

SADLIER PROGRESS IN MATHEMATICS

Fundamentals of Algebra

SADLIER

Common Core Progress Mathematics

Common Core State Standards for Mathematics

Grade 7 Crosswalk

1. Integers	2
2. Expressions and Equations	11
3. Inequalities	13
4. Rational Numbers: Decimals	14
5. Rational Numbers: Fractions	20
6. Ratio and Proportion	29
7. Percent and Consumer Applications	32
8. Data Analysis and Statistics	35
9. Two-Dimensional Geometry	39
10. Two-Dimensional Geometry and Measurement Applications	41
11. Three-Dimensional Geometry	43
12. Probability	46
13. Patterns, Relations, and Functions	48
14. Polynomials, Equations, and Inequalities	51
Skills Update	52

Chapter 1 Integers

FUNDAMENTALS OF ALGEBRA, GRADE 7

1-1 Integers and Absolute Value—TE pp. 2–3B; SB pp. 2–3 / PB pp. 1–2

1-2 Compare and Order Integers—TE pp. 4–5B; SB pp. 4–5 / PB pp. 3–4

1-3 Add Integers—TE pp. 6–7B; SB pp. 6–7 / PB pp. 5–6

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

Lesson 8 Understand Addition of Integers—pp. 72–79

Lesson 8 Understand Addition of Integers—pp. 72–79

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

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

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

7.NS.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 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.

7.NS.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 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.

7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹

¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

7.EE.3 Solve multi-step real-life and mathematical problems posed with positive and negative

– continued on next page –

Chapter 1 Integers

FUNDAMENTALS OF ALGEBRA, GRADE 7

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

– continued from previous page –

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 $\frac{1}{10}$ 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.

1-4 Subtract Integers—TE pp. 8–9B; SB pp. 8–9 / PB pp. 7–8

Lesson 8 Understand Addition of Integers—pp. 72–79

7.NS.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 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.

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

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.

Chapter 1 Integers

FUNDAMENTALS OF ALGEBRA, GRADE 7

*1-4A **Distance on a Number Line**—pp. Online

*1-4B **Understanding Integers**—pp. Online

1-5 **Multiply Integers**—TE pp. 9–10B; SB pp. 10–11 / PB pp. 9–10

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

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

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

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

Lesson 8 Understand Addition of Integers—pp. 72–79

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

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹

¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

7.EE.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 $\frac{1}{10}$ 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.

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.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.2a Understand that multiplication is extended from fractions to rational numbers by requiring

– continued on next page –

Chapter 1 Integers

FUNDAMENTALS OF ALGEBRA, GRADE 7

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

– continued from previous page –

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.

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

7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹

¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

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

7.EE.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 $\frac{1}{10}$ 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.

1-6 Divide Integers—TE pp. 12–13B; SB pp. 12–13 / PB pp. 11–12

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

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

Chapter 1 Integers

FUNDAMENTALS OF ALGEBRA, GRADE 7

1-7 Properties—TE pp. 14–15B; SB pp. 14–15 / PB pp. 13–14

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

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

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

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

Lesson 8 Understand Addition of Integers—pp. 72–79

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

7.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.

7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹

¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

7.EE.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 $9\frac{3}{4}$ 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.

7.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. 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.

Chapter 1 Integers

FUNDAMENTALS OF ALGEBRA, GRADE 7

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

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

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

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

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

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

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

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

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

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.1d Apply properties of operations as strategies to add and subtract rational numbers.

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

7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹

¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

7.EE.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

– continued on next page –

Chapter 1 Integers

FUNDAMENTALS OF ALGEBRA, GRADE 7

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

– continued from previous page –

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.

1-8 Closure Property—TE pp. 16–17B; SB pp. 16–17 / PB pp. 15–16

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

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

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

7.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.

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

7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹
¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

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

7.EE.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

– continued on next page –

Chapter 1 Integers

FUNDAMENTALS OF ALGEBRA, GRADE 7

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

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

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

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

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

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

– continued from previous page –

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.

7.NS.2c Apply properties of operations as strategies to multiply and divide rational numbers.

7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹

¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

7.EE.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 $\frac{1}{10}$ 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.

Chapter 1 Integers

FUNDAMENTALS OF ALGEBRA, GRADE 7

***1-10A Solve Real-World Problems with Operations and Properties**—pp. Online

1-11 The Coordinate Plane—TE pp. 22–23B; SB pp. 22–23 / PB pp. 21–22

1-12 Problem Solving Strategy: Guess and Test—TE pp. 24–25B; SB pp. 24–25 / PB pp. 23–24

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

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

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

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

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

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹

¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

7.EE.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 $\frac{1}{10}$ 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.

7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹

¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

7.EE.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

– continued on next page –

Chapter 1 Integers

FUNDAMENTALS OF ALGEBRA, GRADE 7

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

– continued from previous page –

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 $9\frac{3}{4}$ 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.

Chapter 2 Expressions and Equations

FUNDAMENTALS OF ALGEBRA, GRADE 7

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

2-1 Mathematical Expressions—TE pp. 30–31B; SB pp. 30–31 / PB pp. 33–34

Lesson 16 Combine Like Terms to Simplify Linear Expressions—pp. 142–149

7.EE.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.”

