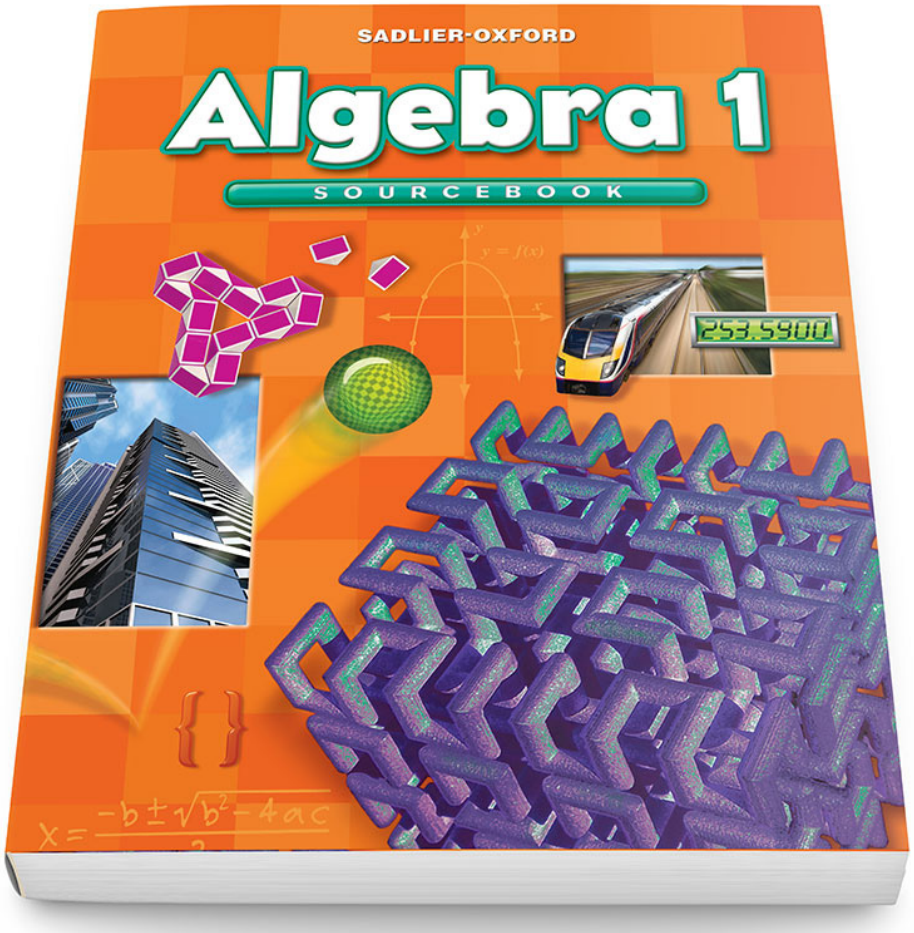
Algebra 1

Correlation to the Archdiocese of Cincinnati
2020 Graded Course of Study for Mathematics

Grade 9



Learn more at www.SadlierSchool.com

STANDARD 1 – SEE STRUCTURE IN EXPRESSION (SSE)

