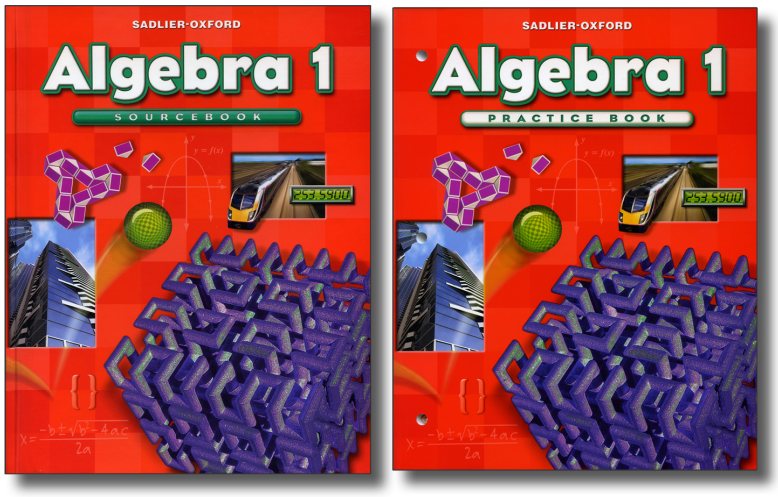
SADLIER·OXFORD

Algebra 1



Correlated to the

Indiana Academic Standards

Mathematics: Algebra 1

Sadlier
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Sadlier-Oxford *Algebra 1* Correlated to the Indiana Academic Standards
Mathematics: Algebra 1

Real Numbers and Expressions	
STANDARDS	**SADLIER-OXFORD *ALGEBRA 1***
AI.RNE.1: Understand the hierarchy and relationships of numbers and sets of numbers within the real number system.	1-1 Rational and Irrational Numbers (approximate square roots of nonperfect squares, find square roots of perfect squares, identify types of rational numbers, and recognize irrational numbers)—SB pp. 2–3; PB pp. 1–2; TE pp. 2–3B 1-2 The Set of Real Numbers (classify real numbers, compare and order real numbers, find the absolute value and additive inverse of a real number, graph real numbers on a number line, and understand and apply the Closure Property)—SB pp. 4–5; PB pp. 3–5; TE pp. 4–5B
AI.RNE.2: Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.	1-3 Add and Subtract Real Numbers (apply rules for adding and subtracting signed number, and model addition of signed numbers on a number line)—SB pp. 6–7; PB pp. 6–6; TE pp. 6–7B 1-4 Multiply and Divide Real Numbers (model multiplication of signed numbers on a number line, and multiply and divide signed numbers)—SB pp. 8–9; PB pp. 7–8; TE pp. 8–9B 1-9 Properties of Real Numbers (identify the properties of real numbers in addition and multiplication, and justify the simplification of algebraic expressions by applying the properties of real numbers)—SB pp. 20–21; PB pp. 17–18; TE pp. 20–21B *1-9A Sums and Products of Rational and Irrational Numbers (investigate why sums or products of two numbers are rational or irrational)—Online
AI.RNE.3: Rewrite and evaluate numeric expressions with positive rational exponents using the properties of exponents.	1-5 Integer Exponents (apply the definitions of zero and negative exponents, apply the Laws of Exponents for Multiplication and Division, and write repeated multiplication in exponential form and vice versa)—SB pp. 10–11; PB pp. 9–10; TE pp. 10–11B 1-6 The Order of Operations (simplify numerical expressions using the order of operations)—SB pp. 12–13; PB pp. 11–12; TE pp. 12–13B *9-4A Rational Exponents (define rational exponents, and relate rational exponents to the radical symbol; to interpret expressions containing rational exponents)—Online *9-4B Use Properties of Rational Exponents (rewrite expressions involving radicals and rational exponents using the Properties of Exponents)—Online
AI.RNE.4: Simplify square roots of non-perfect square integers and algebraic monomials.	1-1 Rational and Irrational Numbers (approximate square roots of nonperfect squares, find square roots of perfect squares, identify types of rational numbers, and recognize irrational numbers)—SB pp. 2–3; PB pp. 1–2; TE pp. 2–3B
	9-1 Simplify Radical Expressions (write square-root expressions in simplest radical form)—SB pp. 226–227; PB pp. 221–222; TE pp. 226–227B