2-2 Simplify and Evaluate Algebraic Expressions—TE pp. 32–33B; SB pp. 32–33 / PB pp. 35–36

Lesson 16 Combine Like Terms to Simplify Linear Expressions—pp. 142–149

7.EE.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

2-3 Equations—TE pp. 34–35B; SB pp. 34–35 / PB pp. 37–38

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

Chapter 2 Expressions and Equations

FUNDAMENTALS OF ALGEBRA, GRADE 7	COMMON CORE PROGRESS MATHEMATICS, GRADE 7	COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7
2-4 Solve Addition Equations —TE pp. 36–37B; SB pp. 36–37 / PB pp. 39–40	Lesson 19 Solve Linear Equations —pp. 166–173	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. <i>For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?</i>
2-5 Solve Subtraction Equations —TE pp. 38–39B; SB pp. 38–39 / PB pp. 41–42	Lesson 20 Problem Solving: Linear Equations —pp. 174–181	
2-6 Solve Multiplication Equations —TE pp. 40–41B; SB pp. 40–41 / PB pp. 43–44		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. <i>For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?</i>
2-7 Solve Division Equations —TE pp. 42–43B; SB pp. 42–43 / PB pp. 45–46	Lesson 19 Solve Linear Equations —pp. 166–173	7.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.
2-8 Solve Two-Step Equations —TE pp. 44–45B; SB pp. 44–45 / PB pp. 47–48	Lesson 20 Problem Solving: Linear Equations —pp. 174–181	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. <i>For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?</i>
*2-8A Solving Equations of the Form $a(x + b) = c$ Using Integers —pp. Online	Lesson 29 Problem Solving: Area, Volume, and Surface Area —pp. 252–259	
2-9 Formulas —TE pp. 46–47B; SB pp. 46–47 / PB pp. 49–50	Lesson 19 Solve Linear Equations —pp. 166–173	
*2-9A Compare Arithmetic and Algebraic Problem-Solving Methods —pp. Online	Lesson 20 Problem Solving: Linear Equations —pp. 174–181	
2-10 Problem Solving Strategy: Organize Data —TE pp. 48–49B; SB pp. 48–49 / PB pp. 51–52		

Chapter 3 Inequalities

FUNDAMENTALS OF ALGEBRA, GRADE 7

3-1 **Inequalities**—TE pp. 54–55B; SB pp. 54–55 / PB pp. 61–62

3-2 **Graph Inequalities on a Number Line**—TE pp. 56–57B; SB pp. 56–57 / PB pp. 63–64

3-3 **Model Properties of Inequality**—TE pp. 58–59B; SB pp. 58–59 / PB pp. 65–66

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

***3-6A** **Solve Two-Step Inequalities**—pp. Online

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

Lesson 21 **Solve Linear Inequalities**—pp. 182–189

Lesson 22 **Problem Solving: Linear Inequalities**—pp. 190–197

Lesson 21 **Solve Linear Inequalities**—pp. 182–189

Lesson 22 **Problem Solving: Linear Inequalities**—pp. 190–197

Lesson 21 **Solve Linear Inequalities**—pp. 182–189

Lesson 22 **Problem Solving: Linear Inequalities**—pp. 190–197

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

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.

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.

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.

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.

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.

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.

Chapter 3 Inequalities

FUNDAMENTALS OF ALGEBRA, GRADE 7

- 3-6 Solve Inequalities Using Division**—TE pp. 64–65B; SB pp. 64–65 / PB pp. 71–72
- 3-7 Problem Solving Strategy: Find a Pattern**—TE pp. 66–67B; SB pp. 66–67 / PB pp. 73–74

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

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

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

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

- 7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹
- ¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.
- 7.EE.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.*

Chapter 4 Rational Numbers: Decimals

FUNDAMENTALS OF ALGEBRA, GRADE 7

- 4-1 Rational Numbers**—TE pp. 72–73B; SB pp. 72–73 / PB pp. 83–84

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

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

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

- 7.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.

Chapter 4 Rational Numbers: Decimals

FUNDAMENTALS OF ALGEBRA, GRADE 7

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

4-3 Compare and Order Decimals—TE pp. 76–77B; SB pp. 76–77 / PB pp. 87–88

4-4 Estimate Decimal Sums and Differences—TE pp. 78–79B; SB pp. 78–79 / PB pp. 89–90

4-5 Add and Subtract Decimals—TE pp. 80–81B; SB pp. 80–81 / PB pp. 91–92

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

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

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

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

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

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

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

7.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.

7.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.

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.1d Apply properties of operations as strategies to add and subtract rational numbers.

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

Chapter 4 Rational Numbers: Decimals

FUNDAMENTALS OF ALGEBRA, GRADE 7

4-6 **Multiply Decimals**—TE pp. 82–83B; SB pp. 82–83 / PB pp. 93–94

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

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

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

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

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

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹

¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

7.EE.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 $\frac{1}{10}$ 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.

7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹

¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

7.EE.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.

– continued on next page –

Chapter 4 Rational Numbers: Decimals

FUNDAMENTALS OF ALGEBRA, GRADE 7

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

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

Lesson 13	Multiply and Divide Rational Numbers —pp. 112–119
Lesson 13	Multiply and Divide Rational Numbers —pp. 112–119
Lesson 15	Apply Rational-Number Operations —pp. 128–135
Lesson 18	Problem Solving: Multi-step Problems with Rational Numbers —pp. 158–165

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

– continued from previous page –

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 $9\frac{3}{4}$ 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.