Grade 9 Standard & Benchmark Description	*Algebra 1*, Grade 9
A.SSE.9.1 Interpret the structure of expressions.	
A.SSE.9.1.1 Interpret expressions that represent a quantity in terms of its context. For example, calculate mortgage payments. **A.SSE.9.1.2** Interpret parts of an expression, such as terms, factors, and coefficients. **A.SSE.9.1.3** Interpret complicated expressions by viewing one or more of their parts as a single entity.	**Chapter 1 Basic Concepts of Algebra** 1-8 Algebraic Expressions—TE pp. 16–19B; SB pp. 16–19 / PB pp. 15–16 1-8A Interpret Parts of Expressions—Online 1-15 Problem-Solving Strategy: Make a Drawing—TE pp. 34–35B; SB pp. 34–35 / PB pp. 29–30 **Chapter 2 Linear Equations** 2-9 Problem-Solving Strategy: Solve a Simpler Problem—TE pp. 64–65B; SB pp. 64–65 / PB pp. 55–56 **Chapter 3 Linear Inequalities** 3-8 Problem-Solving Strategy: Reason Logically—TE pp. 88–89B; SB pp. 88–89 / PB pp. 79–80 **Chapter 4 Relations and Functions** 4-6 Problem Solving: Review of Strategies—TE pp. 110–111B; SB pp. 110–111 / PB pp. 99–100 **Chapter 13 Exponential and Other Nonlinear Functions** 13-5 Exponential Growth and Decay (compound interest)—TE pp. 342–345B; SB pp. 342–345 / PB pp. 341–342
A.SSE.9.1.4 Use the structure of an expression to identify ways to rewrite it. For example, to factor $3x(x - 5) + 2(x - 5)$, students recognizte that the "$x - 5$" is common to both expressions being added, so it simplifies to $(3x + 2)(x - 5)$; or see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.	**Chapter 8 Factoring Polynomials** 8-1 Common Monomial Factors—TE pp. 200–201B; SB pp. 200–201 / PB pp. 195–196 8-3 Factor Trinomials: $ax^2 + bx + c$, $a \neq 1$—TE pp. 206–209B; SB pp. 206–209 / PB pp. 199–200 8-4 Special Product and Factoring: $(a \pm b)^2 = a^2 \pm 2ab + b^2$—TE pp. 210–211B; SB pp. 210–211 / PB pp. 201–202 8-5 Special Product and Factoring: $(a + b)(a - b) = a^2 - b^2$—TE pp. 212–213B; SB pp. 212–213 / PB pp. 203–204
A.SSE.9.2 Write expressions in equivalent forms to solve problems.	
A.SSE.9.2.1 Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.	**Chapter 10 Quadratic Functions and Equations** 10-3 Solve Quadratic Equations by Factoring—TE pp. 254–257B; SB pp. 254–257 / PB pp. 249–252 10-5 Solve Quadratic Equations by Completing the Square—TE pp. 260–261B; SB pp. 260–261 / PB pp. 255–256

continued

STANDARD 1 – SEE STRUCTURE IN EXPRESSION (SSE)

Grade 9 Standard & Benchmark Description	*Algebra 1*, Grade 9
A.SSE.9.2 Write expressions in equivalent forms to solve problems.	
	Chapter 13 Exponential and Other Nonlinear Functions 13-5 Exponential Growth and Decay—TE pp. 342–345B; SB pp. 342–345 / PB pp. 341–342 13-5A Transform Exponential Functions—Online
A.SSE.9.2.2 Factor a quadratic expression to reveal the zeros of the function it defines.	**Chapter 10 Quadratic Functions and Equations** 10-3 Solve Quadratic Equations by Factoring—TE pp. 254–257B; SB pp. 254–257 / PB pp. 249–252
A.SSE.9.2.3 Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.	**Chapter 10 Quadratic Functions and Equations** 10-5 Solve Quadratic Equations by Completing the Square—TE pp. 260–261B; SB pp. 260–261 / PB pp. 255–256
A.SSE.9.2.4 Use the properties of exponents to transform expressions for exponential functions. For example, 8^t can be written as 2^{3t}.	**Chapter 13 Exponential and Other Nonlinear Functions** 13-5 Exponential Growth and Decay—TE pp. 342–345B; SB pp. 342–345 / PB pp. 341–342 13-5A Transform Exponential Functions—Online
A.SSE.9.2.5 (+) Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems.	**Chapter 4 Relations and Functions** 4-5 Geometric Sequences—TE pp. 106–109B; SB pp. 106–109 / PB pp. 97–98

STANDARD 2 – ARITHMETIC WITH POLYNOMIALS AND RATIONAL EXPRESSIONS (APR)

