SADLIER

Fundamentals of Algebra

Aligned to the

College & Career Ready Standards

Indiana

Academic Standards: Mathematics

Grade 7

Sadlier

William H. Sadlier, Inc.
www.sadlierschool.com
800-221-5175

Sadlier *Fundamentals of Algebra*, Grade 7, Aligned to the
College & Career Ready Standards
Indiana Academic Standards: Mathematics: Grade 7

7

Number Sense

INDIANA ACADEMIC STANDARDS: MATHEMATICS: GRADE 7	SADLIER *FUNDAMENTALS OF ALGEBRA,* GRADE 7
7.NS.1: Find the prime factorization of whole numbers and write the results using exponents.	**Instruction** 5-1 Prime Factorization—TE pp. 108–109B; SB pp. 108–109 / PB pp. 123–124
7.NS.2: Understand the inverse relationship between squaring and finding the square root of a perfect square integer. Find square roots of perfect square integers.	**Instruction** 10-3 Squares and Square Roots—TE pp. 276–277B; SB pp. 276–277 / PB pp. 311–312
7.NS.3: Know there are rational and irrational numbers. Identify, compare, and order rational and common irrational numbers ($\sqrt{2}$, $\sqrt{3}$, $\sqrt{5}$, Π) and plot them on a number line.	**Instruction** 9-14 Problem Solving Strategy: Adopt a Different Point of View—TE pp. 266–267B; SB pp. 266–267 / PB pp. 297–298 10-8 Circumference and Area of a Circle—TE pp. 286–287B; SB pp. 286–287 / PB pp. 321–322 12-9 Problem Solving: Review of Strategies—TE pp. 346–347B; SB 346–347 / PB pp. 389–390 13-13 Problem Solving Strategy: Consider Extreme Cases—TE pp. 376–377B; SB pp. 376–377 / PB pp. 423–424

*Online lessons at progressinmathematics.com.

Sadlier *Fundamentals of Algebra*, Grade 7, Aligned to the
College & Career Ready Standards
Indiana Academic Standards: Mathematics: Grade 7

7

Computation

INDIANA ACADEMIC STANDARDS: MATHEMATICS: GRADE 7	SADLIER *FUNDAMENTALS OF ALGEBRA,* GRADE 7
7.C.1: Understand $p + q$ as the number located a distance $|q|$ from p, in the positive or negative direction, depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.	**Instruction** 1-1 Integers and Absolute Value—TE pp. 2–3B; SB pp. 2–3 / PB pp. 1–2 1-3 Add Integers—TE pp. 6–7B; SB pp. 6–7 / PB pp. 5–6 1-4 Subtract Integers—TE pp. 8–9B; SB pp. 8–9 / PB pp. 7–8 *1-4B Understanding Integers—Online 1-7 Properties—TE pp. 14–15B; SB pp. 14–15 / PB pp. 13–14
7.C.2: Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real- world contexts.	**Instruction** 1-4 Subtract Integers—TE pp. 8–9B; SB pp. 8–9 / PB pp. 7–8 *1-4A Distance on a Number Line—Online 1-7 Properties—TE pp. 14–15B; SB pp. 14–15 / PB pp. 13–14 4-5 Add and Subtract Decimals—TE pp. 80–81B; SB pp. 80–81 / PB pp. 91–92 5-6 Add and Subtract Fractions—TE pp. 118–119B; SB pp. 118–119 / PB pp. 133–134 5-7 Add and Subtract Mixed Numbers—TE pp. 120–121B; SB pp. 120–121 / PB pp. 135–136 *5-7A Rational Numbers on a Number Line—Online
7.C.3: Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers.	**Instruction** 1-5 Multiply Integers—TE pp. 9–10B; SB pp. 10–11 / PB pp. 9–10 1-7 Properties—TE pp. 14–15B; SB pp. 14–15 / PB pp. 13–14 4-6 Multiply Decimals—TE pp. 82–83B; SB pp. 82–83 / PB pp. 93–94 5-8 Multiply Fractions—TE pp. 122–123B; SB pp. 122–123 / PB pp. 137–138 5-9 Multiply Mixed Numbers—TE pp. 124–125B; SB pp. 124–125 / PB pp. 139–140 5-12 Properties of Rational Numbers—TE pp. 130–131B; SB pp. 130–131 / PB pp. 145–146 5-13 Order of Operations with Rational Numbers—TE pp. 132–133B; SB pp. 132–133 / PB pp. 147–148 *5-13A Use Rational Numbers to Solve Problems—Online
7.C.4: Understand that integers can be divided, provided that the divisor is not zero, and that every quotient of integers (with non-zero divisor) is a rational number. Understand that if p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$.	**Instruction** 1-6 Divide Integers—TE pp. 12–13B; SB pp. 12–13 / PB pp. 11–12 1-7 Properties—TE pp. 14–15B; SB pp. 14–15 / PB pp. 13–14 1-8 Closure Property—TE pp. 16–17B; SB pp. 16–17 / PB pp. 15–16 4-1 Rational Numbers—TE pp. 72–73B; SB pp. 72–73 / PB pp. 83–84 4-2 Equivalent Rational Numbers—TE pp. 74–75B; SB pp. 74–75 / PB pp. 85–86 *5-13A Use Rational Numbers to Solve Problems—Online

*Online lessons at progressinmathematics.com.