7.NS.2c	Apply properties of operations as strategies to multiply and divide rational numbers.
7.NS.2c	Apply properties of operations as strategies to multiply and divide rational numbers.
7.NS.3	Solve real-world and mathematical problems involving the four operations with rational numbers. ¹
	¹ Computations with rational numbers extend the rules for manipulating fractions to complex fractions.
7.EE.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.
	<i>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 $9\frac{3}{4}$ 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.</i>

Chapter 4 Rational Numbers: Decimals

FUNDAMENTALS OF ALGEBRA, GRADE 7

- 4-9 Negative Exponents**—TE pp. 88–89B; SB pp. 88–89 / PB pp. 99–100
- 4-10 Scientific Notation**—TE pp. 90–91B; SB pp. 90–91 / PB pp. 101–102
- 4-11 Operations with Scientific Notation**—TE pp. 92–93B; SB pp. 92–93 / PB pp. 103–104
- 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

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

- Lesson 13 Multiply and Divide Rational Numbers**—pp. 112–119
- Lesson 15 Apply Rational-Number Operations**—pp. 128–135
- Lesson 18 Problem Solving: Multi-step Problems with Rational Numbers**—pp. 158–165

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

- 7.NS.2c Apply properties of operations as strategies to multiply and divide rational numbers.
- 7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹
- ¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.
- 7.EE.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 $\frac{1}{10}$ 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.*

Chapter 4 Rational Numbers: Decimals

FUNDAMENTALS OF ALGEBRA, GRADE 7

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**—pp. Online

4-15 Rename Metric Units of Measure—TE pp. 100–101B; SB pp. 100–101 / PB pp. 111–112

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

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

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

Lesson 19 Solve Linear Equations—pp. 166–173

Lesson 20 Problem Solving: Linear Equations—pp. 174–181

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹

¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

7.EE.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 $\frac{1}{10}$ 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.

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.

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

Chapter 4 Rational Numbers: Decimals

FUNDAMENTALS OF ALGEBRA, GRADE 7

4-16 Problem Solving: Review of Strategies—TE pp. 102-103B; SB pp.102-103 / PB pp. 113-114

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

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

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

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹

¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

7.EE.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 $\frac{1}{10}$ 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.

Chapter 5 Rational Numbers: Fractions

FUNDAMENTALS OF ALGEBRA, GRADE 7

5-1 Prime Factorization—TE pp. 108–109B; SB pp. 108–109 / PB pp. 123–124

5-2 Greatest Common Factor—TE pp. 110–111B; SB pp. 110–111 / PB pp. 125–126

5-3 Least Common Multiple—TE pp. 112–113B; SB pp. 112–113 / PB pp. 127–128

5-4 Fraction Sense: Closest to -1 , $-\frac{1}{2}$, 0 , $\frac{1}{2}$, or 1 —TE pp. 114–115B; SB pp. 114–115 / PB pp. 129–130

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

Chapter 5 Rational Numbers: Fractions

FUNDAMENTALS OF ALGEBRA, GRADE 7

5-5 Compare and Order Rational Numbers—TE pp. 116–117B; SB pp. 116–117 / PB pp. 131–132

5-6 Add and Subtract Fractions—TE pp. 118–119B; SB pp. 118–119 / PB pp. 133–134

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

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

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

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

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

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

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.1d Apply properties of operations as strategies to add and subtract rational numbers.

7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹

¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

7.EE.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 $\frac{1}{10}$ 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.

Chapter 5 Rational Numbers: Fractions

FUNDAMENTALS OF ALGEBRA, GRADE 7

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**—pp. Online

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

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

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

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

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

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

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

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.1d Apply properties of operations as strategies to add and subtract rational numbers.

7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹

¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

7.EE.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 $\frac{1}{10}$ 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.

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.

Chapter 5 Rational Numbers: Fractions

FUNDAMENTALS OF ALGEBRA, GRADE 7

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

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

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

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

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

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

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

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

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.1d Apply properties of operations as strategies to add and subtract rational numbers.

7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹

¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

7.EE.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 $\frac{1}{10}$ 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.

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 such as $(-1)(-1) = 1$ and the rules for multiplying

– continued on next page –

Chapter 5 Rational Numbers: Fractions

FUNDAMENTALS OF ALGEBRA, GRADE 7

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

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

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

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

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

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

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

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

– continued from previous page –

signed numbers. Interpret products of rational numbers by describing real-world contexts.

7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹

¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

7.EE.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 $\frac{1}{10}$ 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.

7.NS.2c Apply properties of operations as strategies to multiply and divide rational numbers.

7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹

¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

7.EE.3 Solve multi-step real-life and mathematical problems posed with positive and negative

– continued on next page –

Chapter 5 Rational Numbers: Fractions

FUNDAMENTALS OF ALGEBRA, GRADE 7

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

– continued from previous page –

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 $\frac{1}{10}$ 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.

***5-11A Different Ways to Solve Problems with Rational Numbers**—pp. Online

Lesson 19 Solve Linear Equations—pp. 166–173

Lesson 20 Problem Solving: Linear Equations—pp. 174–181

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.

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

5-12 Properties of Rational Numbers—TE pp. 130–131B; SB pp. 130–131 / PB pp. 145–146

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

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

Chapter 5 Rational Numbers: Fractions

FUNDAMENTALS OF ALGEBRA, GRADE 7

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**—pp.
Online

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

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

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

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

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

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹

¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

7.EE.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 $\frac{1}{10}$ 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.