Grade 9 Standard & Benchmark Description	*Algebra 1*, Grade 9
A.APR.9.1 Perform arithmetic operations on polynomials.	
A.APR.9.1.1 Understand that polynomials form a system analogous to the integers, namely that they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials. **A.APR.9.1.2** Focus on polynomials expressions that simplify to forms that are linear or quadratic. (A1, M2) **A.APR.9.1.3** Extend to polynomial expressions beyond those expressions that simplify to forms that are linear or quadratic. (A2, M3)	**Chapter 7 Operations with Polynomials** 7-1 Introduction to Polynomials—TE pp. 176–177B; SB pp. 176–177 / PB pp. 169–170 7-2 Add and Subtract Polynomials—TE pp. 178–181B; SB pp. 178–181, PB pp. 171–172 7-3 Multiply a Polynomial by a Monomial—TE pp. 182–183B; SB pp. 182–183, PB pp. 173–174 7-4 Model Binomial Multiplication—TE pp. 184–185B; SB pp. 184–185, PB pp. 175–176 7-5 Multiply Binomials—TE pp. 186–187B; SB pp. 186–187 / PB pp. 177–178 7-6 Multiply Polynomials—TE pp. 188–189B; SB pp. 188–189, PB pp. 179–180 7-8A Set of Polynomials—Online
A.APR.9.2 Understand the relationship between zeros and factors of polynomials.	
A.APR.9.2.1 Understand and apply the Remainder Theorem: For a polynomial $p(x)$ and a number a, the remainder on division by $x - a$ is $p(a)$. In particular $p(a) = 0$ if and only if $(x - a)$ is a factor of $p(x)$.	Related content **Chapter 7 Operations with Polynomials** 7-7 Divide a Polynomial by a Monomial—TE pp. 190–191B; SB pp. 190–191 / PB pp. 181–182 7-8 Divide Polynomials Using Long Division—TE pp. 192–193B; SB pp. 192–193 / PB pp. 183–184
A.APR.9.2.2 Identify zeros of polynomials, when factoring is reasonable, and use the zeros to construct a rough graph of the function defined by the polynomial.	**Chapter 8 Factoring Polynomials** 8-8 Technology: Factor Polynomials Using a Graph—TE pp. 218–219B; SB pp. 218–219 / PB pp. 209–210 **Chapter 10 Quadratic Functions and Equations** 10-2A Features of Quadratic Functions—Online 10-3 Solve Quadratic Equations by Factoring—TE pp. 254–257B; SB pp. 254–257 / PB pp. 249–252 10-4 Solve Verbal Problems Involving Quadratic Equations—TE pp. 258–259B; SB pp. 258–259 / PB pp. 253–254 10-9 Technology: Find the Zeros of Polynomial Functions—TE pp. 270–271B; SB pp. 270–271 / PB pp. 263–264 10-10B Write a Quadratic Function Rule—Online

STANDARD 2 – ARITHMETIC WITH POLYNOMIALS AND RATIONAL EXPRESSIONS (APR)

Grade 9 Standard & Benchmark Description	*Algebra 1*, Grade 9
A.APR.9.2 Understand the relationship between zeros and factors of polynomials.	
A.APR.9.2.3 Prove polynomial identities and use them to describe numerical relationships. For example, the polynomial identity $(x^2 + y^2) = (x - y^2) + (2xy)^2$ can be used to generate Pythagorean triples.	Related content **Chapter 9 Radical Expressions and Equations** 9-5 The Pythagorean Theorem—TE pp. 236–237B; SB pp. 236–237 / PB pp. 229–230
A.APR.9.2.3 (+) Know and apply the Binomial Theorem for the expression of $(x + y)^n$ in powers of x and y for a positive integer n, where x and y are any numbers. For example, by using coefficients determined by Pascal's Triangle, the Binomial Theorem can be proven by mathematical induction or by a combinatorial argument.	Not addressed
A.APR.9.3 Rewrite rational expressions.	
A.APR.9.3.1 Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$' where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system. **A.APR.9.3.2** (+) Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division, by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.	**Chapter 12 Rational Expressions and Equations** 12-1 Introduction to Rational Expressions—SB pp. 306–307; PB pp. 303–304; TE pp. 306–307B 12-2 Simplify Rational Expressions—SB pp. 308–309; PB pp. 305–306; TE pp. 308–309B 12-3 Multiply Rational Expressions—SB pp. 310–311; PB pp. 307–308; TE pp. 310–311B 12-4 Divide Rational Expressions—SB pp. 312–313; PB pp. 309–310; TE pp. 312–313B 12-5 Combine Rational Expressions with Like Denominators—SB pp. 314–315; PB pp. 311–312; TE pp. 314–315B 12-6 Combine Rational Expressions with Unlike Denominators—SB pp. 316–317; PB pp. 313–314; TE pp. 316–317B