Sadlier *Fundamentals of Algebra*, Grade 7, Aligned to the
College & Career Ready Standards
Indiana Academic Standards: Mathematics: Grade 7

7

Computation

INDIANA ACADEMIC STANDARDS: MATHEMATICS: GRADE 7	SADLIER *FUNDAMENTALS OF ALGEBRA,* GRADE 7
7.C.5: Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.	**Instruction** 6-2 Unit Rate and Unit Cost—TE pp. 150–151B; SB pp. 150–151 / PB pp. 169–170 *6-3A Use Unit Rates—Online 6-10 Dimensional Analysis—TE pp. 166–167B; SB pp. 166–167 / PB pp. 185–186 **Application** 8-14 Problem Solving: Review of Strategies—TE pp. 234–235B; SB pp. 234–235 / PB pp. 261–262 9-14 Problem Solving Strategy: Adopt a Different Point of View—TE pp. 266–267B; SB pp. 266–267 / PB pp. 297–298
7.C.6: Use proportional relationships to solve ratio and percent problems with multiple operations, such as the following: simple interest, tax, markups, markdowns, gratuities, commissions, fees, conversions within and across measurement systems, percent increase and decrease, and percent error.	**Instruction** 6-7 Similarity—TE pp. 160–161B; SB pp. 160–161 / PB pp. 179–180 6-8 Indirect Measurement—TE pp. 162–163B; SB pp. 162–163 / PB pp. 181–182 7-1 Percents—TE pp. 174–175B; SB pp. 174–175 / PB pp. 197–198 7-2 Fractions, Decimals, Percents—TE pp. 176–177B; SB pp. 176–177 / PB pp. 199–200 7-4 Find a Percentage of a Number—TE pp. 180–181B; SB pp. 180–181 / PB pp. 203–204 7-5 Find a Percent—TE pp. 182–183B; SB pp. 182–183 / PB pp. 205–206 7-8 Percent Increase—TE pp. 188–189B; SB pp. 188–189 / PB pp. 211–212 7-9 Percent Decrease—TE pp. 190–191B; SB pp. 190–191 / PB pp. 213–214 *7-9A Percent Error—Online 7-10 Sales Tax and Tips—TE pp. 192–193B; SB pp. 192–193 / PB pp. 215–216 7-11 Discount and Markup—TE pp. 194–195B; SB pp. 194–195 / PB pp. 217–218 7-12 Commission—TE pp. 196–197B; SB pp. 196–197 / PB pp. 219–220 7-13 Simple Interest—TE pp. 198–199B; SB pp. 198–199 / PB pp. 221–222 7-14 Compound Interest—TE pp. 200–201B; SB pp. 200–201 / PB pp. 223–224 11-11 Changing Dimensions of Three-Dimensional Figures—TE pp. 322–323B; SB pp. 322–323 / PB pp. 361–362 **Application** 11-12 Problem Solving Strategy: Work Backward—TE pp. 324–325B; SB pp. 324–325 / PB pp. 363–364
7.C.7: Compute with rational numbers fluently using a standard algorithmic approach.	**Instruction** 1-1 Integers and Absolute Value—TE pp. 2–3B; SB pp. 2–3 / PB pp. 1–2 1-3 Add Integers—TE pp. 6–7B; SB pp. 6–7 / PB pp. 5–6 1-4 Subtract Integers—TE pp. 8–9B; SB pp. 8–9 / PB pp. 7–8

*Online lessons at progressinmathematics.com.

Sadlier *Fundamentals of Algebra*, Grade 7, Aligned to the
College & Career Ready Standards
Indiana Academic Standards: Mathematics: Grade 7