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

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

Chapter 5 Rational Numbers: Fractions

FUNDAMENTALS OF ALGEBRA, GRADE 7

*5-13B **Combining Like Terms**—pp. Online

*5-13C **Factoring and Expanding Linear Expressions**—pp. Online

5-14 **Addition and Subtraction Equations with Fractional Numbers**—TE pp. 134–135B; SB pp. 134–135 / PB pp. 149–150

5-15 **Multiplication and Division Equations with Fractional Numbers**—TE pp. 136–137B; SB pp. 136–137 / PB pp. 151–152

5-16 **Solve Two-Step Equations with Fractions**—TE pp. 138–139B; SB pp. 138–139 / PB pp. 153–154

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

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

Lesson 16 Combine Like Terms to Simplify Linear Expressions—pp. 142–149

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

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

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

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

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

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

7.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.

7.EE.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

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

7.NS.2c Apply properties of operations as strategies to multiply and divide rational numbers.

7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹

¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

7.EE.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

– continued on next page –

Chapter 5 Rational Numbers: Fractions

FUNDAMENTALS OF ALGEBRA, GRADE 7

***5-16A Solving Equations of the Form $a(x + b) = c$ Using Fractions**—pp. Online

5-17 Rename Customary Units of Measure—TE pp. 140–141B; SB pp. 140–141 / PB pp. 155–156

5-18 Problem Solving Strategy: Make a Drawing—TE pp. 142–143B; SB pp. 142–143 / PB pp. 157–158

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

Lesson 19 Solve Linear Equations—pp. 166–173

Lesson 20 Problem Solving: Linear Equations—pp. 174–181

Lesson 19 Solve Linear Equations—pp. 166–173

Lesson 20 Problem Solving: Linear Equations—pp. 174–181

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

– continued from previous page –

\$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.

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.

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

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.

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

Chapter 6 Ratio and Proportion

FUNDAMENTALS OF ALGEBRA, GRADE 7	COMMON CORE PROGRESS MATHEMATICS, GRADE 7	COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7
6-1 Ratio —TE pp. 148–149B; SB pp. 148–149 / PB pp. 167–168		
6-2 Unit Rate and Unit Cost —TE pp. 150–151B; SB pp. 150–151 / PB pp. 169–170	Lesson 1 Compute Unit Rates —pp. 10–17	7.RP.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. <i>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.</i>
6-3 Write and Solve Proportions —TE pp. 152–153B; SB pp. 152–153 / PB pp. 171–172	Lesson 2 Identify Proportional Relationships —pp. 18–25	7.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.
*6-3A Use Unit Rates —pp. Online	Lesson 1 Compute Unit Rates —pp. 10–17	7.RP.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. <i>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.</i>
*6-3B Use Rational Numbers to Solve Problems —pp. Online	Lesson 3 Identify the Constant of Proportionality —pp. 26–33	7.RP.2b Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
6-4 Direct Proportion —TE pp. 154–155B; SB pp. 154–155 / PB pp. 173–174	Lesson 4 Represent Proportional Relationships with Equations —pp. 34–41	7.RP.2c Represent proportional relationships by equations. <i>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 $t = pn$.</i>

Chapter 6 Ratio and Proportion

FUNDAMENTALS OF ALGEBRA, GRADE 7	COMMON CORE PROGRESS MATHEMATICS, GRADE 7	COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7
6-5 Proportion by Parts —TE pp. 156–157B; SB pp. 156–157 / PB pp. 175–176	Lesson 5 Interpret Graphs of Proportional Relationships —pp. 42–49	7.RP.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.
6-6 Scale Drawings and Models —TE pp. 158–159B; SB pp. 158–159 / PB pp. 177–178	Lesson 4 Represent Proportional Relationships with Equations —pp. 34–41	7.RP.2c Represent proportional relationships by equations. <i>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 $t = pn$.</i>
*6-6A Identify Unit Rate —pp. Online	Lesson 4 Represent Proportional Relationships with Equations —pp. 34–41	7.RP.2c Represent proportional relationships by equations. <i>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 $t = pn$.</i>
*6-6B Proportional Relationships and Equations —pp. Online	Lesson 23 Use Scale Drawings to Solve Problems —pp. 204–211	7.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.
	Lesson 3 Identify the Constant of Proportionality —pp. 26–33	7.RP.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	7.RP.2c Represent proportional relationships by equations. <i>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 $t = pn$.</i>
	Lesson 5 Interpret Graphs of Proportional Relationships —pp. 42–49	7.RP.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.

Chapter 6 Ratio and Proportion

FUNDAMENTALS OF ALGEBRA, GRADE 7

***6-6C Use Proportional Relationships and Equations to Solve Problems**—pp. Online

6-7 Similarity—TE pp. 160–161B; SB pp. 160–161 / PB pp. 179–180

6-8 Indirect Measurement—TE pp. 162–163B; SB pp. 162–163 / PB pp. 181–182

6-9 Inverse Proportion—TE pp. 164–165B; SB pp. 164–165 / PB pp. 183–184

6-10 Dimensional Analysis—TE pp. 166–167B; SB pp. 166–167 / PB pp. 185–186

6-11 Problem Solving Strategy: Solve a Simpler Problem—TE pp. pp. 168–169B; SB pp. 168–169 / PB pp. 187–188

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

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

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

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

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

Lesson 1 Compute Unit Rates—pp. 10–17

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

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

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

7.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 $t = pn$.

7.RP.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 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.

7.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.

7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹

¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

7.EE.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers,

– continued on next page –

Chapter 6 Ratio and Proportion

FUNDAMENTALS OF ALGEBRA, GRADE 7

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

– continued from previous page –

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 $9\frac{3}{4}$ 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.

