q.1.a, MGSE9-12.N.Q.1.c, |
| | B) Identifying the Slope and y-Intercept from Equations in Slope-Intercept Form | MGSE9-12.A.SSE.1b, MGSE9-12.A.CED.2, |
| | C) Writing and Graphing Equations in Slope-Intercept Form | MGSE9-12.F.IF.7a, MGSE9-12.F.IF.9, MGSE9-12.F.BF.3, |
| | D) Point-Slope and Slope-Intercept Forms | MGSE9-12.F.LE.2, MGSE9-12.F.LE.5 |

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Chapter 3 Linear Functions (cont.)

| Lesson | Topic | GA Standards of Excellence |
|--------------------------------------|--|--|
| 3-7 Horizontal and Vertical Lines | A) Slopes of Horizontal and Vertical Lines | MGSE9-12.A.CED.2, MGSE9-12.F.IF.7a, MGSE9-12.F.LE.2 |
| | B) Graphing Equations of Horizontal and Vertical Lines | |
| | C) Writing Equations of Horizontal and Vertical Lines | |
| 3-8 Parallel and Perpendicular Lines | A) Slopes of Parallel Lines | MGSE9-12.A.CED.2, MGSE9-12.F.LE.2, MGSE9-12.F.LE.5 |
| | B) Equations of Parallel Lines Through Given Points | |
| | C) Slopes of Perpendicular Lines | |
| | D) Equations of Perpendicular Lines Through Given Points | |
| 3-9 Scatter Plots and Lines of Fit | A) Scatter Plots | MGSE9-12.N.Q.1.a, MGSE9-12.N.Q.1.c, MGSE9-12.F.LE.5, MGSE9-12.S.ID.6a, MGSE9-12.S.ID.6c, MGSE9-12.S.ID.7, MGSE8.SP.1, MGSE8.SP.2, MGSE8.SP.3 |
| | B) Lines of Fit | |
| | C) Making Predictions with Lines of Fit | |
| 3-10 Residuals and Correlation | A) Residuals and Residual Plots | MGSE9-12.S.ID.8, MGSE9-12.S.ID.9 |
| | B) Correlation Coefficients | |
| | C) Correlation and Causation | |
| 3-11 Inverse Relations | A) Finding the Inverse of Sets of Points | MGSE9-12.N.Q.1.a, MGSE9-12.N.Q.1.c |
| | B) Graphing Inverses | |
| | C) Inverses in Function Notation | |

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Chapter 4 Solving Inequalities

| Lesson | Topic | GA Standards of Excellence |
|--|---|--|
| 4-1 One-Step and Two-Step Inequalities | A) Solutions of One-Variable Inequalities | MGSE9-12.A.CED.1, MGSE9-12.A.CED.3, MGSE9-12.A.REI.3 |
| | B) Solving One-Step Inequalities | |
| 4-2 Multi-Step Inequalities | A) Solving Multi-Step Inequalities | MGSE9-12.A.CED.1, MGSE9-12.A.CED.3, MGSE9-12.A.REI.3 |
| | B) Inequalities with Zero, Many, or Infinite Solutions | |
| | C) Graphing Solutions of Multi-Step Inequalities | |
| 4-3 Inequalities with Rational Numbers | A) Solving Inequalities with Rational Coefficients | MGSE9-12.A.CED.1, MGSE9-12.A.CED.3, MGSE9-12.A.REI.3 |
| | B) Solving Inequalities with Grouping Symbols | |
| 4-4 Graphing and Writing Compound Inequalities | A) Graphing Compound Inequalities | MGSE9-12.A.CED.1, MGSE9-12.A.CED.3, MGSE9-12.A.REI.3 |
| | B) Writing Compound Inequalities from Graphs | |
| | C) Graphing Special Cases of Compound Inequalities | |
| 4-5 Solving Compound Inequalities | A) Solutions of Compound Inequalities | MGSE9-12.A.CED.1, MGSE9-12.A.CED.3, MGSE9-12.A.REI.3 |
| | B) Solving Compound Inequalities | |
| | C) Graphing Solutions of Compound Inequalities | |
| 4-6 Absolute Value Inequalities | A) Solutions of Absolute Value Inequalities | MGSE9-12.A.CED.1, MGSE9-12.A.CED.3 |
| | B) Writing Absolute Value Inequalities as Compound Inequalities | |
| | C) Solving Absolute Value Inequalities by Writing Them as Compound Inequalities | |
| | D) Graphing Absolute Value Inequalities by Writing Them as Compound Inequalities | |
| 4-7 Solving Absolute Value Inequalities | A) Solving Absolute Value Inequalities with Single Variable Inside Absolute Value | MGSE9-12.A.CED.1, MGSE9-12.A.CED.3 |
| | B) Solving Absolute Value Inequalities with Linear Expression Inside Absolute Value | |
| 4-8 Linear Inequalities | A) Solutions of Two-Variable Inequalities | MGSE9-12.A.CED.3, MGSE9-12.A.REI.12 |
| | B) Graphing Linear Inequalities | |
| | C) Writing Linear Inequalities | |