7

Computation

Indiana Academic Standards: Mathematics: Grade 7	Sadlier *Fundamentals of Algebra,* Grade 7
	*1-4B Understanding Integers—Online 1-5 Multiply Integers—TE pp. 9–10B; SB pp. 10–11 / PB pp. 9–10 1-6 Divide Integers—TE pp. 12–13B; SB pp. 12–13 / PB pp. 11–12 1-7 Properties—TE pp. 14–15B; SB pp. 14–15 / PB pp. 13–14 1-8 Closure Property—TE pp. 16–17B; SB pp. 16–17 / PB pp. 15–16 1-9 Powers and Laws of Exponents—TE pp. 18–19B; SB pp. 18–19 / PB pp. 17–18 1-10 Order of Operations—TE pp. 20–21B; SB pp. 20–21 / PB pp. 19–20 4-1 Rational Numbers—TE pp. 72–73B; SB pp. 72–73 / PB pp. 83–84 4-2 Equivalent Rational Numbers—TE pp. 74–75B; SB pp. 74–75 / PB pp. 85–86 4-5 Add and Subtract Decimals—TE pp. 80–81B; SB pp. 80–81 / PB pp. 91–92 4-6 Multiply Decimals—TE pp. 82–83B; SB pp. 82–83 / PB pp. 93–94 4-7 Estimate Decimal Products and Quotients—TE pp. 84–85B; SB pp. 84–85 / PB pp. 95–96 4-8 Divide Decimals—TE pp. 86–87B; SB pp. 86–87 / PB pp. 97–98 5-6 Add and Subtract Fractions—TE pp. 118–119B; SB pp. 118–119 / PB pp. 133–134 5-7 Add and Subtract Mixed Numbers—TE pp. 120–121B; SB pp. 120–121 / PB pp. 135–136 *5-7A Rational Numbers on a Number Line—Online 5-8 Multiply Fractions—TE pp. 122–123B; SB pp. 122–123 / PB pp. 137–138 5-9 Multiply Mixed Numbers—TE pp. 124–125B; SB pp. 124–125 / PB pp. 139–140 5-10 Divide Fractions—TE pp. 126–127B; SB pp. 126–127 / PB pp. 141–142 5-11 Divide Mixed Numbers—TE pp. 128–129B; SB pp. 128–129 / PB pp. 143–144 5-12 Properties of Rational Numbers—TE pp. 130–131B; SB pp. 130–131 / PB pp. 145–146 5-13 Order of Operations with Rational Numbers—TE pp. 132–133B; SB pp. 132–133 / PB pp. 147–148 *5-13A Use Rational Numbers to Solve Problems—Online 5-14 Addition and Subtraction Equations with Fractional Numbers—TE pp. 134–135B; SB pp. 134–135 / PB pp. 149–150 5-15 Multiplication and Division Equations with Fractional Numbers—TE pp. 136–137B; SB pp. 136–137 / PB pp. 151–152 7-2 Fractions, Decimals, Percents—TE pp. 176–177B; SB pp. 176–177 / PB pp. 199–200 7-3 Percents Greater Than 100% / Less Than 1%—TE pp. 178–179B; SB pp. 178–179 / PB pp. 201–202

*Online lessons at progressinmathematics.com.

Sadlier *Fundamentals of Algebra*, Grade 7, Aligned to the
College & Career Ready Standards
Indiana Academic Standards: Mathematics: Grade 7

7

Computation

INDIANA ACADEMIC STANDARDS: MATHEMATICS: GRADE 7	SADLIER *FUNDAMENTALS OF ALGEBRA,* GRADE 7
7.C.8: Solve real-world problems with rational numbers by using one or two operations.	**Instruction** 1-1 Integers and Absolute Value—TE pp. 2–3B; SB pp. 2–3 / PB pp. 1–2 1-3 Add Integers—TE pp. 6–7B; SB pp. 6–7 / PB pp. 5–6 1-4 Subtract Integers—TE pp. 8–9B; SB pp. 8–9 / PB pp. 7–8 *1-4B Understanding Integers—Online 1-5 Multiply Integers—TE pp. 9–10B; SB pp. 10–11 / PB pp. 9–10 1-6 Divide Integers—TE pp. 12–13B; SB pp. 12–13 / PB pp. 11–12 1-7 Properties—TE pp. 14–15B; SB pp. 14–15 / PB pp. 13–14 1-8 Closure Property—TE pp. 16–17B; SB pp. 16–17 / PB pp. 15–16 1-9 Powers and Laws of Exponents—TE pp. 18–19B; SB pp. 18–19 / PB pp. 17–18 1-10 Order of Operations—TE pp. 20–21B; SB pp. 20–21 / PB pp. 19–20 *1-10A Solve Real-World Problems with Operations and Properties—Online 1-12 Problem Solving Strategy: Guess and Test—TE pp. 24–25B; SB pp. 24–25 / PB pp. 23–24 3-7 Problem Solving Strategy: Find a Pattern—TE pp. pp. 66–67B; SB pp. 66–67 / PB pp. 73–74 4-1 Rational Numbers—TE pp. 72–73B; SB pp. 72–73 / PB pp. 83–84 4-2 Equivalent Rational Numbers—TE pp. 74–75B; SB pp. 74–75 / PB pp. 85–86 4-5 Add and Subtract Decimals—TE pp. 80–81B; SB pp. 80–81 / PB pp. 91–92 4-6 Multiply Decimals—TE pp. 82–83B; SB pp. 82–83 / PB pp. 93–94 4-7 Estimate Decimal Products and Quotients—TE pp. 84–85B; SB pp. 84–85 / PB pp. 95–96 4-8 Divide Decimals—TE pp. 86–87B; SB pp. 86–87 / PB pp. 97–98 4-12 Addition and Subtraction Equations with Decimals—TE pp. 94–95B; SB pp. 94–95 / PB pp. 105–106 4-13 Multiplication and Division Equations with Decimals—TE pp. 96–97B; SB pp. 96–97 / PB pp. 107–108 4-14 Solve Two-Step Equations with Decimals—TE pp. 98–99B; SB pp. 98–99 / PB pp. 109–110 4-16 Problem Solving: Review of Strategies—TE pp. 102-103B; SB pp.102-103 / PB pp. 113-114 5-6 Add and Subtract Fractions—TE pp. 118–119B; SB pp. 118–119 / PB pp. 133–134 5-7 Add and Subtract Mixed Numbers—TE pp. 120–121B; SB pp. 120–121 / PB pp. 135–136 *5-7A Rational Numbers on a Number Line—Online 5-8 Multiply Fractions—TE pp. 122–123B; SB pp. 122–123 / PB pp. 137–138 5-9 Multiply Mixed Numbers—TE pp. 124–125B; SB pp. 124–125 / PB pp. 139–140 5-10 Divide Fractions—TE pp. 126–127B; SB pp. 126–127 / PB pp. 141–142