Chapter 7 Percent and Consumer Applications

FUNDAMENTALS OF ALGEBRA, GRADE 7

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

7-1 Percents—TE pp. 174–175B; SB pp. 174–175 / PB pp. 197–198

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

7.RP.3 Use proportional relationships to solve multistep ratio and percent problems.

7-2 Fractions, Decimals, Percents—TE pp. 176–177B; SB pp. 176–177 / PB pp. 199–200

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

Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

7-3 Percents Greater Than 100% / Less Than 1%—TE pp. 178–179B; SB pp. 178–179 / PB pp. 201–202

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

7.NS.2c Apply properties of operations as strategies to multiply and divide rational numbers.

7-4 Find a Percentage of a Number—TE pp. 180–181B; SB pp. 180–181 / PB pp. 203–204

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

7.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 $t = pn$.

Chapter 7 Percent and Consumer Applications

FUNDAMENTALS OF ALGEBRA, GRADE 7	COMMON CORE PROGRESS MATHEMATICS, GRADE 7	COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7
	Lesson 6 Problem Solving: Multi-step Ratio Problems —pp. 50–57	7.RP.3 Use proportional relationships to solve multistep ratio and percent problems. <i>Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.</i>
7-5 Find a Percent —TE pp. 182–183B; SB pp. 182–183 / PB pp. 205–206	Lesson 7 Problem Solving: Multi-step Percent Problems —pp. 58–65	7.RP.3 Use proportional relationships to solve multistep ratio and percent problems. <i>Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.</i>
7-6 Find the Original Number or the Base —TE pp. 184–185B; SB pp. 184–185 / PB pp. 207–208	Lesson 6 Problem Solving: Multi-step Ratio Problems —pp. 50–57	
7-7 Estimate with Percents —TE pp. 186–187B; SB pp. 186–187 / PB pp. 209–210	Lesson 7 Problem Solving: Multi-step Percent Problems —pp. 58–65	
7-8 Percent Increase —TE pp. 188–189B; SB pp. 188–189 / PB pp. 211–212	Lesson 6 Problem Solving: Multi-step Ratio Problems —pp. 50–57	7.RP.3 Use proportional relationships to solve multistep ratio and percent problems. <i>Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.</i>
7-9 Percent Decrease —TE pp. 190–191B; SB pp. 190–191 / PB pp. 213–214	Lesson 7 Problem Solving: Multi-step Percent Problems —pp. 58–65	
*7-9A Percent Error —pp. Online		
7-10 Sales Tax and Tips —TE pp. 192–193B; SB pp. 192–193 / PB pp. 215–216	Lesson 6 Problem Solving: Multi-step Ratio Problems —pp. 50–57	7.EE.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. <i>For example, $a + 0.05a = 1.05a$ means that “increase by 5%” is the same as “multiply by 1.05.”</i>
7-11 Discount and Markup —TE pp. 194–195B; SB pp. 194–195 / PB pp. 217–218	Lesson 7 Problem Solving: Multi-step Percent Problems —pp. 58–65	
*7-11A Equivalent Expressions for Percents —pp. Online	Lesson 16 Combine Like Terms to Simplify Linear Expressions —pp. 142–149	
	Lesson 17 Expand and Factor Linear Expressions —pp. 150–157	

Chapter 7 Percent and Consumer Applications

FUNDAMENTALS OF ALGEBRA, GRADE 7	COMMON CORE PROGRESS MATHEMATICS, GRADE 7	COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7
<p>7-12 Commission—TE pp. 196–197B; SB pp. 196–197 / PB pp. 219–220</p>	<p>Lesson 6 Problem Solving: Multi-step Ratio Problems—pp. 50–57</p>	<p>7.RP.3 Use proportional relationships to solve multistep ratio and percent problems.</p>
<p>7-13 Simple Interest—TE pp. 198–199B; SB pp. 198–199 / PB pp. 221–222</p>	<p>Lesson 7 Problem Solving: Multi-step Percent Problems—pp. 58–65</p>	<p><i>Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.</i></p>
<p>7-14 Compound Interest—TE pp. 200–201B; SB pp. 200–201 / PB pp. 223–224</p>		
<p>7-15 Problem Solving Strategy: Reason Logically—TE pp. 202–203B; SB pp. 202–203 / PB pp. 225–226</p>	<p>Lesson 15 Apply Rational-Number Operations—pp. 128–135</p>	<p>7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹</p>
	<p>Lesson 18 Problem Solving: Multi-step Problems with Rational Numbers—pp. 158–165</p>	<p>¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.</p> <p>7.EE.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.</p> <p><i>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.</i></p>

Chapter 8 Data Analysis and Statistics

FUNDAMENTALS OF ALGEBRA, GRADE 7

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

***8-1A** **Use Samples to Make Predictions**—pp. Online

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

Lesson 30 **Understand Sampling**—pp. 266–273

Lesson 31 **Use Sampling to Draw Inferences**—pp. 274–281

Lesson 31 **Use Sampling to Draw Inferences**—pp. 274–281

Lesson 35 **Relate Relative Frequency and Probability**—pp. 306–313

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

7.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.

7.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.

7.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.

7.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, and predict the approximate relative frequency given the probability.

– continued on next page –

Chapter 8 Data Analysis and Statistics

FUNDAMENTALS OF ALGEBRA, GRADE 7

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

– continued from previous page –

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.