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Chapter 5 Systems of Linear Equations and Inequalities

| Lesson | Topic | GA Standards of Excellence |
|--|--|---|
| 5-1 Solutions of Systems of Equations | A) Solutions of Systems of Linear Equations | MGSE9-12.A.CED.3, MGSE9-12.A.REI.6, MGSE8.EE.8a, MGSE8.EE.8c |
| | B) Graphs of Systems of Equations and the Number of Solutions | |
| 5-2 Graphing to Solve Systems of Equations | A) Graphing Systems of Linear Equations | MGSE9-12.N.Q.1.a, MGSE9-12.N.Q.1.c, MGSE9-12.A.CED.3, MGSE9-12.A.REI.6, MGSE9-12.A.REI.11, MGSE8.EE.8b, MGSE8.EE.8c |
| | B) Graphing to Solve Systems of Linear Equations | |
| 5-3 Using Substitution to Solve Systems of Equations | A) Substitution to Solve Systems of Linear Equations with One Variable Isolated | MGSE9-12.A.SSE.1b, MGSE9-12.A.CED.3, MGSE9-12.A.REI.6, MGSE9-12.A.REI.11, MGSE8.EE.8b, MGSE8.EE.8c |
| | B) Substitution to Solve Systems of Linear Equations After Isolating a Variable | |
| 5-4 Using Elimination to Solve Systems of Equations | A) Addition or Subtraction Property of Equality to Eliminate a Variable | MGSE9-12.A.CED.3, MGSE9-12.A.REI.6 |
| | B) Multiplication and Addition or Subtraction Property of Equality to Eliminate a Variable | |
| 5-5 Systems of Linear Inequalities | A) Solutions of Systems of Linear Inequalities | MGSE9-12.N.Q.1.a, MGSE9-12.N.Q.1.c, MGSE9-12.A.CED.3 |
| | B) Graphing Systems of Linear Inequalities | |
| | C) Writing Systems of Linear Inequalities | |

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Chapter 6 Exponents and Exponential Functions