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Real Numbers and Expressions	
STANDARDS	**SADLIER-OXFORD *ALGEBRA 1***
AI.RNE.5: Simplify algebraic rational expressions, with numerators and denominators containing monomial bases with integer exponents, to equivalent forms	12-1 Introduction to Rational Expressions (identify values excluded from the domain of a rational expression, and simplify rational expressions)—SB pp. 306–307; PB pp. 303–304; TE pp. 306–307B 12-2 Simplify Rational Expressions (simplify rational expressions using a variety of factoring techniques)—SB pp. 308–309; PB pp. 305–306; TE pp. 308–309B
AI.RNE.6: Factor common terms from polynomials and factor polynomials completely. Factor the difference of two squares, perfect square trinomials, and other quadratic expressions.	8-1 Common Monomial Factors (factor polynomials using the greatest common monomial factor, and find the greatest common monomial factor of two or more monomials)—SB pp. 200–201; PB pp. 195–196; TE pp. 200–201B 8-2 Factor Trinomials: $ax^2 + bx + c$, $a = 1$ (factor quadratic trinomials when the leading coefficient is 1)—SB pp. 202–205; PB pp. 197–198; TE pp. 202–205B 8-3 Factor Trinomials: $ax^2 + bx + c$, $a \neq 1$ (factor quadratic trinomials when the leading coefficient is other than 1)—SB pp. 206–209; PB pp. 199–200; TE pp. 206–209B 8-4 Special Product and Factoring: $(a \pm b)^2 = a^2 \pm 2ab + b^2$ (factor a perfect-square trinomial, and square a binomial)—SB pp. 210–211; PB pp. 201–202; TE pp. 210–211B 8-5 Special Product and Factoring $(a + b)(a - b) = a^2 - b^2$ (identify and factor binomials that are differences of two perfect squares, and multiply numbers mentally by using the difference of two squares)—SB pp. 212–213; PB pp. 203–204; TE pp. 212–213B 8-6 Factor by Grouping (factor a polynomial by grouping)—SB pp. 214–215; PB pp. 205–206; TE pp. 214–215B 8-7 Factor Completely (combine factoring techniques to factor a polynomial completely)—SB pp. 216–217; PB pp. 207–208; TE pp. 216–217B
AI.RNE.7: Understand polynomials are closed under the operations of addition, subtraction, and multiplication with integers; add, subtract, and multiply polynomials and divide polynomials by monomials.	7-1 Introduction to Polynomials (classify polynomials, identify like monomials, and write polynomials in standard form)—SB pp. 176–177; PB pp. 169–170; TE pp. 176–177B 7-2 Add and Subtract Polynomials (add and subtract polynomials algebraically, and model the addition and subtraction of polynomials)—SB pp. 178–181; PB pp. 171–172; TE pp. 178–181B 7-3 Multiply a Polynomial by a Monomial (multiply a polynomial by a monomial, multiply monomials, and raise a power or product to a power)—SB pp. 182–183; PB pp. 173–174; TE pp. 182–183B 7-4 Model Binomial Multiplication (model binomial multiplication using area models)—SB pp. 184–185; PB pp. 175–176; TE pp. 184–185B

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Real Numbers and Expressions

STANDARDS	SADLIER-OXFORD *ALGEBRA 1*
	7-5 Multiply Binomials (multiply binomials using the Distributive Property, and multiply binomials using the FOIL method)—SB pp. 186–187; PB pp. 177–178; TE pp. 186–187B 7-6 Multiply Polynomials (multiply a polynomial by a polynomial)—SB pp. 188–189; PB pp. 179–180; TE pp. 188–189B 7-7 Divide a Polynomial by a Monomial (divide a polynomial by a monomial, divide monomials, and raise a quotient to a power)—SB pp. 190–191; PB pp. 181–182; TE pp. 190–191B *7-8A Set of Polynomials (that the set of polynomials are closed under addition, subtraction, and multiplication, but not division)—Online