Sadlier *Fundamentals of Algebra*, Grade 7, Aligned to the
College & Career Ready Standards
Indiana Academic Standards: Mathematics: Grade 7

7

Computation

INDIANA ACADEMIC STANDARDS: MATHEMATICS: GRADE 7	SADLIER *FUNDAMENTALS OF ALGEBRA,* GRADE 7
	5-11 Divide Mixed Numbers—TE pp. 128–129B; SB pp. 128–129 / PB pp. 143–144
	5-12 Properties of Rational Numbers—TE pp. 130–131B; SB pp. 130–131 / PB pp. 145–146
	5-13 Order of Operations with Rational Numbers—TE pp. 132–133B; SB pp. 132–133 / PB pp. 147–148
	*5-13A Use Rational Numbers to Solve Problems—Online
	5-14 Addition and Subtraction Equations with Fractional Numbers—TE pp. 134–135B; SB pp. 134–135 / PB pp. 149–150
	5-15 Multiplication and Division Equations with Fractional Numbers—TE pp. 136–137B; SB pp. 136–137 / PB pp. 151–152
	5-16 Solve Two-Step Equations with Fractions—TE pp. 138–139B; SB pp. 138–139 / PB pp. 153–154
	6-11 Problem Solving Strategy: Solve a Simpler Problem—TE pp. pp. 168–169B; SB pp. 168–169 / PB pp. 187–188
	7-2 Fractions, Decimals, Percents—TE pp. 176–177B; SB pp. 176–177 / PB pp. 199–200
	7-3 Percents Greater Than 100% / Less Than 1%—TE pp. 178–179B; SB pp. 178–179 / PB pp. 201–202
	7-15 Problem Solving Strategy: Reason Logically—TE pp. 202–203B; SB pp. 202–203 / PB pp. 225–226

*Online lessons at progressinmathematics.com.

Sadlier *Fundamentals of Algebra*, Grade 7, Aligned to the
College & Career Ready Standards
Indiana Academic Standards: Mathematics: Grade 7