| Lesson | Topic | GA Standards of Excellence |
|---|--|----------------------------|
| 6-1 Integer Exponents | A) Numerical Expressions with Nonpositive Integer Exponents | MGSE9-128.EE.1 |
| | B) Variable Expressions with Nonpositive Integer Exponents | |
| 6-2 Product of Powers Property | A) Expanding Expressions to Show the Product of Powers Property | MGSE9-12.A.SSE.2 |
| | B) Simplify Expressions with the Product of Powers Property | |
| 6-3 Quotient of Powers Property | A) Expanding Expressions to Show the Quotient of Powers Property | MGSE9-12.A.SSE.2 |
| | B) Simplifying Expressions with the Quotient of Powers Property | |
| 6-4 Combining Product and Quotient of Powers Properties | A) Simplifying Products with the Product and Quotient of Power Properties | MGSE9-12.A.SSE.2 |
| | B) Simplifying Quotients with the Product and Quotient of Power Properties | |
| 6-5 Power of Power Property | A) Expanding Expressions to Show the Power of Power Property | MGSE9-12.A.SSE.2 |
| | B) Simplifying Expressions with the Power of Power Property | |
| 6-6 Power of Product Property | A) Expanding Expressions to Show the Power of Product Property | MGSE9-12.A.SSE.2 |
| | B) Simplifying Expressions with the Power of Product Property | |
| 6-7 Power of Quotient Property | A) Expanding Expressions to Show the Power of Quotient Property | MGSE9-12.A.SSE.2 |
| | B) Simplifying Expressions with the Power of Quotient Property | |
| 6-8 Combining All Exponent Properties | A) Simplifying Expressions Using Two to Three Exponent Properties | MGSE9-12.A.SSE.2 |
| | B) Simplifying Expressions Using Three to Four Exponent Properties | |
| | C) Simplifying Expressions Using All Exponent Properties | |

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Chapter 6 Exponents and Exponential Functions (cont.)

| Lesson | Topic | GA Standards of Excellence |
|-----------------------------------|--|----------------------------|
| 6-9 Solving Exponential Equations | A) Solutions of Exponential Equations | MGSE9-12.A.CED.1 |
| | B) Exponential Equations with Equivalent Bases | |
| | C) Exponential Equations with Different Bases | |

Chapter 7 Arithmetic and Geometric Sequences

| Lesson | Topic | GA Standards of Excellence |
|--|---|--|
| 7-1 Introduction to Sequences | A) Sequences | MGSE9-12.F.BF.2 |
| | B) Terms of Sequences | |
| | C) Types of Sequences | |
| 7-2 Arithmetic Sequences | A) Finding Common Differences from Terms of Arithmetic Sequences | MGSE9-12.F.BF.2 |
| | B) Extending Arithmetic Sequences | |
| | C) Writing Terms of Arithmetic Sequences from Terms and Common Differences | |
| 7-3 Recursive Formulas of Arithmetic Sequences | A) Parts of Recursive Formulas of Arithmetic Sequences | MGSE9-12.F.IF.3, MGSE9-12.F.BF.1a, MGSE9-12.F.BF.2, MGSE9-12.F.LE.2 |
| | B) Writing Terms of Arithmetic Sequences from Recursive Formulas | |
| | C) Writing Recursive Formulas for Arithmetic Sequences | |
| 7-4 Explicit Formulas of Arithmetic Sequences | A) Parts of Explicit Formulas of Arithmetic Sequences | MGSE9-12.F.IF.3, MGSE9-12.F.BF.1a, MGSE9-12.F.BF.2, MGSE9-12.F.LE.2 |
| | B) Writing and Evaluating Explicit Formulas of Arithmetic Sequences | |
| | C) Converting Between Explicit and Recursive Formulas of Arithmetic Sequences | |
| 7-5 Geometric Sequences | A) Finding Common Ratios from Terms of Geometric Sequences | MGSE9-12.F.BF.2 |
| | B) Extending Geometric Sequences | |
| | C) Writing Terms of Geometric Sequences from Terms and Common Ratios | |

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Chapter 7 Arithmetic and Geometric Sequences (cont.)

