

SADLIER

# Common Core Progress Mathematics

SADLIER PROGRESS IN MATHEMATICS

## Fundamentals of Algebra

### Common Core State Standards for Mathematics

# Crosswalk

Grade 7

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## COMMON CORE PROGRESS MATHEMATICS, GRADE 7

## FUNDAMENTALS OF ALGEBRA, GRADE 7

## COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

## Unit 1: Focus on Ratios and Proportional Relationships

### Lesson 1 Compute Unit Rates—pp. 10–17

#### Instruction

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#### Application

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9-14 Problem Solving Strategy: Adopt a Different Point of View—TE pp. 266–267B; SB pp. 266–267 / PB pp. 297–298

#### 7.RP.1

##### 7.RP.A.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  $\frac{1}{2}$  mile in each  $\frac{1}{4}$  hour, compute the unit rate as the complex fraction  $\frac{1/2}{1/4}$  miles per hour, equivalently 2 miles per hour.*

### Lesson 2 Identify Proportional Relationships—pp. 18–25

#### Instruction

6-3 Write and Solve Proportions—TE pp. 152–153B; SB pp. 152–153 / PB pp. 171–172

#### 7.RP.2a

##### 7.RP.A.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.

### Lesson 3 Identify the Constant of Proportionality—pp. 26–33

#### 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.RP.2b

##### 7.RP.A.2b

Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

### Lesson 4 Represent Proportional Relationships with Equations—pp. 34–41

#### 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

#### 7.RP.2c

##### 7.RP.A.2c

Represent proportional relationships by equations.

*For example, if total cost  $t$  is proportional to the number  $n$  of items purchased at a*

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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

\*13-8B Graph Proportional Relationships—Online

**Lesson 5** Interpret Graphs of Proportional Relationships—pp. 42–49

**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

**Lesson 6** Problem Solving: Multi-step Ratio Problems—pp. 50–57

**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

**Lesson 7** Problem Solving: Multi-step Percent Problems—pp. 58–65

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constant price  $p$ , the relationship between the total cost and the number of items can be expressed as  $t = pn$ .

**7.RP.2d**  
**7.RP.A.2d** 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.

**7.RP.3**  
**7.RP.A.3** Use proportional relationships to solve multistep ratio and percent problems.  
*Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.*

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- 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

**Unit 2: Focus on the Number System****Lesson 8 Understand Addition of Integers**—pp. 72–79**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

**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

**7.NS.1a**  
**7.NS.A.1a**

Describe situations in which opposite quantities combine to make 0.

*For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged.*

**7.NS.1b**  
**7.NS.A.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. 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.

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**Lesson 9 Understand Subtraction of Integers—**  
pp. 80–87

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**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

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**7.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.  
**7.NS.A.1c**

**Lesson 10 Add and Subtract Rational Numbers—**  
pp. 88–95

**Instruction**  
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 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 Numbers—TE pp. 134–135B; SB pp. 134–135 / PB pp. 149–150

**7.NS.1d** Apply properties of operations as strategies to add and subtract rational numbers.  
**7.NS.A.1d**

**Lesson 11 Understand Multiplication of Integers—**  
pp. 96–103

**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

**7.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  
**7.NS.A.2a**

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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

**Lesson 12 Understand Division of Integers**—pp. 104–111

**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

**Lesson 13 Multiply and Divide Rational Numbers**—pp. 112–119

**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

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such as  $(-1)(-1) = 1$  and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.

**7.NS.2b**  
**7.NS.A.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.

**7.NS.2c**  
**7.NS.A.2c**

Apply properties of operations as strategies to multiply and divide rational numbers.

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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

**Lesson 14** **Convert Rational Numbers to Decimal Form**—pp. 120–127

**Instruction**

4-2 Equivalent Rational Numbers—TE pp. 74–75B; SB pp. 74–75 / PB pp. 85–86

**7.NS.2d**  
**7.NS.A.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.

**Lesson 15** **Apply Rational-Number Operations**—pp. 128–135

**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

**7.NS.3**  
**7.NS.A.3**

Solve real-world and mathematical problems involving the four operations with rational numbers.<sup>1</sup>

<sup>1</sup>Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

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- 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
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- 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
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- 5-12 Properties of Rational Numbers—TE pp. 130–131B; SB pp. 130–131 / PB pp. 145–146
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- 5-16 Solve Two-Step Equations with Fractions—TE pp. 138–139B; SB pp. 138–139 / PB pp. 153–154



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**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. 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

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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**Unit 3: Focus on Expressions and Equations****Lesson 16 Combine Like Terms to Simplify Linear Expressions**—pp. 142–149

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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

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**7.EE.1**  
**7.EE.A.1**

Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

**Lesson 17 Expand and Factor Linear Expressions**—pp. 150–157**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

**7.EE.2**  
**7.EE.A.2**

Understand that rewriting an expression in different forms in a problem context can shed light on 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.”*

**Lesson 18 Problem Solving: Multi-step Problems with Rational Numbers**—pp. 158–165**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

**7.EE.3**  
**7.EE.A.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

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- 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
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- 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
- 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
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- 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