Functions

STANDARDS		SADLIER-OXFORD *ALGEBRA 1*
AI.F.1:	Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. Understand that if *f* is a function and *x* is an element of its domain, then f(*x*) denotes the output of *f* corresponding to the input *x*. Understand the graph of *f* is the graph of the equation *y* = *f*(*x*).	4-1 Introduction to Relations (define relation, domain, and range, identify the domain and range of a relation, and represent relations with rules, tables, mapping diagrams, or graphs)—SB pp. 94–95; PB pp. 89–90; TE pp. 94–95B 4-2 Introduction to Functions (apply the vertical-line test to graphs, define a function, identify relations as functions, given different representations, and use function notation)—SB pp. 96–99; PB pp. 91–92; TE pp. 96–99B
AI.F.2:	Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear, has a maximum or minimum value). Sketch a graph that exhibits the qualitative features of a function that has been verbally described. Identify independent and dependent variables and make predictions about the relationship.	*4-2A Graphs of Functions (understand that the graph of an equation in two variables is the set of all of its solutions plotted on the coordinate plane and to choose and interpret the scale and the origin in those graphs)—Online 4-3 Write Function Rules (make function tables, and write function rules)—SB pp. 100–101; PB pp. 93–94; TE pp. 100–101B *4-5B Features of Functions (use a graph to describe the domain and range of a function, and intervals where the function is increasing or decreasing)—Online
AI.F.3:	Identify the domain and range of relations represented in tables, graphs, verbal descriptions, and equations.	4-1 Introduction to Relations (define relation, domain, and range, identify the domain and range of a relation, and represent relations with rules, tables, mapping diagrams, or graphs)—SB pp. 94–95; PB pp. 89–90; TE pp. 94–95B
AI.F.4:	Understand and interpret statements that use function notation in terms of a context; relate the domain of the function to its graph and to the quantitative relationship it describes.	4-2 Introduction to Functions (apply the vertical-line test to graphs, define a function, identify relations as functions, given different representations, and use function notation)—SB pp. 96–99; PB pp. 91–92; TE pp. 96–99B 4-3 Write Function Rules (make function tables, and write function rules)—SB pp. 100–101; PB pp. 93–94; TE pp. 100–101B

Linear Equations, Inequalities, and Functions

STANDARDS	SADLIER-OXFORD *ALGEBRA 1*
AI.L.1: Understand that the steps taken when solving linear equations create new equations that have the same solution as the original. Solve fluently linear equations and inequalities in one variable with integers, fractions, and decimals as coefficients. Explain and justify each step in solving an equation, starting from the assumption that the original equation has a solution. Justify the choice of a solution method.	2-2 Solve Addition and Subtraction Equations (justify the steps of the solution process for addition and subtraction equations, solve and check addition equations using the Subtraction Property of Equality, and solve and check subtraction equations using the Addition Property of Equality)—SB pp. 42–45; PB pp. 41–42; TE pp. 42–45B 2-3 Solve Multiplication and Division Equations (justify the steps of the solution process for multiplication and division equations, solve and check division equations using the Multiplication Property of Equality, and solve and check multiplication equations using the Division Property of Equality)—SB pp. 46–49; PB pp. 43–44; TE pp. 46–49B *2-5A Solve Equations with Letter Coefficients (solve linear equations with coefficients represented by letters)—Online 3-2 Solve Inequalities Using Addition or Subtraction (graph the solution sets of addition and subtraction inequalities, and solve one-step inequalities using the Addition and Subtraction Properties of Inequality)—SB pp. 72–73; PB pp. 67–68; TE pp. 72–73B 3-3 Solve Inequalities Using Multiplication or Division (graph the solution sets of multiplication and division inequalities, and solve one-step inequalities using the Multiplication or the Division Properties of Inequality)—SB pp. 74–75; PB pp. 69–70; TE pp. 74–75B
AI.L.2: Represent real-world problems using linear equations and inequalities in one variable and solve such problems. Interpret the solution and determine whether it is reasonable.	
AI.L.3: Represent real-world and other mathematical problems using an algebraic proportion that leads to a linear equation and solve such problems.	5-1 Identify Linear Functions and Their Graphs (find slopes of lines, identify linear functions and their graphs, and identify possible values for slope)—SB pp. 116–119; PB pp. 109–112; TE pp. 116–119B
AI.L.4: Represent linear functions as graphs from equations (with and without technology), equations from graphs, and equations from tables and other given information (e.g., from a given point on a line and the slope of the line).	
AI.L.5: Represent real-world problems that can be modeled with a linear function using equations, graphs, and tables; translate fluently among these representations, and interpret the slope and intercepts.	5-1 Identify Linear Functions and Their Graphs (find slopes of lines, identify linear functions and their graphs, and identify possible values for slope)—SB pp. 116–119; PB pp. 109–112; TE pp. 116–119B 5-2 Direct Variation (identify and interpret direct variation, and write and graph direct variation)—SB pp. 120–121; PB pp. 113–114; TE pp. 120–121B 5-3 Equations in Slope-Intercept Form (graph a line using slope-intercept form, and write a linear equation in slope-intercept form)—SB pp. 122–125; PB pp. 115–116; TE pp. 122–125B 5-4 Equations in Point-Slope Form (write and graph linear equations using point-slope form)—SB pp. 126–127; PB pp. 117–118; TE pp. 126–127B