| Lesson | Topic | GA Standards of Excellence |
|---|--|--|
| 7-6 Recursive Formulas of Geometric Sequences | A) Parts of Recursive Formulas of Geometric Sequences | MGSE9-12.F.IF.3, MGSE9-12.F.BF.1a, MGSE9-12.F.BF.2, MGSE9-12.F.LE.2 |
| | B) Writing Terms of Geometric Sequences from Recursive Formulas | |
| | C) Writing Recursive Formulas for Geometric Sequences | |
| 7-7 Explicit Formulas of Geometric Sequences | A) Parts of Explicit Formulas of Geometric Sequences | MGSE9-12.F.IF.3, MGSE9-12.F.BF.1a, MGSE9-12.F.BF.2, MGSE9-12.F.LE.2 |
| | B) Writing and Evaluating Explicit Formulas of Geometric Sequences | |
| | C) Converting Between Explicit and Recursive Formulas of Geometric Sequences | |
| 7-8 Exponential Functions | A) Solutions of Exponential Functions | MGSE9-12.A.CED.2, MGSE9-12.A.REI.10, MGSE9-12.F.IF.4, MGSE9-12.F.IF.7e, MGSE9-12.F.BF.2, MGSE9-12.F.LE.1a, MGSE9-12.F.LE.2 |
| | B) Equations of Exponential Functions | |
| | C) Graphs of Exponential Functions | |
| 7-9 Exponential Growth and Decay | A) Classifying Graphs and Equations as Exponential Growth or Decay | MGSE9-12.N.Q.2, MGSE9-12.A.CED.2, MGSE9-12.F.IF.4, MGSE9-12.F.IF.7e, MGSE9-12.F.LE.1a, MGSE9-12.F.LE.1c, MGSE9-12.F.LE.2 |
| | B) Equations of Exponential Growth or Decay | |
| | C) Writing and Evaluating Exponential Growth and Decay Equations | |

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Chapter 8 Roots and Square Root Functions

| Lesson | Topic | GA Standards of Excellence |
|--|--|-------------------------------------|
| 8-1 Square Roots of Whole Numbers | A) Square Roots of Perfect Squares | MGSE9-12.N.RN.2, MGSE9-12.N.RN.3 |
| | B) Product Property of Square Roots | |
| | C) Square Roots of Whole Numbers Written in Prime Factored Form | |
| | D) Square Roots of Whole Numbers | |
| 8-2 Square Roots of Variable Expressions | A) Square Roots of Single Variables Raised to Even Powers | MGSE9-12.A.SSE.2 |
| | B) Square Roots of Single Variables Raised to Odd Powers | |
| | C) Square Roots of Monomial Expressions with Two or More Factors | |
| 8-3 Adding and Subtracting Square Roots | A) Adding and Subtracting Simplified Square Roots | MGSE9-12.N.RN.2, MGSE9-12.N.RN.3 |
| | B) Adding and Subtracting Square Roots After Simplifying | |
| 8-4 Products of Square Roots | A) Simplifying a Product of Square Roots with Prime Factorized Radicands | MGSE9-12.N.RN.2, MGSE9-12.N.RN.3 |
| | B) Simplifying a Product of Square Roots with Whole Number Radicands | |
| 8-5 Quotients of Square Roots | A) Simplifying a Fraction with at Least One Square Root without Needing to Rationalize the Denominator | MGSE9-12.N.RN.2, MGSE9-12.N.RN.3 |
| | B) Simplifying Square Roots of Fractions without Needing to Rationalize the Denominator | |
| | C) Simplifying a Fraction of Square Roots without Needing to Rationalize the Denominator | |
| | D) Simplifying Square Roots of Fractions and Fractions of Square Roots with Multipliers | |
| 8-6 Rationalizing Square Roots | A) Finding the Value Needed to Rationalize a Denominator | MGSE9-12.N.RN.2 |
| | B) Simplifying a Fraction of Square Roots | |
| | C) Simplifying Square Roots of Fractions | |

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Chapter 8 Roots and Square Roots Functions (cont...)

| Lesson | Topic | GA Standards of Excellence |
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| 8-7 Rational Exponents and nth Roots | A) Writing Roots as Rational Exponents | MGSE9-12.A.SSE.2 |
| | B) Writing Rational Exponents as nth Roots | |
| 8-8 Simplifying Rational Exponents and nth Roots | A) Evaluating Expressions with Rational Exponents | MGSE9-12.RN.1, MGSE9-12.RN.2 |
| | B) Evaluating Expressions with nth Roots | |

