SADLIER

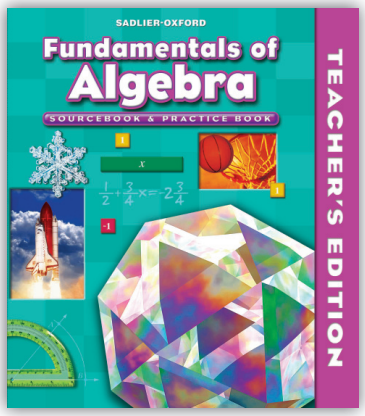
Progress in Mathematics

Correlated to the

Common Core State Standards

for Mathematics

GRADE 7



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

Ratios and Proportional Relationships 7.RP

Analyze proportional relationships and use them to solve real world and mathematical problems.

Common Core State Standards for Mathematics	Sadlier Fundamentals of Algebra
1. Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. *For example, if a person walks 1/2 mile in each 1/4 hour, compute the unit rate as the complex fraction $^{1/2}/_{1/4}$ miles per hour, equivalently 2 miles per hour.*	**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
2. Recognize and represent proportional relationships between quantities.	
a. 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
b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.	**Instruction** *6-3B Use Rational Numbers to Solve Problems—Online *6-6A Identify Unit Rate—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
c. Represent proportional relationships by equations. *For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn.*	**Instruction** 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 7-4 Find a Percentage of a Number—TE pp. 180–181B; SB pp. 180–181 / PB pp. 203–204 11-11 Changing Dimensions of Three-Dimensional Figures—TE pp. 322–323B; SB pp. 322–323 / PB pp. 361–362

*Online at progressinmathematics.com.

Page numbers cited refer to the *Fundamentals of Algebra* Teacher's Edition (TE), Source Book (SB), and Practice Book (PB); lettered page numbers, such as " 42A" or "103B," refer to the Teacher's Edition only.

April 5, 2012

Analyze proportional relationships and use them to solve real world and mathematical problems.

Common Core State Standards for Mathematics	Sadlier Fundamentals of Algebra
	*13-8B Graph Proportional Relationships—Online
d. Explain what a point (*x*, *y*) on the graph of a proportional relationship means 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
3. Use proportional relationships to solve multi-step ratio and percent problems. *Examples: Simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent of change (increase and decrease), 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

*Online at progressinmathematics.com.

Page numbers cited refer to the *Fundamentals of Algebra* Teacher's Edition (TE), Source Book (SB), and Practice Book (PB); lettered page numbers, such as " 42A" or "103B," refer to the Teacher's Edition only.

The Number System 7.NS

Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

Common Core State Standards for Mathematics	Sadlier Fundamentals of Algebra
1. Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.	
a. Describe situations in which opposite quantities combine to make zero. *For example, a hydrogen atom has a zero charge because its two constituents are oppositely charged.*	**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
b. 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 zero (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 1-7 Properties—TE pp. 14–15B; SB pp. 14–15 / PB pp. 13–14
c. 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
d. Apply properties of operations as strategies to add and subtract rational numbers.	**Instruction** 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 1-10 Order of Operations—TE pp. 20–21B; SB pp. 20–21 / PB pp. 19–20 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 5-14 Addition and Subtraction Equations with Fractional

*Online at progressinmathematics.com.

Page numbers cited refer to the *Fundamentals of Algebra* Teacher's Edition (TE), Source Book (SB), and Practice Book (PB); lettered page numbers, such as " 42A" or "103B," refer to the Teacher's Edition only.

April 5, 2012

Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

Common Core State Standards for Mathematics	Sadlier Fundamentals of Algebra
	Numbers—TE pp. 134–135B; SB pp. 134–135 / PB pp. 149–150
2. Apply and extend previous understandings of multiplication, division, and fractions to multiply and divide rational numbers.	
a. 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. Interpret products of rational numbers by describing real world contexts.	**Instruction** 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 4-5 Add and Subtract Decimals—TE pp. 80–81B; SB pp. 80–81 / PB pp. 91–92 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
b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If *p* and q are integers, then –(*p*/*q*) = (–*p*)/*q* = *p*/(–*q*). Interpret quotients of rational numbers by describing real world contexts.	**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
c. Apply properties of operations as strategies to multiply and divide rational numbers.	**Instruction** 1-7 Properties—TE pp. 14–15B; SB pp. 14–15 / PB pp. 13–14 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 4-7 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 5-8 Multiply Fractions—TE pp. 122–123B; SB pp. 122–123 / PB

*Online at progressinmathematics.com.