Linear Equations, Inequalities, and Functions	
STANDARDS	**SADLIER-OXFORD *ALGEBRA 1***
	5-5 Change the Form of a Linear Equation (determine whether a given point is on a line, and (rewrite a linear equation using a different form)—SB pp. 128–131; PB pp. 119–120; TE pp. 128–131B 5-6 Parallel and Perpendicular Lines (write an equation of a line that is parallel or perpendicular to a given line)—SB pp. 132–135; PB pp. 121–122; TE pp. 132–135B 5-10 Technology: Families of Lines (use a handheld to explore families of linear functions)—SB pp. 142–143; PB pp. 129–130; TE pp. 142–143B
AI.L.6: Translate among equivalent forms of equations for linear functions, including slope-intercept, point-slope, and standard. Recognize that different forms reveal more or less information about a given situation.	5-3 Equations in Slope-Intercept Form (graph a line using slope-intercept form, and write a linear equation in slope-intercept form)—SB pp. 122–125; PB pp. 115–116; TE pp. 122–125B 5-4 Equations in Point-Slope Form (write and graph linear equations using point-slope form)—SB pp. 126–127; PB pp. 117–118; TE pp. 126–127B 5-5 Change the Form of a Linear Equation (determine whether a given point is on a line, and (rewrite a linear equation using a different form)—SB pp. 128–131; PB pp. 119–120; TE pp. 128–131B
AI.L.7: Represent real-world problems using linear inequalities in two variables and solve such problems; interpret the solution set and determine whether it is reasonable. Solve other linear inequalities in two variables by graphing.	5-7 Graph a Linear Inequality in the Coordinate Plane (graph a linear inequality in two variables)—SB pp. 136–137; PB pp. 123–124; TE pp. 136–137B 5-9 Technology: Graph Linear Functions and Inequalities (use a handheld to graph linear functions and inequalities)—SB pp. 140–141; PB pp. 127–128; TE pp. 140–141B
AI.L.8: Solve compound linear inequalities in one variable, and represent and interpret the solution on a number line. Write a compound linear inequality given its number line representation.	3-1 Write and Graph Inequalities (connect symbolic and graphic representations of inequalities)—SB pp. 70–71; PB pp. 65–66; TE pp. 70–71B 3-5 Solve Compound Inequalities (write and solve compound inequalities involving AND, and write and solve inequalities involving OR)—SB pp. 80–83; PB pp. 73–74; TE pp. 80–83B
AI.L.9: Solve absolute value linear equations in one variable.	2-6 Solve Absolute-Value Equations (write and solve absolute-value equations)—SB pp. 58–59; PB pp. 49–50; TE pp. 58–59B 5-8 Absolute-Value Functions (investigate the graphs of absolute-value functions using a handheld device, and graph the basic absolute-value function and identify its characteristics)—SB pp. 138–139; PB pp. 125–126; TE pp. 138–139B
AI.L.10: Graph absolute value linear equations in two variables.	5-8 Absolute-Value Functions (investigate the graphs of absolute-value functions using a handheld device, and graph the basic absolute-value function and identify its characteristics)—SB pp. 138–139; PB pp. 125–126; TE pp. 138–139B