Chapter 9 Polynomials

| Lesson | Topic | GA Standards of Excellence |
|--|---|---|
| 9-1 Introduction to Polynomials | A) Terms of Polynomials | MGSE9-12.A.SSE.1a |
| | B) Degree of Polynomials | |
| | C) Standard Form of Polynomials | |
| | D) Leading Coefficients | |
| 9-2 Modeling Polynomial Addition and Subtraction | A) Using Algebra Tiles to Model Polynomials | MGSE9-12.A.APR.1 |
| | B) Using Algebra Tiles to Add Polynomials | |
| | C) Using Algebra Tiles to Subtract Polynomials | |
| 9-3 Adding and Subtracting Polynomials | A) Adding Polynomials | MGSE9-12.A.SSE.1b, MGSE9-12.A.APR.1 |
| | B) Subtracting Polynomials | |
| | C) Adding and Subtracting Polynomials | |
| 9-4 Modeling Polynomial Multiplication | A) Using Algebra Tiles to Multiply a Monomial and Binomial | MGSE9-12.A.SSE.2, MGSE9-12.A.APR.1 |
| | B) Using Algebra Tiles to Multiply Two Binomials | |
| 9-5 Using Tables to Multiply Polynomials | A) Completing Tables for Polynomial Multiplication | MGSE9-12.A.SSE.2, MGSE9-12.A.APR.1 |
| | B) Using a Table to Multiply a Monomial and Polynomial | |
| | C) Using a Table to Multiply Polynomials with Two or More Terms | |
| 9-6 Multiplying Polynomials | A) Multiplying Two Polynomials | MGSE9-12.A.SSE.1b, MGSE9-12.A.SSE.2, MGSE9-12.A.APR.1 |
| | B) Multiplying Three or More Polynomials | |
| 9-7 Special Products | A) Squares of Sums | MGSE9-12.A.SSE.1b, MGSE9-12.A.SSE.2, MGSE9-12.A.APR.1 |
| | B) Squares of Differences | |
| | C) Products of Binomial Conjugates | |

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Chapter 10 Factoring

| Lesson | Topic | GA Standards of Excellence |
|---|---|--|
| 10-1 Greatest Common Factors | A) Identifying Factors | MGSE9-12.A.SSE.1a, MGSE9-12.A.SSE.2 |
| | B) Finding Greatest Common Factors | |
| 10-2 Using Greatest Common Factors to Factor | A) Using Algebra Tiles to Factor Common Factors from Polynomial Expressions | MGSE9-12.A.SSE.2 |
| | B) Factoring Common Factors from Polynomial Expressions | |
| | C) Factoring -1 From Polynomial Expressions | |
| 10-3 Factoring by Grouping | A) Using Algebra Tiles to Factor Polynomials with Four Terms | MGSE9-12.A.SSE.2 |
| | B) Factoring Polynomials with Four Terms by Grouping | |
| 10-4 Factoring Quadratics with Leading Coefficients of One | A) Using Algebra Tiles to Factor Quadratic Trinomials | MGSE9-12.A.SSE.2 |
| | B) Factoring Quadratics with Leading Coefficients of One | |
| 10-5 Factoring Trinomials with Leading Coefficients Not One | A) Factoring Quadratics with Leading Coefficients Not Equal to One | MGSE9-12.A.SSE.2 |
| | B) Factoring a Polynomial into a Monomial and Two Binomial Factors | |
| | C) Determining if Quadratics are Factorable | |
| 10-6 Special Cases in Factoring Polynomials | A) Factoring Differences of Squares | MGSE9-12.A.SSE.2 |
| | B) Factoring Perfect Square Trinomials | |