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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  $\frac{1}{10}$  of her salary an hour, or \$2.50, for a new salary of \$27.50. If you want to place a towel bar  $9\frac{3}{4}$  inches long in the center of a door that is  $27\frac{1}{2}$  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.*

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- 5-15 Multiplication and Division Equations with Fractional Numbers—TE pp. 136–137B; SB pp. 136–137 / PB pp. 151–152
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- 6-11 Problem Solving Strategy: Solve a Simpler Problem—TE pp. pp. 168–169B; SB pp. 168–169 / PB pp. 187–188
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**Lesson 19 Solve Linear Equations**—pp. 166–173

**Lesson 20 Problem Solving: Linear Equations**—  
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**Lesson 21 Solve Linear Inequalities**—pp. 182–189

**Lesson 22 Problem Solving: Linear Inequalities**—  
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**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
- 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

**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
- 3-5 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

## COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

**7.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.

**7.EE.B.4a**

*For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?*

**7.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.

**7.EE.B.4b**

*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.*

## COMMON CORE PROGRESS MATHEMATICS, GRADE 7

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**Unit 4: Focus on Geometry**

**Lesson 23 Use Scale Drawings to Solve Problems**—pp. 204–211

**Instruction**

6-6 Scale Drawings and Models—TE pp. 158–159B; SB pp. 158–159 / PB pp. 177–178

**7.G.1**  
**7.G.A.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.

**Lesson 24 Draw Shapes that Meet Given Conditions**—pp. 212–219

**Instruction**

9-7 Polygons—TE pp. 252–253B; SB pp. 252–253 / PB pp. 283–284

**7.G.2**  
**7.G.A.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.

**Lesson 25 Construct Triangles Using Both Side Lengths and Angle Measures**—pp. 220–227

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.G.3**  
**7.G.A.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.

**Lesson 26 Slice Three-Dimensional Figures**—pp. 228–235

**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

**7.G.4**  
**7.G.B.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.

**Lesson 27 Use Formulas for Area and Circumference of Circles**—pp. 236–243

**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

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**Lesson 28 Use Equations to Find Unknown Angle Measures**—pp. 244–251

**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.G.5**  
**7.G.B.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.

**Lesson 29 Problem Solving: Area, Volume, and Surface Area**—pp. 252–259

**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

**7.G.6**  
**7.G.B.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.

## COMMON CORE PROGRESS MATHEMATICS, GRADE 7

**Unit 5: Focus on Statistics and Probability****Lesson 30 Understand Sampling**—pp. 266–273

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**Instruction**

8-1 Samples and Surveys—TE pp. 208–209B; SB pp. 208–209 / PB pp. 235–236

## COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

**7.SP.1**  
**7.SP.A.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.

**Lesson 31 Use Sampling to Draw Inferences**—pp. 274–281**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.SP.2**  
**7.SP.A.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.*

**Lesson 32 Use Visual Overlap to Compare Distributions**—pp. 282–289**Instruction**\*8-8A Variability—Online  
\*8-8B Mean Absolute Deviation—Online**7.SP.3**  
**7.SP.B.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.*



## COMMON CORE PROGRESS MATHEMATICS, GRADE 7

**Lesson 33 Use Sample Statistics to Compare Populations**—pp. 290–297

## FUNDAMENTALS OF ALGEBRA, GRADE 7

**Instruction**  
\*8-8C Comparing Data Sets—Online

## COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

**7.SP.4**  
**7.SP.B.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.***Lesson 34 Understand Probability of a Chance Event**—pp. 298–305**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.SP.5**  
**7.SP.C.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.**Lesson 35 Relate Relative Frequency and Probability**—pp. 306–313**Instruction**  
\*8-1A Use Samples to Make Predictions—Online**7.SP.6**  
**7.SP.C.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.***Lesson 36 Develop a Uniform Probability Model**—pp. 314–321**Instruction**  
12-4 Experimental Probability—TE pp. 336–337B; SB pp. 336–337 / PB pp. 379–380**7.SP.7a**  
**7.SP.C.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.*

## COMMON CORE PROGRESS MATHEMATICS, GRADE 7

**Lesson 37 Use a Chance Process to Develop a Probability Model**—pp. 322–329

**Lesson 38 Find Probabilities of Compound Events**—pp. 330–337

**Lesson 39 Represent Sample Spaces for Compound Events**—pp. 338–345

**Lesson 40 Simulate Compound Events**—pp. 346–353

## FUNDAMENTALS OF ALGEBRA, GRADE 7

**Instruction**  
\*8-1A Use Samples to Make Predictions—Online

**Instruction**  
12-6 Compound Events—TE pp. 340–341B; SB pp. 340–341 / PB pp. 383–384

**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

**Instruction**  
\*12-6A Design a Simulation—Online

## COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

**7.SP.7b** Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.  
**7.SP.C.7b**

*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?*

**7.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.  
**7.SP.C.8a**

**7.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.  
**7.SP.C.8b**

**7.SP.8c** Design and use a simulation to generate frequencies for compound events.  
**7.SP.C.8c**

*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?*