7

Algebra and Functions

INDIANA ACADEMIC STANDARDS: MATHEMATICS: GRADE 7	SADLIER *FUNDAMENTALS OF ALGEBRA,* GRADE 7
7.AF.1: Apply the properties of operations (e.g., identity, inverse, commutative, associative, distributive properties) to create equivalent linear expressions, including situations that involve factoring (e.g., given 2*x* - 10, create an equivalent expression 2(*x* - 5)). Justify each step in the process.	**Instruction** 1-1 Integers and Absolute Value—TE pp. 2–3B; SB pp. 2–3 / PB pp. 1–2 1-3 Add Integers—TE pp. 6–7B; SB pp. 6–7 / PB pp. 5–6 1-4 Subtract Integers—TE pp. 8–9B; SB pp. 8–9 / PB pp. 7–8 1-5 Multiply Integers—TE pp. 9–10B; SB pp. 10–11 / PB pp. 9–10 1-7 Properties—TE pp. 14–15B; SB pp. 14–15 / PB pp. 13–14 2-1 Mathematical Expressions—TE pp. 30–31B; SB pp. 30–31 / PB pp. 33–34 2-2 Simplify and Evaluate Algebraic Expressions—TE pp. 32–33B; SB pp. 32–33 / PB pp. 35–36 4-6 Multiply Decimals—TE pp. 82–83B; SB pp. 82–83 / PB pp. 93–94 *5-13B Combining Like Terms—Online *5-13C Factoring and Expanding Linear Expressions—Online 5-8 Multiply Fractions—TE pp. 122–123B; SB pp. 122–123 / PB pp. 137–138 5-9 Multiply Mixed Numbers—TE pp. 124–125B; SB pp. 124–125 / PB pp. 139–140 5-12 Properties of Rational Numbers—TE pp. 130–131B; SB pp. 130–131 / PB pp. 145–146 5-13 Order of Operations with Rational Numbers—TE pp. 132–133B; SB pp. 132–133 / PB pp. 147–148 *5-13A Use Rational Numbers to Solve Problems—Online *7-11A Equivalent Expressions for Percents—Online *11-10A Write Expressions in Different Ways—Online 14-3 Add Polynomials—TE pp. 386–387B; SB pp. 386–387 / PB pp. 437–438 14-4 Subtract Polynomials—TE pp. 388–389B; SB pp. 388–389 / PB pp. 439–440 14-5 Multiply and Divide Monomials—TE pp. 390–391B; SB pp. 390–391 / PB pp. 441–442 14-6 Multiply Polynomials by Monomials—TE pp. 392–393B; SB pp. 392–393 / PB pp. 443–444 14-7 Divide Polynomials by Monomials—TE pp. 394–395B; SB pp. 394–395 / PB pp. 445–446 14-8 Solve Multistep Equations—TE pp. 396–397B; SB pp. 396–397 / PB pp. 447–448
7.AF.2: Solve equations of the form px + q= r and p(x + q) = r fluently, where p, q, and r are specific rational numbers. Represent real-world problems using equations of these forms and solve such problems.	**Instruction** 2-3 Equations—TE pp. 34–35B; SB pp. 34–35 / PB pp. 37–38 2-4 Solve Addition Equations—TE pp. 36–37B; SB pp. 36–37 / PB pp. 39–40 2-5 Solve Subtraction Equations—TE pp. 38–39B; SB pp. 38–39 / PB pp. 41–42 2-6 Solve Multiplication Equations—TE pp. 40–41B; SB pp. 40–41 / PB pp. 43–44 2-7 Solve Division Equations—TE pp. 42–43B; SB pp. 42–43 / PB pp. 45–46

*Online lessons at progressinmathematics.com.

Sadlier *Fundamentals of Algebra*, Grade 7, Aligned to the
College & Career Ready Standards
Indiana Academic Standards: Mathematics: Grade 7

7

Algebra and Functions

INDIANA ACADEMIC STANDARDS: MATHEMATICS: GRADE 7	SADLIER *FUNDAMENTALS OF ALGEBRA,* GRADE 7
	2-8 Solve Two–Step Equations—TE pp. 44–45B; SB pp. 44–45 / PB pp. 47–48
	*2-8A Solving Equations of the Form $a(x + b) = c$ Using Integers—Online
	*2-9A Compare Arithmetic and Algebraic Problem-Solving Methods—Online
	4-14 Solve Two-Step Equations with Decimals—TE pp. 98–99B; SB pp. 98–99 / PB pp. 109–110
	*4-14A Solving Equations of the Form $a(x + b) = c$ Using Decimals—Online
	*5-11A Different Ways to Solve Problems with Rational Numbers—Online
	5-16 Solve Two-Step Equations with Fractions—TE pp. 138–139B; SB pp. 138–139 / PB pp. 153–154
	*5-16A Solving Equations of the Form $a(x + b) = c$ Using Fractions—Online
7.AF.3: Define and use multiple variables when writing expressions to represent real-world and other mathematical problems, and evaluate them for given values.	**Instruction** 2-9 Formulas—TE pp. 46–47B; SB pp. 46–47 / PB pp. 49–50
	6-4 Direct Proportion—TE pp. 154–155B; SB pp. 154–155 / PB pp. 173–174
	*6-6B Proportional Relationships and Equations—Online
	*6-6C Use Proportional Relationships and Equations to Solve Problems—Online
	9-14 Problem Solving Strategy: Adopt a Different Point of View—TE pp. 266–267B; SB pp. 266–267 / PB pp. 297–298
	10-6 Area of Parallelograms—TE pp. 282–283B; SB pp. 282–283 / PB pp. 317–318
	10-7 Area of Triangles and Trapezoids—TE pp. 284–285B; SB pp. 284–285 / PB pp. 319–320
	10-8 Circumference and Area of a Circle—TE pp. 286–287B; SB pp. 286–287 / PB pp. 321–322
	10-9 Area of Complex Figures—TE pp. 288–289B; SB pp. 288–289 / PB pp. 323–324
	11-3 Surface Area of Prisms—TE pp. 306–307B; SB pp. 306–307 / PB pp. 345–346
	11-4 Surface Area of Pyramids—TE pp. 308–309B; SB pp. 308–309 / PB pp. 347–348
	11-6 Estimate Surface Area—TE pp. 312–313B; SB pp. 312–313 / PB pp. 351–352
	11-7 Volume of Prisms—TE pp. 314–315B; SB pp. 314–315 / PB pp. 353–354
	12-9 Problem Solving: Review of Strategies—TE pp. 346–347B; SB 346–347 / PB pp. 389–390
	*13-8B Graph Proportional Relationships—Online
	13-13 Problem Solving Strategy: Consider Extreme Cases—TE pp. 376–377B; SB pp. 376–377 / PB pp. 423–424