STANDARD 3 – CREATING EQUATIONS (CED)

Grade 9 Standard & Benchmark Description	*Algebra 1*, Grade 9

A.CED.9.1 Create equations that describe numbers or relationships.

A.CED.9.1.1 Create equations and inequalities in one variable and use them to solve problems. Include equations and inequalities arising from linear quadratic, simple rational and exponential functions.

A.CED.9.1.2 Focus on applying linear and simple exponential expressions. (A1, M1)

A.CED.9.1.3 Focus on applying simple quadratic expressions. (A1, M2)

A.CED.9.1.4 Extend to include more complicated function situations with the option to solve technology. (A2, M3)

Chapter 1 Basic Concepts of Algebra

1-15 Problem-Solving Strategy: Make a Drawing—TE pp. 34–35B; SB pp. 34–35 / PB pp. 29–30

Chapter 2 Linear Equations

2-1 Open Sentences and Solution Sets—TE pp. 40–41B; SB pp. 40–41 / PB pp. 39–40

2-2 Solve Addition and Subtraction Equations—TE pp. 42–45B; SB pp. 42–45 / PB pp. 41–42

2-3 Solve Multiplication and Division Equations—TE pp. 46–49B; SB pp. 46–49 / PB pp. 43–44

2-4 Solve Equations with Two Operations—TE pp. 50–53B; SB pp. 50–53 / PB pp. 45–46

2-5 Solve Multistep Equations—TE pp. 54–57B; SB pp. 54–57 / PB pp. 47–48

2-9 Problem-Solving Strategy: Solve a Simpler Problem—TE pp. 64–65B; SB pp. 64–65 / PB pp. 55–56

Chapter 3 Linear Inequalities

3-1 Write and Graph Inequalities—TE pp. 70–71B; SB pp. 70–71 / PB pp. 65–66

3-2 Solve Inequalities Using Addition or Subtraction—TE pp. 72–73B; SB pp. 72–73 / PB pp. 67–68

3-3 Solve Inequalities Using Multiplication or Division—TE pp. 74–75B; SB pp. 74–75 / PB pp. 69–70

3-4 Solve Multistep Inequalities—TE pp. 76–79B; SB pp. 76–79 / PB pp. 71-72

3-5 Solve Compound Inequalities—TE pp. 80–83B; SB pp. 80–83 / PB pp. 73–74

Chapter 10 Quadratic Functions and Equations

10-3 Solve Quadratic Equations by Factoring—TE pp. 254–257B; SB pp. 254–257 / PB pp. 249–252

10-4 Solve Verbal Problems Involving Quadratic Equations—TE pp. 258–259B; SB pp. 258–259 / PB pp. 253–254

10-5 Solve Quadratic Equations by Completing the Square—TE pp. 260–261B; SB pp. 260–261 / PB pp. 255–256

10-7 Solve Quadratic Equations with the Quadratic Formula—TE pp. 264–265B; SB pp. 264–265 / PB pp. 259–260

continued

STANDARD 3 – CREATING EQUATIONS (CED)