- 8-2 Measures of Central Tendency and Range**—TE pp. 210–211B; SB pp. 210–211 / PB pp. 237–238

- 8-3 Interpret Data**—TE pp. 212–213B; SB pp. 212–213 / PB pp. 239–240

- 8-4 Choose an Appropriate Graph**—TE pp. 214–215B; SB pp. 214–215 / PB pp. 241–242

- 8-5 Multiple Bar Graphs**—TE pp. 216–217B; SB pp. 216–217 / PB pp. 243–244

- 8-6 Histograms**—TE pp. 218–219B; SB pp. 218–219 / PB pp. 245–246

- 8-7 Stem-and-Leaf Plots**—TE pp. 220–221B; SB pp. 220–221 / PB pp. 247–248

- 8-8 Box-and-Whisker Plots**—TE pp. 222–223B; SB pp. 222–223 / PB pp. 249–250

Lesson 37 Finding Experimental Probability—pp. 322–329

7.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?

Chapter 8 Data Analysis and Statistics

FUNDAMENTALS OF ALGEBRA, GRADE 7

***8-8A Variability**—pp. Online

***8-8B Mean Absolute Deviation**—pp. Online

8-8C Comparing Data Sets—pp. Online

8-9 Venn Diagrams—TE pp. 224–225B; SB pp. 224–225 / PB pp. 251–252

8-10 Multiple Line Graphs—TE pp. 226–227B; SB pp. 226–227 / PB pp. 253–254

8-11 Scatter Plots—TE pp. 228–229B; SB pp. 228–229 / PB pp. 255–256

8-12 Misleading Statistics and Graphs—TE pp. 230–231B; SB pp. 230–231 / PB pp. 257–258

8-13 Technology: Create Graphs—TE pp. 232–233B; SB pp. 232–233 / PB pp. 259–260

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

Lesson 32 Use Visual Overlap to Compare Distributions—pp. 282–289

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

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

7.SP.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.

7.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.

Chapter 8 Data Analysis and Statistics

FUNDAMENTALS OF ALGEBRA, GRADE 7

8-14 Problem Solving: Review of Strategies—TE pp. 234–235B; SB pp. 234–235 / PB pp. 261–262

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

Lesson 1 Compute Unit Rates—pp. 10–17

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

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

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

7.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 $\frac{1}{2}$ 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.

7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹

¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

7.EE.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 $\frac{1}{10}$ 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.

Chapter 9 Two-Dimensional Geometry

FUNDAMENTALS OF ALGEBRA, GRADE 7

9-1 Points, Lines, and Planes—TE pp. 240–241B; SB pp. 240–241 / PB pp. 271–272

9-2 Classify and Measure Angles—TE pp. 242–243B; SB pp. 242–243 / PB pp. 273–274

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

9-5 Congruent Angles and Line Segments—TE pp. 248–249B; SB pp. 248–249 / PB pp. 279–280

9-6 Line Constructions—TE pp. 250–251B; SB pp. 250–251 / PB pp. 281–282

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

9-8 Triangles—TE pp. 254–255B; SB pp. 254–255 / PB pp. 285–286

9-9 Congruent Triangles—TE pp. 256–257B; SB pp. 256–257 / PB pp. 287–288

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

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

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

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

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

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

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

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

7.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.

7.G.2 Lines are taken to lines, and line segments to line segments of the same length.

7.G.2 Lines are taken to lines, and line segments to line segments of the same length.

7.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.

Chapter 9 Two-Dimensional Geometry

FUNDAMENTALS OF ALGEBRA, GRADE 7

9-10 Triangle Constructions—TE pp. 258–259B; SB pp. 258–259 / PB pp. 289–290

9-11 Quadrilaterals—TE pp. 260–261B; SB pp. 260–261 / PB pp. 291–292

9-12 Circles—TE pp. 262–263B; SB pp. 262–263 / PB pp. 293–294

9-13 Make a Circle Graph—TE pp. 264–265B; SB pp. 264–265 / PB pp. 295–296

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

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

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

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

Lesson 1 Compute Unit Rates—pp. 10–17

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

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

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

7.G.2 Lines are taken to lines, and line segments to line segments of the same length.

7.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 $\frac{1}{2}$ 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.

7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹

¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

7.EE.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.

– continued on next page –

Chapter 9 Two-Dimensional Geometry

FUNDAMENTALS OF ALGEBRA, GRADE 7

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

– continued from previous page –

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.

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

7.G.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 29 Problem Solving: Area, Volume, and Surface Area—pp. 252–259

7.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.

Chapter 10 Two-Dimensional Geometry and Measurement Applications

FUNDAMENTALS OF ALGEBRA, GRADE 7

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

10-1 Precision and Accuracy in Measurement—TE pp. 272–273B; SB pp. 272–273 / PB pp. 307–308

10-2 Perimeter—TE pp. 274–275B; SB pp. 274–275 / PB pp. 309–310

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

7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹

¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

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

7.EE.3 Solve multi-step real-life and mathematical problems posed with positive and negative

– continued on next page –

Chapter 10 Two-Dimensional Geometry and Measurement Applications

FUNDAMENTALS OF ALGEBRA, GRADE 7

10-9 Area of Complex Figures—TE pp. 288–289B; SB pp. 288–289 / PB pp. 323–324

10-10 Symmetry—TE pp. 290–291B; SB pp. 290–291 / PB pp. 325–326

10-11 Tessellations—TE pp. 292–293B; SB pp. 292–293 / PB pp. 327–328

10-12 Technology: Relate Perimeter and Area—TE pp. 294–295B; SB pp. 294–295 / PB pp. 329–330

10-13 Problem Solving Strategy: Account for All Possibilities—TE pp. 296–297B; SB pp. 296–297 / PB pp. 331–332

Chapter 11 Three-Dimensional Geometry

FUNDAMENTALS OF ALGEBRA, GRADE 7

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**—pp. Online

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

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

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

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

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

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

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

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

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

7.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.