Sadlier *Fundamentals of Algebra*, Grade 7, Aligned to the
College & Career Ready Standards
Indiana Academic Standards: Mathematics: Grade 7

7

Algebra and Functions

INDIANA ACADEMIC STANDARDS: MATHEMATICS: GRADE 7	SADLIER *FUNDAMENTALS OF ALGEBRA,* GRADE 7
7.AF.4: Define slope as vertical change for each unit of horizontal change and recognize that a constant rate of change or constant slope describes a linear function. Identify and describe situations with constant or varying rates of change.	Instruction 13-7 Slope—TE pp. 364–365B; SB pp. 364–365 / PB pp. 411–412 *13-8A Identify Constant of Proportionality—Online
7.AF.5: Graph a line given its slope and a point on the line. Find the slope of a line given its graph.	**Instruction** *13-8B Graph Proportional Relationships—Online
7.AF.6: Decide whether two quantities are in a proportional relationship (e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin).	**Instruction** 6-3 Write and Solve Proportions—TE pp. 152–153B; SB pp. 152–153 / PB pp. 171–172
7.AF.7: Identify the unit rate or constant of proportionality in tables, graphs, equations, and verbal descriptions of proportional relationships.	**Instruction** *6-3A Use Unit Rates—Online *6-3B Use Rational Numbers to Solve Problems—Online 13-2 Algebraic Patterns and Sequences—TE pp. 354–355B; SB pp. 354–355 / PB pp. 401–402 13-7 Slope—TE pp. 364–365B; SB pp. 364–365 / PB pp. 411–412 *13-8A Identify Constant of Proportionality—Online
7.AF.8: Explain what the coordinates of a point on the graph of a proportional relationship mean in terms of the situation, with special attention to the points (0, 0) and (1,r), where r is the unit rate.	**Instruction** 6-4 Direct Proportion—TE pp. 154–155B; SB pp. 154–155 / PB pp. 173–174 *6-6B Proportional Relationships and Equations—Online *6-6C Use Proportional Relationships and Equations to Solve Problems—Online *13-8B Graph Proportional Relationships—Online
7.AF.9: Identify real-world and other mathematical situations that involve proportional relationships. Write equations and draw graphs to represent proportional relationships and recognize that these situations are described by a linear function in the form y = mx, where the unit rate, m, is the slope of the line.	**Instruction** 6-3 Write and Solve Proportions—TE pp. 152–153B; SB pp. 152–153 / PB pp. 171–172 *6-3A Use Unit Rates—Online *6-3B Use Rational Numbers to Solve Problems—Online 6-4 Direct Proportion—TE pp. 154–155B; SB pp. 154–155 / PB pp. 173–174 6-5 Proportion by Parts—TE pp. 156–157B; SB pp. 156–157 / PB pp. 175–176 6-6 Scale Drawings and Models—TE pp. 158–159B; SB pp. 158–159 / PB pp. 177–178 *6-6B Proportional Relationships and Equations—Online *6-6C Use Proportional Relationships and Equations to Solve Problems—Online 6-7 Similarity—TE pp. 160–161B; SB pp. 160–161 / PB pp. 179–180 6-8 Indirect Measurement—TE pp. 162–163B; SB pp. 162–163 / PB pp. 181–182 7-1 Percents—TE pp. 174–175B; SB pp. 174–175 / PB pp. 197–198 7-2 Fractions, Decimals, Percents—TE pp. 176–177B; SB pp. 176–177 / PB pp. 199–200

*Online lessons at progressinmathematics.com.