Linear Equations, Inequalities, and Functions

STANDARDS		SADLIER-OXFORD *ALGEBRA 1*
AI.L.11:	Solve equations and formulas for a specified variable, including equations with coefficients represented by variables.	2-7 Formulas and Literal Equations (solve formulas for particular variables, and solve literal equations for particular variables)—SB pp. 60–61; PB pp. 51–52; TE pp. 60–61B *2-7A Dimensional Analysis of Units (use dimensional analysis to understand, plan, and check the solutions of problems)—Online 2-8 Technology: Solve Linear and Literal Equations (use a handheld to solve linear and literal equations)—SB pp. 62–63; PB pp. 53–54; TE pp. 62–63B

Systems of Equations and Inequalities

STANDARDS		SADLIER-OXFORD *ALGEBRA 1*
AI.SEI.1:	Understand the relationship between a solution of a pair of linear equations in two variables and the graphs of the corresponding lines. Solve pairs of linear equations in two variables by graphing; approximate solutions when the coordinates of the solution are non-integer numbers.	6-1 Solve Systems of Linear Equations Graphically (solve systems of linear equations in two variables graphically)—SB pp. 150–153; PB pp. 141–144; TE pp. 150–153B
AI.SEI.2:	Understand 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. Solve pairs of linear equations in two variables using substitution and elimination.	*6-1A Solve Systems of Linear Equations Using Successive Approximations (write and solve a linear system of equations using a graph, and then verifying the approximate solution with the method of successive approximations)—Online 6-2 Solve Systems of Linear Equations by Substitution (solve systems of linear equations in two variables algebraically by substitution)—SB pp. 154–155; PB pp. 145–146; TE pp. 154–155B *6-2A Replacing an Equation in a System of Equations (prove that, given a system of 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)—Online 6-3 Solve Systems of Linear Equations by Elimination (solve systems of linear equations in two variables algebraically by using addition or subtraction to eliminate one variable)—SB pp. 156–157; PB pp. 147–148; TE pp. 156–157B 6-4 Solve Equivalent Systems of Linear Equations (solve systems of linear equations in two variables using equivalent systems)—SB pp. 158–159; PB pp. 149–150; TE pp. 158–159B
AI.SEI.3:	Write a system of two linear equations in two variables that represents a real-world problem and solve the problem with and without technology. Interpret the solution and determine whether the solution is reasonable.	*6-1A Solve Systems of Linear Equations Using Successive Approximations (write and solve a linear system of equations using a graph, and then verifying the approximate solution with the method of successive approximations)—Online

Systems of Equations and Inequalities

STANDARDS	SADLIER-OXFORD *ALGEBRA 1*
	6-2 Solve Systems of Linear Equations by Substitution (solve systems of linear equations in two variables algebraically by substitution)—SB pp. 154–155; PB pp. 145–146; TE pp. 154–155B *6-2A Replacing an Equation in a System of Equations (prove that, given a system of 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)—Online 6-4 Solve Equivalent Systems of Linear Equations (solve systems of linear equations in two variables using equivalent systems)—SB pp. 158–159; PB pp. 149–150; TE pp. 158–159B 6-3 Solve Systems of Linear Equations by Elimination (solve systems of linear equations in two variables algebraically by using addition or subtraction to eliminate one variable)—SB pp. 156–157; PB pp. 147–148; TE pp. 156–157B 6-5 Apply Systems of Linear Equations (solve a variety of verbal problems using systems of linear equations in two variables)—SB pp. 160–161; PB pp. 151–152; TE pp. 160–161B
AI.SEI.4: Represent real-world problems using a system of two linear inequalities in two variables and solve such problems; interpret the solution set and determine whether it is reasonable. Solve other pairs of linear inequalities by graphing with and without technology.	6-6 Graph Systems of Linear Inequalities (graph and solve systems of linear inequalities in two variables)—SB pp. 162–165; PB pp. 153–154; TE pp. 162–165B

Quadratic and Exponential Equations and Functions

STANDARDS	SADLIER-OXFORD *ALGEBRA 1*
AI.QE.1: Distinguish between situations that can be modeled with linear functions and with exponential functions. Understand that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals. Compare linear functions and exponential functions that model real-world situations using tables, graphs, and equations.	5-1 Identify Linear Functions and Their Graphs (find slopes of lines, identify linear functions and their graphs, and identify possible values for slope)—SB pp. 116–119; PB pp. 109–112; TE pp. 116–119B 13-4 Identify Exponential Functions and Their Graphs (graph exponential functions, identify and evaluate exponential functions, identify how changing the coefficients affects the graph of an exponential function, and simplify rational exponents)—SB pp. 338–341; PB pp. 337–340; TE pp. 338–341B *13-4A Features of Exponential Functions (identify the key features of exponential functions)—Online