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.

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

7.G.3 Angles are taken to angles of the same measure.

7.G.3 Angles are taken to angles of the same measure.

7.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.

Chapter 11 Three-Dimensional Geometry

FUNDAMENTALS OF ALGEBRA, GRADE 7	COMMON CORE PROGRESS MATHEMATICS, GRADE 7	COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7
11-5 Surface Area of Cylinders and Cones —TE pp. 310–311B; SB pp. 310–311 / PB pp. 349–350	Lesson 26 Slice Three-Dimensional Figures —pp. 228–235	7.G.3 Angles are taken to angles of the same measure.
11-6 Estimate Surface Area —TE pp. 312–313B; SB pp. 312–313 / PB pp. 351–352	Lesson 29 Problem Solving: Area, Volume, and Surface Area —pp. 252–259	7.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.
11-7 Volume of Prisms —TE pp. 314–315B; SB pp. 314–315 / PB pp. 353–354		
11-8 Volume of Pyramids —TE pp. 316–317B; SB pp. 316–317 / PB pp. 355–356		
11-9 Volume of Cylinders and Cones —TE pp. 318–319B; SB pp. 318–319 / PB pp. 357–358		
11-10 Surface Area and Volume of Complex Three-Dimensional Figures —TE pp. 320–321B; SB pp. 320–321 / PB pp. 359–360		
*11-10A Write Expressions in Different Ways —pp. Online	Lesson 16 Combine Like Terms to Simplify Linear Expressions —pp. 142–149	7.EE.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. <i>For example, $a + 0.05a = 1.05a$ means that “increase by 5%” is the same as “multiply by 1.05.”</i>
11-11 Changing Dimensions of Three-Dimensional Figures —TE pp. 322–323B; SB pp. 322–323 / PB pp. 361–362	Lesson 17 Expand and Factor Linear Expressions —pp. 150–157	7.RP.2c Represent proportional relationships by equations. <i>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 $t = pn$.</i>
11-12 Problem Solving Strategy: Work Backward —TE pp. 324–325B; SB pp. 324–325 / PB pp. 363–364	Lesson 4 Represent Proportional Relationships with Equations —pp. 34–41	7.RP.2c Represent proportional relationships by equations. <i>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 $t = pn$.</i>
	Lesson 6 Problem Solving: Multi-step Ratio Problems —pp. 50–57	7.RP.3 Use proportional relationships to solve multistep ratio and percent problems.
	Lesson 7 Problem Solving: Multi-step Percent Problems —pp. 58–65	<i>Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.</i>

Chapter 11 Three-Dimensional Geometry

FUNDAMENTALS OF ALGEBRA, GRADE 7

11-12 Problem Solving Strategy: Work Backward—
TE pp. 324–325B; SB pp. 324–325 / PB pp. 363–
364

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

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

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

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

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

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

7.RP.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.

7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹

¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

7.EE.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 $\frac{1}{10}$ 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.

Chapter 12 Probability

FUNDAMENTALS OF ALGEBRA, GRADE 7

12-1 Sample Space—TE pp. 330–331B; SB pp. 330–331 / PB pp. 373–374

12-2 Fundamental Counting Principle and Factorials—TE pp. 332–333B; SB pp. 332–333 / PB pp. 375–376

12-3 Theoretical Probability—TE pp. 334–335B; SB pp. 334–335 / PB pp. 377–378

12-4 Experimental Probability—TE pp. 336–337B; SB pp. 336–337 / PB pp. 379–380

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

Lesson 34 Describe the Probability of a Chance Event—pp. 298–305

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

Lesson 34 Describe the Probability of a Chance Event—pp. 298–305

Lesson 35 Relate Relative Frequency and Probability—pp. 306–313

Lesson 36 Finding Theoretical Probability—pp. 314–321

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

7.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 $\frac{1}{2}$ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.

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.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 $\frac{1}{2}$ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.

7.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, 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.

7.SP.7a Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events.

– continued on next page –

Chapter 12 Probability

FUNDAMENTALS OF ALGEBRA, GRADE 7

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

– continued from previous page –

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.

12-5 Odds and Fairness—TE pp. 338–339B; SB pp. 338–339 / PB pp. 381–382

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

***12-6A Design a Simulation**—pp. Online

12-7 Permutations—TE pp. 342–343B; SB pp. 342–343 / PB pp. 385–386

12-8 Combinations—TE pp. 344–345B; SB pp. 344–345 / PB pp. 387–388

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

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

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.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.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.8c 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?

Chapter 12 Probability

FUNDAMENTALS OF ALGEBRA, GRADE 7

12-9 Problem Solving: Review of Strategies—TE pp. 346–347B; SB 346–347 / PB pp. 389–390

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

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

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

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

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹

¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

7.EE.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 $\frac{1}{10}$ 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.

7.G.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.