Grade 9 Standard & Benchmark Description	*Algebra 1*, Grade 9
A.CED.9.1 Create equations that describe numbers or relationships.	
	Chapter 12 Rational Expressions and Equations 12-8 Solve Rational Equations Resulting in Linear Equations—TE pp. 320–321B; SB pp. 320–321 / PB pp. 317–318 12-9 Solve Rational Equations Resulting in Quadratic Equations—TE pp. 322–323B; SB pp. 322–323 / PB pp. 319–320 **Chapter 13 Exponential and Other Nonlinear Functions** 13-5 Exponential Growth and Decay—TE pp. 342–345B; SB pp. 342–345 / PB pp. 341–34 **Chapter 14 Data Analysis and Probability** 14-7 Scatter Plots—TE pp. 374–377B; SB pp. 374–377 / PB pp. 371–372
A.CED.9.1.5 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. **A.CED.9.1.6** Focus on applying linear and simple exponential expressions. (A1, M1) **A.CED.9.1.7** Focus on applying simple quadratic expressions. (A1, M2) **A.CED.9.1.8** Extend to include more complicated function.	**Chapter 2 Linear Equations** 2-7 Formulas and Literal Equations—TE pp. 60–61B; SB pp. 60–61 / PB pp. 51–52 **Chapter 3 Linear Inequalities** 3-8 Problem-Solving Strategy: Reason Logically—TE pp. 88–89B; SB pp. 88–89 / PB pp. 79–80 **Chapter 4 Relations and Functions** 4-3 Write Function Rules—TE pp. 100–101B; SB pp. 100–101 / PB pp. 93–94 4-4 Arithmetic Sequences—TE pp. 102–105B; SB pp. 102–105 / PB pp. 95–96 4-5 Geometric Sequences—TE pp. 106–109B; SB pp. 106–109 / PB pp. 97–98 **Chapter 5 Linear Functions** 5-2 Direct Variation—TE pp. 120–121B; SB pp. 120–121 / PB pp. 113–114 5-3 Equations in Slope-Intercept Form—TE pp. 122–125B; SB pp. 122–125 / PB pp. 115–116 5-4 Equations in Point-Slope Form—TE pp. 126–127B; SB pp. 126–127 / PB pp. 117–118 5-5 Change the Form of a Linear Equation—TE pp. 128–131B; SB pp. 128–131 / PB pp. 119–120 5-8 Absolute-Value Functions—TE pp. 138–139B; SB pp. 138–139 / PB pp. 125–126 5-9 Technology: Graph Linear Functions and Inequalities—TE pp. 140–141B; SB pp. 140–141 / PB pp. 127–128 *continued*

STANDARD 3 – CREATING EQUATIONS (CED)

Grade 9 Standard & Benchmark Description	*Algebra 1*, Grade 9

A.CED.9.1 Create equations that describe numbers or relationships.

	5-10 Technology: Families of Lines—TE pp. 142–143B; SB pp. 142–143 / PB pp. 129–130 **Chapter 10 Quadratic Functions and Equations** 10-1 Identify Quadratic Functions and Their Graphs—TE pp. 246–249D; SB pp. 246–249 / PB pp. 243–246 10-2 Graph Quadratic Functions: Parabola—TE pp. 250–253B; SB pp. 250–253 / PB pp. 247–248 10-3 Solve Quadratic Equations by Factoring—TE pp. 254–257B; SB pp. 254–257 / PB pp. 249–252 10-4 Solve Verbal Problems Involving Quadratic Equations—TE pp. 258–259B; SB pp. 258–259 / PB pp. 253–254 10-5 Solve Quadratic Equations by Completing the Square—TE pp. 260–261B; SB pp. 260–261 / PB pp. 255–256 10-7 Solve Quadratic Equations with the Quadratic Formula—TE pp. 264–265B; SB pp. 264–265 / PB pp. 259–260 10-8 Solve Linear-Quadratic Systems—TE pp. 266–269B; SB pp. 266–269 / PB pp. 261–262 10-11 Problem-Solving Strategy: Adopt a Different Point of View—TE pp. 274–275B; SB pp. 274–275 / PB pp. 267–268 **Chapter 11 Ratio, Proportion, and Trigonometry** 11-9 Problem-Solving Strategy: Guess and Test—TE pp. 300–301B; SB pp. 300–301 / PB pp. 293–294 **Chapter 13 Exponential and Other Nonlinear Functions** 13-1 Inverse Variation—TE pp. 330–331B; SB pp. 330–331 / PB pp. 331–332 13-2 Graph Rational Functions—TE pp. 332–335B; SB pp. 332–335 / PB pp. 333–334 13-3 Graph Radical Functions—TE pp. 336–337B; SB pp. 336–337 / PB pp. 335–336 13-4 Identify Exponential Functions and Their Graphs—TE pp. 338–341B; SB pp. 338–341 / PB pp. 337–340 13-6 Technology: Graph Rational Functions—TE pp. 346–347B; SB pp. 346–347 / PB pp. 343–344 13-7 Technology: Graph Radical Functions—TE pp. 348–349B; SB pp. 348–349 / PB pp. 345–346 *continued*