Quadratic and Exponential Equations and Functions

STANDARDS		SADLIER-OXFORD *ALGEBRA 1*
AI.QE.2:	Represent real-world and other mathematical problems that can be modeled with exponential functions using tables, graphs, and equations of the form $y = ab^x$ (for integer values of $x > 1$, rational values of $b > 0$ and $b \neq 1$); translate fluently among these representations and interpret the values of a and b.	13-4 Identify Exponential Functions and Their Graphs (graph exponential functions, identify and evaluate exponential functions, identify how changing the coefficients affects the graph of an exponential function, and simplify rational exponents)—SB pp. 338–341; PB pp. 337–340; TE pp. 338–341B *13-4A Features of Exponential Functions (identify the key features of exponential functions)—Online
AI.QE.3:	Graph exponential and quadratic equations in two variables with and without technology.	10-2 Graph Quadratic Functions: Parabola (find the coordinates of the vertex of a parabola and the equation of its axis of symmetry, given its function rule, graph a quadratic function, and use a handheld to investigate the characteristics of families of parabolas)—SB pp. 250–253; PB pp. 247–248; TE pp. 250–253B 13-4 Identify Exponential Functions and Their Graphs (graph exponential functions, identify and evaluate exponential functions, identify how changing the coefficients affects the graph of an exponential function, and simplify rational exponents)—SB pp. 338–341; PB pp. 337–340; TE pp. 338–341B *13-5A Transform Exponential Functions (solve problems by transforming expressions for exponential functions using the Properties of Exponents)—Online
AI.QE.4:	Solve quadratic equations in one variable by inspection (e.g., for $x^2 = 49$), finding square roots, using the quadratic formula, and factoring, as appropriate to the initial form of the equation.	10-3 Solve Quadratic Equations by Factoring (relate a quadratic equation with a quadratic function, solve quadratic equations by factoring, and solve radical equations leading to quadratic equations)—SB pp. 254–257; PB pp. 249–252; TE pp. 254–257B 10-6 The Quadratic Formula and the Discriminant (determine the number and nature of solutions for a quadratic equation by using the discriminant)—SB pp. 262–263; PB pp. 257–258; TE pp. 262–263B *10-6A Complex Roots (represent expressions containing square roots of negative integers as imaginary and complex numbers and to recognize when quadratic functions have complex solutions)—Online 10-7 Solve Quadratic Equations with the Quadratic Formula (solve quadratic equations with the Quadratic Formula)—SB pp. 264–265; PB pp. 259–260; TE pp. 264–265B
AI.QE.5:	Represent real-world problems using quadratic equations in one or two variables and solve such problems with and without technology. Interpret the solution and determine whether it is reasonable.	10-4 Solve Verbal Problems Involving Quadratic Equations (solve verbal problems involving quadratic equations, and write quadratic equations, given their roots)—SB pp. 258–259; PB pp. 253–254; TE pp. 258–259B 10-6 The Quadratic Formula and the Discriminant (determine the number and nature of solutions for a quadratic equation by using the discriminant)—SB pp. 262–263; PB pp. 257–258; TE pp. 262–263B