Page numbers cited refer to the *Fundamentals of Algebra* Teacher's Edition (TE), Source Book (SB), and Practice Book (PB); lettered page numbers, such as " 42A" or "103B," refer to the Teacher's Edition only.

April 5, 2012

Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

Common Core State Standards for Mathematics	Sadlier Fundamentals of Algebra
	pp. 137–138 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 5-15 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
d. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in zero or eventually repeats.	**Instruction** 4-2 Equivalent Rational Numbers—TE pp. 74–75B; SB pp. 74–75 / PB pp. 85–86
3. Solve real world mathematical problems involving rational numbers using the four operations.	**Instruction** 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 1-6 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 *1-10A 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 4-5 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 4-8 Divide Decimals—TE pp. 86–87B; SB pp. 86–87 / PB pp. 97–98 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 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 5-8 Multiply Fractions—TE pp. 122–123B; SB pp. 122–123 / PB pp. 137–138

*Online at progressinmathematics.com.

Page numbers cited refer to the *Fundamentals of Algebra* Teacher's Edition (TE), Source Book (SB), and Practice Book (PB); lettered page numbers, such as " 42A" or "103B," refer to the Teacher's Edition only.

April 5, 2012

Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

Common Core State Standards for Mathematics	Sadlier Fundamentals of Algebra
	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 5-16 Solve Two-Step Equations with Fractions—TE pp. 138–139B; SB pp. 138–139 / PB pp. 153–154 **Application** 4-16 Problem Solving: Review of Strategies—TE pp. 102-103B; SB pp.102-103 / PB pp. 113-114 6-11 Problem Solving Strategy: Solve a Simpler Problem—TE pp. pp. 168–169B; SB pp. 168–169 / PB pp. 187–188 7-15 Problem Solving Strategy: Reason Logically—TE pp. 24–25B; SB pp. 24–25 / PB pp. 23–24 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 10-2 Perimeter—TE pp. 274–275B; SB pp. 274–275 / PB pp. 309–310 11-12 Problem Solving Strategy: Work Backward—TE pp. 324–325B; SB pp. 324–325 / PB pp. 363–364 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 14-11 Problem Solving: Review of Strategies—TE pp. 402–403B; SB pp. 402–403 / PB pp. 453–454

*Online at progressinmathematics.com.

Page numbers cited refer to the *Fundamentals of Algebra* Teacher's Edition (TE), Source Book (SB), and Practice Book (PB); lettered page numbers, such as " 42A" or "103B," refer to the Teacher's Edition only.

April 5, 2012

Expressions and Equations 7.EE

Use properties of operations to generate equivalent expressions.

Common Core State Standards for Mathematics	Sadlier Fundamentals of Algebra
1. Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.	**Instruction** 2-2 Simplify and Evaluate Algebraic Expressions—TE pp. 32–33B; SB pp. 32–33 / PB pp. 35–36 *5-13B Combining Like Terms—Online *5-13C Factoring and Expanding Linear Expressions—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
2. Understand that rewriting an expression in different forms may enhance the interpretation of the problem and how the quantities in it are related. *For example, a + 0.05a = 1.05a means that "increase by 5%" is the same as "multiply by 1.05."*	**Instruction** 2-1 Mathematical Expressions—TE pp. 30–31B; SB pp. 30–31 / PB pp. 33–34 *7-11A Equivalent Expressions for Percents—Online *11-10A Write Expressions in Different Ways—Online

Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

Common Core State Standards for Mathematics	Sadlier Fundamentals of Algebra
3. Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. *For example, if a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.*	**Instruction** 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 1-6 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 *1-10A 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

*Online at progressinmathematics.com.