STANDARD 3 – CREATING EQUATIONS (CED)

Grade 9 Standard & Benchmark Description	*Algebra 1*, Grade 9
A.CED.9.1 Create equations that describe numbers or relationships.	
	Chapter 14 Data Analysis and Probability 14-17 Problem Solving: Review of Strategies—TE pp. 398–399B; SB pp. 398–399 / PB pp. 391–392
A.CED.9.1.9 Represent constraints by equations or inequalities, and by systems of the equations and/or inequalities, and interpret solutions as viable a non-viable options in a modeling context. For example, represent inequalities describing nutritional cost constraints on combinations of different foods. (A1, M1) **A.CED.9.1.10** While functions will often be linear, exponential, or quadratic, the types of problems should draw from more complicated situations. (A2, M3)	**Chapter 2 Linear Equations** 2-6 Solve Absolute-Value Equations—TE pp. 58–59B; SB pp. 58–59 / PB pp. 49–50 **Chapter 3 Linear Inequalities** 3-6 Solve Absolute-Value Inequalities—TE pp. 84–85B; SB pp. 84–85 / PB pp. 75–76 **Chapter 9 Radical Expressions and Equations** 9-4 Solve Radical Equations—TE pp. 234–235B; SB pp. 234–235 / PB pp. 227–228 **Chapter 12 Rational Expressions and Equations** 12-8 Solve Rational Equations Resulting in Linear Equations—TE pp. 320–321B; SB pp. 320–321 / PB pp. 317–318 12-9 Solve Rational Equations Resulting in Quadratic Equations—TE pp. 322–323B; SB pp. 322–323 / PB pp. 319–320
A.CED.9.1.11 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. **A.CED.9.1.12** Focus on formulas in which the variable of interest is linear or square. For example, rearrange Ohm's law $V = IR$ to highlight resistance R, or rearrange the formula for the area of a circle. $A = (\pi)r2$ to highlight radius r. (A1) **A.CED.9.1.13** Focus on formulas in which the variable of interest is linear. For example, rearrange Ohm's law $V = IR$ to highlight resistance R. (M1) **A.CED.9.1.14** Focus on formulas in which the variable of interest is linear or square. For example, rearrange the formulas for the area of a circle $A = (\pi)r^2$ to highlight radius r. (M2) *continued*	**Chapter 2 Linear Equations** 2-7 Formulas and Literal Equations—TE pp. 60–61B; SB pp. 60–61 / PB pp. 51–52 **Chapter 14 Data Analysis and Probability** Enrichment: Geometric Probability (area of a circle)—TE pp. 400–401B; SB pp. 400–401 / PB pp. 393–394

STANDARD 4 – REASONING WITH EQUATIONS AND INEQUALITIES (REI)

Grade 9 Standard & Benchmark Description	*Algebra 1*, Grade 9
A.CED.9.1 Create equations that describe numbers or relationships.	
A.CED.9.1.15 While functions will often be linear, exponential, or quadratic, the types of problems should draw from more complicated situations. (A2, M3)	

STANDARD 4 – REASONING WITH EQUATIONS AND INEQUALITIES (REI)