Quadratic and Exponential Equations and Functions

STANDARDS	SADLIER-OXFORD *ALGEBRA 1*
	10-4 Solve Verbal Problems Involving Quadratic Equations (solve verbal problems involving quadratic equations, and write quadratic equations, given their roots)—SB pp. 258–259; PB pp. 253–254; TE pp. 258–259B 10-6 The Quadratic Formula and the Discriminant (determine the number and nature of solutions for a quadratic equation by using the discriminant)—SB pp. 262–263; PB pp. 257–258; TE pp. 262–263B *10-6A Complex Roots (represent expressions containing square roots of negative integers as imaginary and complex numbers and to recognize when quadratic functions have complex solutions)—Online 10-7 Solve Quadratic Equations with the Quadratic Formula (solve quadratic equations with the Quadratic Formula)—SB pp. 264–265; PB pp. 259–260; TE pp. 264–265B
AI.QE.6: Use the process of factoring to determine zeros, lines of symmetry, and extreme values in real-world and other mathematical problems involving quadratic functions; interpret the results in the real-world contexts.	10-2 Graph Quadratic Functions: Parabola (find the coordinates of the vertex of a parabola and the equation of its axis of symmetry, given its function rule, graph a quadratic function, and use a handheld to investigate the characteristics of families of parabolas)—SB pp. 250–253; PB pp. 247–248; TE pp. 250–253B 10-3 Solve Quadratic Equations by Factoring (relate a quadratic equation with a quadratic function, solve quadratic equations by factoring, and solve radical equations leading to quadratic equations)—SB pp. 254–257; PB pp. 249–252; TE pp. 254–257B 10-6 The Quadratic Formula and the Discriminant (determine the number and nature of solutions for a quadratic equation by using the discriminant)—SB pp. 262–263; PB pp. 257–258; TE pp. 262–263B *10-6A Complex Roots (represent expressions containing square roots of negative integers as imaginary and complex numbers and to recognize when quadratic functions have complex solutions)—Online 10-9 Technology: Find the Zeros of Polynomial Functions (use a handheld to find the roots of a polynomial equation)—SB pp. 270–271; PB pp. 263–264; TE pp. 270–271B
AI.QE.7: Describe the relationships among the solutions of a quadratic equation, the zeros of the function, the *x*-intercepts of the graph, and the factors of the expression.	

Data Analysis and Statistics

STANDARDS	SADLIER-OXFORD *ALGEBRA 1*
AI.DS.1: Distinguish between random and non-random sampling methods, identify possible sources of bias in sampling, describe how such bias can be controlled and reduced, evaluate the characteristics of a good survey and well-designed experiment, design simple experiments or *—continued—*	14-1 Sampling Techniques (recognize different sampling techniques)—SB pp. 358–361; PB pp. 359–360; TE pp. 358–361B

Data Analysis and Statistics		
STANDARDS		**SADLIER-OXFORD *ALGEBRA 1***
	investigations to collect data to answer questions of interest, and make inferences from sample results.	
AI.DS.2:	Graph bivariate data on a scatter plot and describe the relationship between the variables.	14-7 Scatter Plots—TE pp. 374–377B; SB pp. 374–377 / PB pp. 371–372
AI.DS.3:	Use technology to find a linear function that models a relationship for a bivariate data set to make predictions; interpret the slope and y-intercept, and compute (using technology) and interpret the correlation coefficient.	*14-7B Correlation Coefficient (compute and interpret the correlation coefficient of a linear fit using a handheld)—Online
AI.DS.4:	Distinguish between correlation and causation.	*Related content—* 14-7 Scatter Plots (identify correlation from a scatter plot)—SB pp. 374–377; PB pp. 371–372; TE pp. 374–377B
AI.DS.5:	Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns (including joint, marginal, and conditional relative frequencies) to describe possible associations and trends in the data.	14-3 Stem-and-Leaf Plots (organize and display data in single and back-to-back stem-and-leaf plots)—SB pp. 364–365; PB pp. 363–364; TE pp. 364–365B 14-4 Histograms (create frequency tables and histograms)—SB pp. 366–369; PB pp. 365–366; TE pp. 366–369B *14-4A Two-Way Frequency Tables (interpret relative frequencies to recognize possible trends and/or associations in a two-way frequency table)—Online 14-5 Quartiles and Box-and-Whisker Plots (represent and interpret data on box-and-whisker plots)—SB pp. 370–371; PB pp. 367–368; TE pp. 370–371B *14-5A Compare Data Sets (compare differences in shape, center, and spread of data sets)—Online 14-6 Percentiles (use a cumulative frequency table to find percentile ranks)—SB pp. 372–373; PB pp. 369–370; TE pp. 372–373B
AI.DS.6:	Understand that statistics and data are non-neutral and designed to serve a particular interest. Analyze the possibilities for whose interest might be served and how the representations might be misleading.	14-1 Sampling Techniques (identify bias in sample, question, or display)—SB pp. 358–361; PB pp. 359–360; TE pp. 358–361B