Sadlier *Fundamentals of Algebra*, Grade 7, Aligned to the
College & Career Ready Standards
Indiana Academic Standards: Mathematics: Grade 7

7

Algebra and Functions

INDIANA ACADEMIC STANDARDS: MATHEMATICS: GRADE 7	SADLIER *FUNDAMENTALS OF ALGEBRA,* GRADE 7
	7-4 Find a Percentage of a Number—TE pp. 180–181B; SB pp. 180–181 / PB pp. 203–204
	7-5 Find a Percent—TE pp. 182–183B; SB pp. 182–183 / PB pp. 205–206
	7-8 Percent Increase—TE pp. 188–189B; SB pp. 188–189 / PB pp. 211–212
	7-9 Percent Decrease—TE pp. 190–191B; SB pp. 190–191 / PB pp. 213–214
	*7-9A Percent Error—Online
	7-10 Sales Tax and Tips—TE pp. 192–193B; SB pp. 192–193 / PB pp. 215–216
	7-11 Discount and Markup—TE pp. 194–195B; SB pp. 194–195 / PB pp. 217–218
	7-12 Commission—TE pp. 196–197B; SB pp. 196–197 / PB pp. 219–220
	7-13 Simple Interest—TE pp. 198–199B; SB pp. 198–199 / PB pp. 221–222
	7-14 Compound Interest—TE pp. 200–201B; SB pp. 200–201 / PB pp. 223–224
	11-11 Changing Dimensions of Three-Dimensional Figures—TE pp. 322–323B; SB pp. 322–323 / PB pp. 361–362
	13-2 Algebraic Patterns and Sequences—TE pp. 354–355B; SB pp. 354–355 / PB pp. 401–402
	13-7 Slope—TE pp. 364–365B; SB pp. 364–365 / PB pp. 411–412
	*13-8A Identify Constant of Proportionality—Online
	*13-8B Graph Proportional Relationships—Online

*Online lessons at progressinmathematics.com.

Sadlier *Fundamentals of Algebra*, Grade 7, Aligned to the
College & Career Ready Standards
Indiana Academic Standards: Mathematics: Grade 7

7

Geometry and Measurement

INDIANA ACADEMIC STANDARDS: MATHEMATICS: GRADE 7	SADLIER *FUNDAMENTALS OF ALGEBRA,* GRADE 7
7.GM.1: Draw triangles (freehand, with ruler and protractor, and using technology) with given conditions from three measures of angles or sides, and notice when the conditions determine a unique triangle, more than one triangle, or no triangle.	**Instruction** 9-7 Polygons—TE pp. 252–253B; SB pp. 252–253 / PB pp. 283–284 9-9 Congruent Triangles—TE pp. 256–257B; SB pp. 256–257 / PB pp. 287–288 9-10 Triangle Constructions—TE pp. 258–259B; SB pp. 258–259 / PB pp. 289–290
7.GM.2: Identify and describe similarity relationships of polygons including the angle-angle criterion for similar triangles, and solve problems involving similarity.	**Instruction** 6-7 Similarity—TE pp. 160–161B; SB pp. 160–161 / PB pp. 179–180 **Application** 6-8 Indirect Measurement—TE pp. 162–163B; SB pp. 162–163 / PB pp. 181–182
7.GM.3: Solve real-world and other mathematical problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing. Create a scale drawing by using proportional reasoning.	**Instruction** 6-6 Scale Drawings and Models—TE pp. 158–159B; SB pp. 158–159 / PB pp. 177–178 10-5 Pythagorean Theorem—TE pp. 280–281B; SB pp. 280–281 / PB pp. 315–316
7.GM.4: Solve real-world and other mathematical problems that involve vertical, adjacent, complementary, and supplementary angles.	**Instruction** 9-3 Angle Pairs—TE pp. 244–245B; SB pp. 244–245 / PB pp. 275–276 9-4 Parallel Lines and Transversals—TE pp. 246–247B; SB pp. 246–247 / PB pp. 277–278 9-9 Congruent Triangles—TE pp. 256–257B; SB pp. 256–257 / PB pp. 287–288
7.GM.5: Understand the formulas for area and circumference of a circle and use them to solve real-world and other mathematical problems; give an informal derivation of the relationship between circumference and area of a circle.	**Instruction** 9-14 Problem Solving Strategy: Adopt a Different Point of View—TE pp. 266–267B; SB pp. 266–267 / PB pp. 297–298 10-8 Circumference and Area of a Circle—TE pp. 286–287B; SB pp. 286–287 / PB pp. 321–322 12-9 Problem Solving: Review of Strategies—TE pp. 346–347B; SB 346–347 / PB pp. 389–390 13-13 Problem Solving Strategy: Consider Extreme Cases—TE pp. 376–377B; SB pp. 376–377 / PB pp. 423–424
7.GM.6: Solve real-world and other mathematical problems involving volume of cylinders and three- dimensional objects composed of right rectangular prisms.	**Instruction** 2-9 Formulas—TE pp. 46–47B; SB pp. 46–47 / PB pp. 49–50 9-14 Problem Solving Strategy: Adopt a Different Point of View—TE pp. 266–267B; SB pp. 266–267 / PB pp. 297–298 10-6 Area of Parallelograms—TE pp. 282–283B; SB pp. 282–283 / PB pp. 317–318 10-7 Area of Triangles and Trapezoids—TE pp. 284–285B; SB pp. 284–285 / PB pp. 319–320