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Chapter 11 Quadratic Equations and Functions

| Lesson | Topic | GA Standards of Excellence |
|---|---|--|
| 11-1 Parabolas | A) Graphs of Quadratic Functions | MGSE9-12.A.REI.10, MGSE9-12.F.IF.4, MGSE9-12.F.IF.7a, MGSE9-12.F.IF.9, MGSE9-12.F.LE.3 |
| | B) Key Features of Parabolas | |
| | C) Relationship Between the Vertex and the x-Intercepts of Parabolas | |
| 11-2 Standard Form of Quadratic Functions | A) Equations of Quadratic Functions in Standard Form | MGSE9-12.A.SSE.1a, MGSE9-12.A.SSE.2, MGSE9-12.F.IF.4, MGSE9-12.F.IF.7a, MGSE9-12.F.IF.8a, MGSE9-12.F.IF.9 |
| | B) Key Features of Quadratic Functions from Equations | |
| | C) Graphing Quadratic Functions from Equations in Standard Form | |
| 11-3 Solving Quadratic Equations by Graphing | A) Solutions of Quadratic Equations | MGSE9-12.A.CED.1, MGSE9-12.A.REI.4b, MGSE9-12.A.REI.10, MGSE9-12.A.REI.11, MGSE9-12.F.IF.7a, MGSE9-12.F.IF.8a |
| | B) Connection Between Quadratic Functions and Their Related Equations | |
| | C) Solving Quadratic Equations by Graphing | |
| 11-4 Solving Quadratic Equations by Factoring | A) Solving Factored Quadratic Equations | MGSE9-12.N.Q.2, MGSE9-12.A.SSE.2, MGSE9-12.A.SSE.3a, MGSE9-12.A.CED.1, MGSE9-12.A.REI.4b, MGSE9-12.F.IF.8a |
| | B) Solving Quadratic Equations in Standard Form by Factoring | |
| | C) Solving Quadratic Equations in Nonstandard Form by Factoring | |
| 11-5 Using Square Roots to Solve Quadratic Equations | A) Solving Quadratic Equations with Squared Variable | MGSE9-12.A.CED.1, MGSE9-12.A.REI.4b, MGSE9-12.A.REI.5 |
| | B) Solving Quadratic Equations with Squared Linear Expressions | |
| 11-6 Solving Quadratic Equations by Completing the Square | A) Perfect Square Trinomials | MGSE9-12.A.SSE.3b, MGSE9-12.A.CED.1, MGSE9-12.A.REI.4a, MGSE9-12.A.REI.4b, MGSE9-12.F.IF.8a |
| | B) Solving Quadratic Equations by Completing the Square | |

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Chapter 11 Quadratic Equations and Functions (cont.)

| Lesson | Topic | GA Standards of Excellence |
|---|---|---|
| 11-7 Using the Quadratic Formula to Solve Quadratic Equations | A) Writing the Quadratic Formula | MGSE9-12.A.CED.1, MGSE9-12.A.REI.4a, MGSE9-12.A.REI.4b, MGSE9-12.F.IF.8a |
| | B) Solving Quadratic Equations in Standard Form with the Quadratic Formula | |
| | C) Solving Quadratic Equations in Nonstandard Form with the Quadratic Formula | |
| 11-8 Discriminants of Quadratic Equations | A) Finding Discriminants | MGSE9-12.A.REI.4b |
| | B) Relationship Between Discriminants and Number of Real Solutions | |
| | C) Relationship Between Discriminants and Graphs of Quadratic Functions | |

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Chapter 12 Functions and Transformations