Grade 9 Standard & Benchmark Description	*Algebra 1*, Grade 9
A.REI.9.1 Understand solving equations as a process of reasoning and explain the reasoning.	
A.REI.9.1.1 Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. **A.REI.9.1.2** Construct a variable argument to justify a solution method.	**Chapter 2 Linear Equations** 2-2 Solve Addition and Subtraction Equations—TE pp. 42–45B; SB pp. 42–45 / PB pp. 41–42 2-3 Solve Multiplication and Division Equations—TE pp. 46–49B; SB pp. 46–49 / PB pp. 43–44 2-4 Solve Equations with Two Operations—TE pp. 50–53B; SB pp. 50–53 / PB pp. 45–46
A.REI.9.1.3 Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.	**Chapter 9 Radical Expressions and Equations** 9-4 Solve Radical Equations—TE pp. 234–235B; SB pp. 234–235 / PB pp. 227–228 **Chapter 12 Rational Expressions and Equations** 12-8 Solve Rational Equations Resulting in Linear Equations—TE pp. 320–321B; SB pp. 320–321 / PB pp. 317–318 12-9 Solve Rational Equations Resulting in Quadratic Equations—TE pp. 322–323B; SB pp. 322–323 / PB pp. 319–320
A.REI.9.2 Solve equations and inequalities in one variable.	
A.REI.9.2.1 Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	**Chapter 2 Linear Equations** 2-1 Open Sentences and Solution Sets—TE pp. 40–41B; SB pp. 40–41 / PB pp. 39–40 2-2 Solve Addition and Subtraction Equations—TE pp. 42–45B; SB pp. 42–45 / PB pp. 41–42

continued

STANDARD 4 – REASONING WITH EQUATIONS AND INEQUALITIES (REI)

Grade 9 Standard & Benchmark Description	*Algebra 1*, Grade 9
A.REI.9.2 Solve equations and inequalities in one variable.	
	2-3 Solve Multiplication and Division Equations—TE pp. 46–49B; SB pp. 46–49 / PB pp. 43–44 2-4 Solve Equations with Two Operations—TE pp. 50–53B; SB pp. 50–53 / PB pp. 45–46 2-5 Solve Multistep Equations—TE pp. 54–57B; SB pp. 54–57 / PB pp. 47–48 2-5A Solve Equations with Letter Coefficients—Online 2-7 Formulas and Literal Equations—TE pp. 60–61B; SB pp. 60–61 / PB pp. 51–52 2-9 Problem-Solving Strategy: Solve a Simpler Problem—TE pp. 64–65B; SB pp. 64–65 / PB pp. 55–56 **Chapter 3 Linear Inequalities** 3-2 Solve Inequalities Using Addition or Subtraction—TE pp. 72–73B; SB pp. 72–73 / PB pp. 67–68 3-3 Solve Inequalities Using Multiplication or Division—TE pp. 74–75B; SB pp. 74–75 / PB pp. 69–70 3-4 Solve Multistep Inequalities—TE pp. 76–79B; SB pp. 76–79 / PB pp. 71-72 3-7 Technology: Solve Linear Inequalities—TE pp. 86–87B; SB pp. 86–87 / PB pp. 77–78 **Chapter 6 Systems of Linear Equations and Inequalities** 6-9 Problem-Solving Strategy: Work Backward—TE pp. 170–171B; SB pp. 170–171 / PB pp. 159–160
A.REI.9.2.2 Solve quadratic equations in one variable. **A.REI.9.2.3** Use the method on completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form. **A.REI.9.2.4** Solve quadratic equations by inspections. For example, for $x^2 = 49$, taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation.	**Chapter 6 Systems of Linear Equations and Inequalities** 10-3 Solve Quadratic Equations by Factoring—SB pp. 254–257; PB pp. 249–252; TE pp. 254–257B 10-4 Solve Verbal Problems Involving Quadratic Equations—SB pp. 258–259; PB pp. 253–254; TE pp. 258–259B 10-5 Solve Quadratic Equations by Completing the Square—SB pp. 260–261; PB pp. 255–256; TE pp. 260–261B 10-6 The Quadratic Formula and the Discriminant—TE pp. 262–263B; SB pp. 262–263 / PB pp. 257–258 10-6A Complex Roots—Online 10-7 Solve Quadratic Equations with the Quadratic Formula—SB pp. 264–265; PB pp. 259–260; TE pp. 264–265B