Sadlier *Fundamentals of Algebra*, Grade 7, Aligned to the
College & Career Ready Standards
Indiana Academic Standards: Mathematics: Grade 7

7

Geometry and Measurement

INDIANA ACADEMIC STANDARDS: MATHEMATICS: GRADE 7	SADLIER *FUNDAMENTALS OF ALGEBRA,* GRADE 7
	10-9 Area of Complex Figures—TE pp. 288–289B; SB pp. 288–289 / PB pp. 323–324
	11-3 Surface Area of Prisms—TE pp. 306–307B; SB pp. 306–307 / PB pp. 345–346
	11-4 Surface Area of Pyramids—TE pp. 308–309B; SB pp. 308–309 / PB pp. 347–348
	11-6 Estimate Surface Area—TE pp. 312–313B; SB pp. 312–313 / PB pp. 351–352
	11-7 Volume of Prisms—TE pp. 314–315B; SB pp. 314–315 / PB pp. 353–354
7.GM.7: Construct nets for right rectangular prisms and cylinders and use the nets to compute the surface area; apply this technique to solve real-world and other mathematical problems.	**Readiness**
	11-1 Three-Dimensional Figures—TE pp. 302–303B; SB pp. 302–303 / PB pp. 341–342
	Instruction
	11-2 Draw Three-Dimensional Figures—TE pp. 304–305B; SB pp. 304–305 / PB pp. 343–344
	11-3 Surface Area of Prisms—TE pp. 306–307B; SB pp. 306–307 / PB pp. 345–346
	11-4 Surface Area of Pyramids—TE pp. 308–309B; SB pp. 308–309 / PB pp. 347–348
	11-5 Surface Area of Cylinders and Cones—TE pp. 310–311B; SB pp. 310–311 / PB pp. 349–350
	11-10 Surface Area and Volume of Complex Three-Dimensional Figures—TE pp. 320–321B; SB pp. 320–321 / PB pp. 359–360
	11-11 Changing Dimensions of Three-Dimensional Figures—TE pp. 322–323B; SB pp. 322–323 / PB pp. 361–362

Sadlier *Fundamentals of Algebra*, Grade 7, Aligned to the
College & Career Ready Standards
Indiana Academic Standards: Mathematics: Grade 7

7

Data Analysis, Statistics, and Probability

INDIANA ACADEMIC STANDARDS: MATHEMATICS: GRADE 7	SADLIER *FUNDAMENTALS OF ALGEBRA,* GRADE 7
7.DSP.1: Understand that statistics can be used to gain information about a population by examining a sample of the population and generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.	**Instruction** 8-1 Samples and Surveys—TE pp. 208–209B; SB pp. 208–209 / PB pp. 235–236
7.DSP.2: Use data from a random sample to draw inferences about a population. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions.	**Instruction** 8-1 Samples and Surveys—TE pp. 208–209B; SB pp. 208–209 / PB pp. 235–236 *8-1A Use Samples to Make Predictions—Online
7.DSP.3: Find, use, and interpret measures of center (mean and median) and measures of spread (range, interquartile range, and mean absolute deviation) for numerical data from random samples to draw comparative inferences about two populations.	**Instruction** *8-8C Comparing Data Sets—Online
7.DSP.4: Make observations about the degree of visual overlap of two numerical data distributions represented in line plots or box plots. Describe how data, particularly outliers, added to a data set may affect the mean and/or median.	**Instruction** *8-8A Variability—Online *8-8B Mean Absolute Deviation—Online
7.DSP.5: Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Understand that a probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event. Understand that a probability of 1 indicates an event certain to occur and a probability of 0 indicates an event impossible to occur.	**Instruction** 12-1 Sample Space—TE pp. 330–331B; SB pp. 330–331 / PB pp. 373–374 12-3 Theoretical Probability—TE pp. 334–335B; SB pp. 334–335 / PB pp. 377–378
7.DSP.6: Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its relative frequency from a large sample.	**Instruction** *8-1A Use Samples to Make Predictions—Online
7.DSP.7: Develop probability models that include the sample space and probabilities of outcomes to represent simple events with equally likely outcomes. Predict the approximate relative frequency of the event based on the model. Compare probabilities from the model to observed frequencies; evaluate the level of agreement and explain possible sources of discrepancy.	**Instruction** *8-1A Use Samples to Make Predictions—Online 12-4 Experimental Probability—TE pp. 336–337B; SB pp. 336–337 / PB pp. 379–380