| Lesson | Topic | GA Standards of Excellence |
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| 12-1 Piecewise Functions | A) Graphing Functions on a Given Domain | MGSE9-12.A.CED.2, MGSE9-12.A.REI.10 |
| | B) Graphing Piecewise Functions | |
| | C) Writing Equations of Piecewise Functions | |
| 12-2 Step Functions | A) Evaluating Floor and Ceiling Functions | MGSE9-12.A.CED.2, MGSE9-12.A.REI.10 |
| | B) Graphs of Step Functions | |
| 12-3 Parent Functions | A) Graphing Parent Functions | MGSE9-12.A.CED.2, MGSE9-12.A.REI.10, MGSE9-12.F.IF.4 |
| | B) Writing Equations of Parent Functions | |
| 12-4 Translations | A) Identifying Vertical or Horizontal Translations of Parent Functions from Graphs and Equations | MGSE9-12.A.SSE.2, MGSE9-12.A.CED.2, MGSE9-12.F.IF.4, MGSE9-12.F.IF.9, MGSE9-12.F.BF.3 |
| | B) Identifying Translations of Parent Functions from Graphs and Equations | |
| | C) Graphing Translated Parent Functions from Equations | |
| | D) Writing Equations of Translated Parent Functions from Graphs | |
| 12-5 Reflections | A) Graphing Reflected Parent Functions | MGSE9-12.A.SSE.2, MGSE9-12.A.CED.2, MGSE9-12.F.IF.4, MGSE9-12.F.IF.9, MGSE9-12.F.BF.3 |
| | B) Writing Equations of Reflected Parent Functions | |
| 12-6 Dilations | A) Identifying Vertical Dilation Factors from Graphs and Equations | MGSE9-12.A.SSE.2, MGSE9-12.A.CED.2, MGSE9-12.F.IF.4, MGSE9-12.F.IF.9, MGSE9-12.F.BF.3 |
| | B) Identifying Horizontal Dilation Factors from Graphs and Equations | |
| | C) Graphing Dilated Quadratic and Absolute Value Functions | |
| | D) Comparing Dilation Factors | |
| 12-7 Transformations and Vertex Form | A) Graphing and Writing Equations of Transformed Quadratic and Absolute Value Functions | MGSE9-12.A.SSE.2, MGSE9-12.A.SSE.3b, MGSE9-12.A.CED.2, MGSE9-12.F.IF.4, MGSE9-12.F.IF.9, MGSE9-12.F.BF.3 |
| | B) Relationship Between the Vertices of Quadratic and Absolute Value Functions and Their Equations | |
| | C) Vertex Form of Quadratic Equations | |

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Chapter 13 Statistics and Probability

| Lesson | Topic | GA Standards of Excellence |
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| 13-1 Measures of Center | A) Mean | MGSE9-12.S.ID.1, MGSE9-12.S.ID.2, MGSE9-12.S.ID.3 |
| | B) Median | |
| 13-2 Measures of Spread | A) Range | MGSE9-12.S.ID.1, MGSE9-12.S.ID.2, MGSE9-12.S.ID.3, MGSE7.SP.3 |
| | B) Standard Deviation | |
| | C) IQR | |
| 13-3 Outliers | A) Effects of Outliers | MGSE9-12.A.CED.1, MGSE9-12.A.CED.3, MGSE9-12.S.ID.1, MGSE9-12.S.ID.2, MGSE9-12.S.ID.3, MGSE7.SP.3 |
| | B) Identifying Outliers | |
| | C) Identifying a Box Plot from a Data Set | |
| 13-4 Distributions of Data | A) Shapes of Data Displays | MGSE9-12.S.ID.1, MGSE9-12.S.ID.2, MGSE9-12.S.ID.3 |
| | B) Shape and Measures of Center | |
| | C) Effects of Changes in Data Set on Values of Measures of Center and Spread | |
| | D) Using Shapes of Data Displays to Compare Measures of Center | |
| 13-5 Two-Way Tables | A) Parts of Two-Way Tables | MGSE9-12.A.CED.1, MGSE9-12.S.ID.5, MGSE8.SP.4.a |
| | B) Reading Two-Way Tables | |
| | C) Finding Missing Joint and Marginal Frequencies | |
| 13-6 Relative and Conditional Frequency | A) Identifying Types of Frequency Tables | MGSE9-12.A.CED.1, MGSE9-12.S.ID.5, MGSE8.SP.4.b |
| | B) Using Two-Way Tables to Calculate Probabilities | |
| | C) Finding Missing Conditional and Relative Frequencies | |