Page numbers cited refer to the *Fundamentals of Algebra* Teacher's Edition (TE), Source Book (SB), and Practice Book (PB); lettered page numbers, such as " 42A" or "103B," refer to the Teacher's Edition only.

April 5, 2012

Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

Common Core State Standards for Mathematics	Sadlier Fundamentals of Algebra
	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 4-8 Divide Decimals—TE pp. 86–87B; SB pp. 86–87 / PB pp. 97–98 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 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 5-8 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 5-16 Solve Two-Step Equations with Fractions—TE pp. 138–139B; SB pp. 138–139 / PB pp. 153–154 **Application** 4-16 Problem Solving: Review of Strategies—TE pp. 102-103B; SB pp.102-103 / PB pp. 113-114 6-11 Problem Solving Strategy: Solve a Simpler Problem—TE pp. pp. 168–169B; SB pp. 168–169 / PB pp. 187–188 7-15 Problem Solving Strategy: Reason Logically—TE pp. 24–25B; SB pp. 24–25 / PB pp. 23–24 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 10-2 Perimeter—TE pp. 274–275B; SB pp. 274–275 / PB pp. 309–310 11-12 Problem Solving Strategy: Work Backward—TE pp. 324–325B; SB pp. 324–325 / PB pp. 363–364 12-9 Problem Solving: Review of Strategies—TE pp. 346–347B; SB 346–347 / PB pp. 389–390

*Online at progressinmathematics.com.

Page numbers cited refer to the *Fundamentals of Algebra* Teacher's Edition (TE), Source Book (SB), and Practice Book (PB); lettered page numbers, such as " 42A" or "103B," refer to the Teacher's Edition only.

April 5, 2012

Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

Common Core State Standards for Mathematics	Sadlier Fundamentals of Algebra
	13-13 Problem Solving Strategy: Consider Extreme Cases—TE pp. 376–377B; SB pp. 376–377 / PB pp. 423–424 14-11 Problem Solving: Review of Strategies—TE pp. 402–403B; SB pp. 402–403 / PB pp. 453–454
4. Use variables to represent quantities in a real world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.	
a. Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. *For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?*	**Instruction** 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 2-8 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) = 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
b. Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. *For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions.*	**Instruction** 3-1 Inequalities—TE pp. 54–55B; SB pp. 54–55 / PB pp. 61–62 3-4 Solve Inequalities Using Addition and Subtraction—TE pp. 60–61B; SB pp. 60–61 / PB pp. 67–68 *3-6A Solve Two-Step Inequalities—Online 14-9 Addition and Subtraction: Inequalities with Rational Numbers—TE pp. 398–399B; SB pp. 398–399 / PB pp. 449–450 14-10 Multiplication and Division: Inequalities with Rational Numbers—TE pp. 400–401B; SB pp. 400–401 / PB pp. 451–452

*Online at progressinmathematics.com.

Page numbers cited refer to the *Fundamentals of Algebra* Teacher's Edition (TE), Source Book (SB), and Practice Book (PB); lettered page numbers, such as " 42A" or "103B," refer to the Teacher's Edition only.

April 5, 2012

Geometry 7.G

Draw, construct, and describe geometrical figures and describe the relationships between them.

Common Core State Standards for Mathematics	Sadlier Fundamentals of Algebra
1. Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a drawing at a different scale.	**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
2. Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing 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
3. Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.	**Instruction** 11-1 Three-Dimensional Figures—TE pp. 302–303B; SB pp. 302–303 / PB pp. 341–342 11-2 Draw Three-Dimensional Figures—TE pp. 304–305B; SB pp. 304–305 / PB pp. 343–344 *11-2A Draw Three-Dimensional Figures—Online 11-5 Surface Area of Cylinders and Cones—TE pp. 310–311B; SB pp. 310–311 / PB pp. 349–350

Solve real world and mathematical problems involving angle measure, area, surface area, and volume.

Common Core State Standards for Mathematics	Sadlier Fundamentals of Algebra
4. Know the formulas for the area and circumference of a circle and use them to solve problems. Give an informal derivation of the relationship between the 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
5. Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.	**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

*Online at progressinmathematics.com.