Chapter 13 Patterns, Relations, and Functions

FUNDAMENTALS OF ALGEBRA, GRADE 7

13-1 Arithmetic Sequences and Geometric Sequences—TE pp. 352–353B; SB pp. 352–353 / PB pp. 399–400

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

Chapter 13 Patterns, Relations, and Functions

FUNDAMENTALS OF ALGEBRA, GRADE 7

13-2 Algebraic Patterns and Sequences—TE pp. 354–355B; SB pp. 354–355 / PB pp. 401–402

13-3 Conjectures and Counterexamples—TE pp. 356–357B; SB pp. 356–357 / PB pp. 403–404

13-4 Relations and Functions—TE pp. 358–359B; SB pp. 358–359 / PB pp. 405–406

13-5 Functions—TE pp. 360–361B; SB pp. 360–361 / PB pp. 407–408

13-6 Graph Linear Functions—TE pp. 362–363B; SB pp. 362–363 / PB pp. 409–410

13-7 Slope—TE pp. 364–365B; SB pp. 364–365 / PB pp. 411–412

13-8 Nonlinear Functions—TE pp. 366–367B; SB pp. 366–367 / PB pp. 413–414

***13-8A Identify Constant of Proportionality**—pp. Online

***13-8B Graph Proportional Relationships**—pp. Online

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

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

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

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

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

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

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

7.RP.2b Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

7.RP.2b Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

7.RP.2b Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

7.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 $t = pn$.

7.RP.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.

Chapter 13 Patterns, Relations, and Functions

FUNDAMENTALS OF ALGEBRA, GRADE 7

- 13-9 Graph a Situation**—TE pp. 368–369B; SB pp. 368–369 / PB pp. 415–416
- 13-10 Graph Translations and Reflections**—TE pp. 370–371B; SB pp. 370–371 / PB pp. 417–418
- 13-11 Graph Rotations**—TE pp. 372–373B; SB pp. 372–373 / PB pp. 419–420
- 13-12 Graph Dilations**—TE pp. 374–375B; SB pp. 374–375 / PB pp. 421–422
- 13-13 Problem Solving Strategy: Consider Extreme Cases**—TE pp. 376–377B; SB pp. 376–377 / PB pp. 423–424

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

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

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

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

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

- 7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers.¹
- ¹Computations with rational numbers extend the rules for manipulating fractions to complex fractions.
- 7.EE.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 $\frac{1}{10}$ 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.*
- 7.G.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.

Chapter 14 Polynomials, Equations, and Inequalities

FUNDAMENTALS OF ALGEBRA, GRADE 7	COMMON CORE PROGRESS MATHEMATICS, GRADE 7	COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7
14-1 Polynomials —TE pp. 382–383B; SB pp. 382–383 / PB pp. 433–434		
14-2 Model Polynomials —TE pp. 384–385B; SB pp. 384–385 / PB pp. 435–436		
14-3 Add Polynomials —TE pp. 386–387B; SB pp. 386–387 / PB pp. 437–438	Lesson 16 Combine Like Terms to Simplify Linear Expressions —pp. 142–149	7.EE.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
14-4 Subtract Polynomials —TE pp. 388–389B; SB pp. 388–389 / PB pp. 439–440	Lesson 17 Expand and Factor Linear Expressions —pp. 150–157	
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		
14-9 Addition and Subtraction: Inequalities with Rational Numbers —TE pp. 398–399B; SB pp. 398–399 / PB pp. 449–450	Lesson 21 Solve Linear Inequalities —pp. 182–189	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.
14-10 Multiplication and Division: Inequalities with Rational Numbers —TE pp. 400–401B; SB pp. 400–401 / PB pp. 451–452	Lesson 22 Problem Solving: Linear Inequalities —pp. 190–197	<i>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.</i>
14-11 Problem Solving: Review of Strategies —TE pp. 402–403B; SB pp. 402–403 / PB pp. 453–454	Lesson 15 Apply Rational-Number Operations —pp. 128–135	7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers. ¹
		¹ Computations with rational numbers extend the rules for manipulating fractions to complex fractions.

Chapter 14 Polynomials, Equations, and Inequalities

FUNDAMENTALS OF ALGEBRA, GRADE 7

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

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

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

7.EE.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 $\frac{1}{10}$ 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.

Skills Update

FUNDAMENTALS OF ALGEBRA, GRADE 7

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7

- SU I. Place Value—SB p. 407—pp. SB p. 407**
- SU II. Compare and Order Whole Numbers—SB p. 407**
- SU III. Round Whole Numbers and Decimals—SB p. 408**
- SU IV. Compare and Order Decimals—SB p. 408**
- SU V. Estimate Sums and Differences—SB p. 409**
- SU VI. Add and Subtract Whole Numbers and Decimals—SB p. 409**
- SU VII. Multiplication Patterns—SB p. 410**
- SU VIII. Division Patterns—SB p. 410**

Skills Update

FUNDAMENTALS OF ALGEBRA, GRADE 7	
SU	IX. Estimate Products —SB p. 411
SU	X. Estimate Quotients —SB p. 411
SU	XI. Multiply Whole Numbers —SB p. 411
SU	XII. Divide Whole Numbers —SB p. 412
SU	XIII. Multiply Decimals —SB p. 412
SU	XIV. Divide Decimals —SB p. 413
SU	XV. Fractions Greater Than or Equal to 1 —SB p. 413
SU	XVI. Add and Subtract Fractions —SB p. 414
SU	XVII. Multiply Fractions —SB p. 414
SU	XVIII. Divide Fractions —SB p. 415
SU	XIX. Bar Graphs —SB p. 415
SU	XX. Line Graphs —SB p. 416
SU	XXI. Compute with Units of Measure —SB p. 416

COMMON CORE PROGRESS MATHEMATICS, GRADE 7

COMMON CORE STATE STANDARDS FOR MATHEMATICS, GRADE 7
