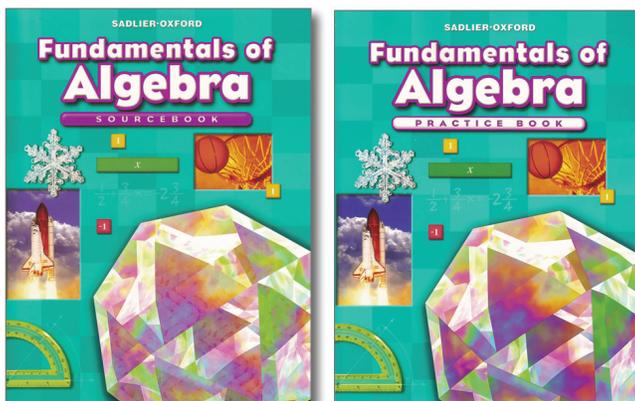SADLIER

Fundamentals of Algebra

Aligned to the

Georgia
Standards of Excellence 2015-2016
Mathematics

Grade 7

Contents

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Ratios and Proportional Relationships 7.RP

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

MGSE7.RP.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.*	**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 **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
MGSE7.RP.2 Recognize and represent proportional relationships between quantities.	
MGSE7.RP.2a 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.	**6-3 Write and Solve Proportions** — TE pp. 152–153B; SB pp. 152–153 / PB pp. 171–172
MGSE7.RP.2b Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.	***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
MGSE7.RP.2c 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*.	**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

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	11-11 Changing Dimensions of Three-Dimensional Figures—TE pp. 322–323B; SB pp. 322–323 / PB pp. 361–362
	*13-8B Graph Proportional Relationships—Online
MGSE7.RP.2d Explain what a point $(x,)$ 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.	**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
MGSE7.RP.3 Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, and fees.	**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 **11-12 Problem Solving Strategy: Work Backward**—TE pp. 324–325B; SB pp. 324–325 / PB pp. 363–364

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The Number System   7.NS

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

MGSE7.NS.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.	
MGSE7.NS.1a Show that a number and its opposite have a sum of 0 (are additive inverses). Describe situations in which opposite quantities combine to make 0. *For example, your bank account balance is -$25.00. You deposit $25.00 into your account. The net balance is $0.00.*	**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**
MGSE7.NS.1b 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. Interpret sums of rational numbers by describing real world contexts.	**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
MGSE7.NS.1c 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.	**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
MGSE7.NS.1d Apply properties of operations as strategies to add and subtract rational numbers.	**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

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	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 Numbers** —TE pp. 134–135B; SB pp. 134–135 / PB pp. 149–150
MGSE7.NS.2 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.	
MGSE7.NS.2a 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.	**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
MGSE7.NS.2b 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.	**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
MGSE7.NS.2c Apply properties of operations as strategies to multiply and divide rational numbers.	**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 *— continued —*

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	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 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
	5-15 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
MGSE7.NS.2d Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.	**4-2 Equivalent Rational Numbers** — TE pp. 74–75B; SB pp. 74–75 / PB pp. 85–86
MGSE7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.	**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

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TE = Teacher's Edition, SB = Sourcebook, PB = Practice Book. *Online lessons at www.SadlierConnect.com/PIM

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	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
	4-12 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
	5-8 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
	5-14 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
	7-15 Problem Solving Strategy: Reason Logically—TE pp. 202–203B; SB pp. 202–203 / PB pp. 225–226
	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

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	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

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Expressions and Equations   7.EE

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Use properties of operations to generate equivalent expressions.

MGSE7.EE.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.	**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
MGSE7.EE.2 Understand that rewriting an expression in different forms in a problem context can clarify the problem and how the quantities in it are related. *For example, a + 0.05a = 1.05a means that adding a 5% tax to a total is the same as multiplying the total by 1.05.*	**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.

MGSE7.EE.3 Solve multistep real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals) by applying properties of operations as strategies to calculate with numbers, converting between forms as appropriate, and assessing 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* — continued —	**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 — continued —

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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.*

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

4-12 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

5-8 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

5-14 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

7-15 Problem Solving Strategy: Reason Logically—TE pp. 202–203B; SB pp. 202–203 / PB pp. 225–226

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	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
MGSE7.EE.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.	
MGSE7.EE.4a 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?*	**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 **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 *— continued —*

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	*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
MGSE7.EE.4b 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.*	**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 **3-5 Solve Inequalities Using Multiplication**—TE pp. 62–63B; SB pp. 62–63 / PB pp. 69–70 **3-6 Solve Inequalities Using Division**—TE pp. 64–65B; SB pp. 64–65 / PB pp. 71–72 ***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
MGSE7.EE.4c Solve real-world and mathematical problems by writing and solving equations of the form *x* + *p* = *q* and *px* = *q* in which *p* and *q* are rational numbers.	**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 **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 **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

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Geometry   7.G

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

MGSE7.G.1	Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.	**6-6 Scale Drawings and Models**— T E 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
MGSE7.G.2	Explore various geometric shapes with given conditions. Focus on creating triangles from three measures of angles and/or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.	**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
MGSE7.G.3	Describe the two-dimensional figures (cross sections) that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms, right rectangular pyramids, cones, cylinders, and spheres.	**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-life and mathematical problems involving angle measure, area, surface area, and volume.

MGSE7.G.4	Given the formulas for the area and circumference of a circle, use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.	**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
MGSE7.G.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.	**9-3 Angle Pairs**— T E 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

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MGSE7.G.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.	**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

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Statistics and Probability 7.SP

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Use random sampling to draw inferences about a population.

MGSE7.SP.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.	**8-1 Samples and Surveys** —TE pp. 208–209B; SB pp. 208–209 / PB pp. 235–236
MGSE7.SP.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. Gauge how far off the estimate or prediction might be.*	**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

Draw informal comparative inferences about two populations.

MGSE7.SP.3	Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the medians by expressing it as a multiple of the interquartile range.	***8-8A Variability** —Online ***8-8B Mean Absolute Deviation** —Online
MGSE7.SP.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.*	***8-8C Comparing Data Sets** — Online

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Statistics and Probability   7.SP

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

MGSE7.SP.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.	**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
MGSE7.SP.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. 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.*	***8-1A Use Samples to Make Predictions** —Online
MGSE7.SP.7	Develop a probability model and use it to find probabilities of events. Compare experimental and theoretical probabilities of events. If the probabilities are not close, explain possible sources of the discrepancy.	
	MGSE7.SP.7a 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.*	**12-4 Experimental Probability** —TE pp. 336–337B; SB pp. 336–337 / PB pp. 379–380
	MGSE7.SP.7b 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?*	***8-1A Use Samples to Make Predictions** —Online

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MGSE7.SP.8 Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.	
MGSE7.SP.8a 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.	**12-6 Compound Events**—TE pp. 340–341B; SB pp. 340–341 / PB pp. 383–384
MGSE7.SP.8b 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.	**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
MGSE7.SP.8c Explain ways to set up a simulation and use the simulation to generate frequencies for compound events. *For example, if 40% of donors have type A blood, create a simulation to predict the probability that it will take at least 4 donors to find one with type A blood.*	***12-6A Design a Simulation** — Online