Page numbers cited refer to the *Fundamentals of Algebra* Teacher's Edition (TE), Source Book (SB), and Practice Book (PB); lettered page numbers, such as " 42A" or "103B," refer to the Teacher's Edition only.

April 5, 2012

Solve real world and mathematical problems involving angle measure, area, surface area, and volume.

Common Core State Standards for Mathematics	Sadlier Fundamentals of Algebra
	9-9 Congruent Triangles—TE pp. 256–257B; SB pp. 256–257 / PB pp. 287–288
6. Solve real world and mathematical problems involving area, volume, and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right 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 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

Statistics and Probability 7.SP

Use random sampling to draw inferences about a population.

Common Core State Standards for Mathematics	Sadlier Fundamentals of Algebra
1. Understand that statistics can be used to gain information about a population by examining a sample of the population; 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
2. Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. *For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data.*	**Instruction** 8-1 Samples and Surveys—TE pp. 208–209B; SB pp. 208–209 / PB pp. 235–236 *8-1A Compare Experimental and Theoretical Probabilities—Online

*Online at progressinmathematics.com.

Page numbers cited refer to the *Fundamentals of Algebra* Teacher's Edition (TE), Source Book (SB), and Practice Book (PB); lettered page numbers, such as " 42A" or "103B," refer to the Teacher's Edition only.

April 5, 2012

Use random sampling to draw inferences about a population.

Common Core State Standards for Mathematics	Sadlier Fundamentals of Algebra
Gauge how far off the estimate or prediction might be.	

Draw informal comparative inferences about two populations.

Common Core State Standards for Mathematics	Sadlier Fundamentals of Algebra
3. Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability. *For example, the mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) on either team; on a dot plot, the separation between the two distributions of heights is noticeable.*	**Instruction** *8-8A Variability—Online *8-8B Mean Absolute Deviation—Online
4. Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. *For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.*	**Instruction** *8-8C Comparing Data Sets—Online

Investigate chance processes and develop, use, and evaluate probability models.

Common Core State Standards for Mathematics	Sadlier Fundamentals of Algebra
5. Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. 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.	**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
6. Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. *For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.*	**Instruction** *8-1A Compare Experimental and Theoretical Probabilities—Online 12-4 Experimental Probability—TE pp. 336–337B; SB pp. 336–337 / PB pp. 379–380
7. Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.	**Instruction** *8-1A Compare Experimental and Theoretical Probabilities—Online

*Online at progressinmathematics.com.

Page numbers cited refer to the *Fundamentals of Algebra* Teacher's Edition (TE), Source Book (SB), and Practice Book (PB); lettered page numbers, such as " 42A" or "103B," refer to the Teacher's Edition only.

April 5, 2012

Investigate chance processes and develop, use, and evaluate probability models.

Common Core State Standards for Mathematics	Sadlier Fundamentals of Algebra
a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. *For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.*	**Instruction** 12-4 Experimental Probability—TE pp. 336–337B; SB pp. 336–337 / PB pp. 379–380
b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. *For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?*	Instruction *8-1A Compare Experimental and Theoretical Probabilities—Online
8. Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.	
a. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.	Instruction 12-6 Compound Events—TE pp. 340–341B; SB pp. 340–341 / PB pp. 383–384
b. Represent sample spaces for compound events using methods such as organized lists, tables, and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event.	Instruction 10-13 Problem Solving Strategy: Account for All Possibilities—TE pp. 296–297B; SB pp. 296–297 / PB pp. 331–332 12-2 Fundamental Counting Principle and Factorials—TE pp. 332–333B; SB pp. 332–333 / PB pp. 375–376 12-4 Experimental Probability—TE pp. 336–337B; SB pp. 336–337 / PB pp. 379–380 12-6 Compound Events—TE pp. 340–341B; SB pp. 340–341 / PB pp. 383–384
c. Design and use a simulation to generate frequencies for compound events. *For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?*	Instruction *12-6A Design a Simulation—Online

*Online at progressinmathematics.com.

Page numbers cited refer to the *Fundamentals of Algebra* Teacher's Edition (TE), Source Book (SB), and Practice Book (PB); lettered page numbers, such as " 42A" or "103B," refer to the Teacher's Edition only.

April 5, 2012