STANDARD 4 – REASONING WITH EQUATIONS AND INEQUALITIES (REI)

Grade 9 Standard & Benchmark Description	*Algebra 1*, Grade 9
A.REI.9.2 Solve equations and inequalities in one variable.	
A.REI.9.2.5 Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b.	**Chapter 10 Quadratic Functions and Equations** 10-6A Complex Roots—Online
A.REI.9.3 Solve system equations.	
A.REI.9.3.1 Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.	**Chapter 6 Systems of Linear Equations and Inequalities** 6-2A Replacing an Equation in a System of Equations—Online 6-3 Solve Systems of Linear Equations by Elimination—SB pp. 156–157; PB pp. 147–148; TE pp. 156–157B 6-4 Solve Equivalent Systems of Linear Equations—SB pp. 158–159; PB pp. 149–150; TE pp. 158–159B
A.REI.9.3.2 Solve systems of equations.	**Chapter 6 Systems of Linear Equations and Inequalities** 6-1 Solve Systems of Linear Equations Graphically—SB pp. 150–153; PB pp. 141–144; TE pp. 150–153B 6-1A Solve Systems of Linear Equations Using Successive Approximations—Online 6-2 Solve Systems of Linear Equations by Substitution—SB pp. 154–155; PB pp. 145–146; TE pp. 154–155B 6-3 Solve Systems of Linear Equations by Elimination—SB pp. 156–157; PB pp. 147–148; TE pp. 156–157B 6-4 Solve Equivalent Systems of Linear Equations—SB pp. 158–159; PB pp. 149–150; TE pp. 158–159B 6-5 Apply Systems of Linear Equations—TE pp. 160–161B; SB pp. 160–161 / PB pp. 151–152 6-7 Technology: Graph Systems of Equations—TE pp. 166–167B; SB pp. 166–167 / PB pp. 155–156
A.REI.9.3.3 Solve systems of linear equations algebraically and graphically. **A.REI.9.3.4** Limit to pairs of linear equations in two variables. (AI, MI)	**Chapter 6 Systems of Linear Equations and Inequalities** 6-1 Solve Systems of Linear Equations Graphically—TE pp. 150–153D; SB pp. 150–153 / PB pp. 141–144 6-2 Solve Systems of Linear Equations by Substitution—TE pp. 154–155B; SB pp. 154–155 / PB pp. 145–146

continued

STANDARD 4 – REASONING WITH EQUATIONS AND INEQUALITIES (REI)

Grade 9 Standard & Benchmark Description	*Algebra 1*, Grade 9
A.REI.9.3 Solve system equations.	
	6-3 Solve Systems of Linear Equations by Elimination—TE pp. 156–157B; SB pp. 156–157 / PB pp. 147–148 6-4 Solve Equivalent Systems of Linear Equations—TE pp. 158–159B; SB pp. 158–159 / PB pp. 149–150 6-5 Apply Systems of Linear Equations—TE pp. 160–161B; SB pp. 160–161 / PB pp. 151–152 6-7 Technology: Graph Systems of Equations—TE pp. 166–167B; SB pp. 166–167 / PB pp. 155–156
A.REI.9.3.5 Extend to include solving systems of linear equations in three variables, but only algebraically. (A2, M3)	Not addressed
A.REI.9.3.6 Solve a simple system.	**Chapter 6 Systems of Linear Equations and Inequalities** 6-1 Solve Systems of Linear Equations Graphically—TE pp. 150–153D; SB pp. 150–153 / PB pp. 141–144 6-2 Solve Systems of Linear Equations by Substitution—TE pp. 154–155B; SB pp. 154–155 / PB pp. 145–146 6-3 Solve Systems of Linear Equations by Elimination—TE pp. 156–157B; SB pp. 156–157 / PB pp. 147–148