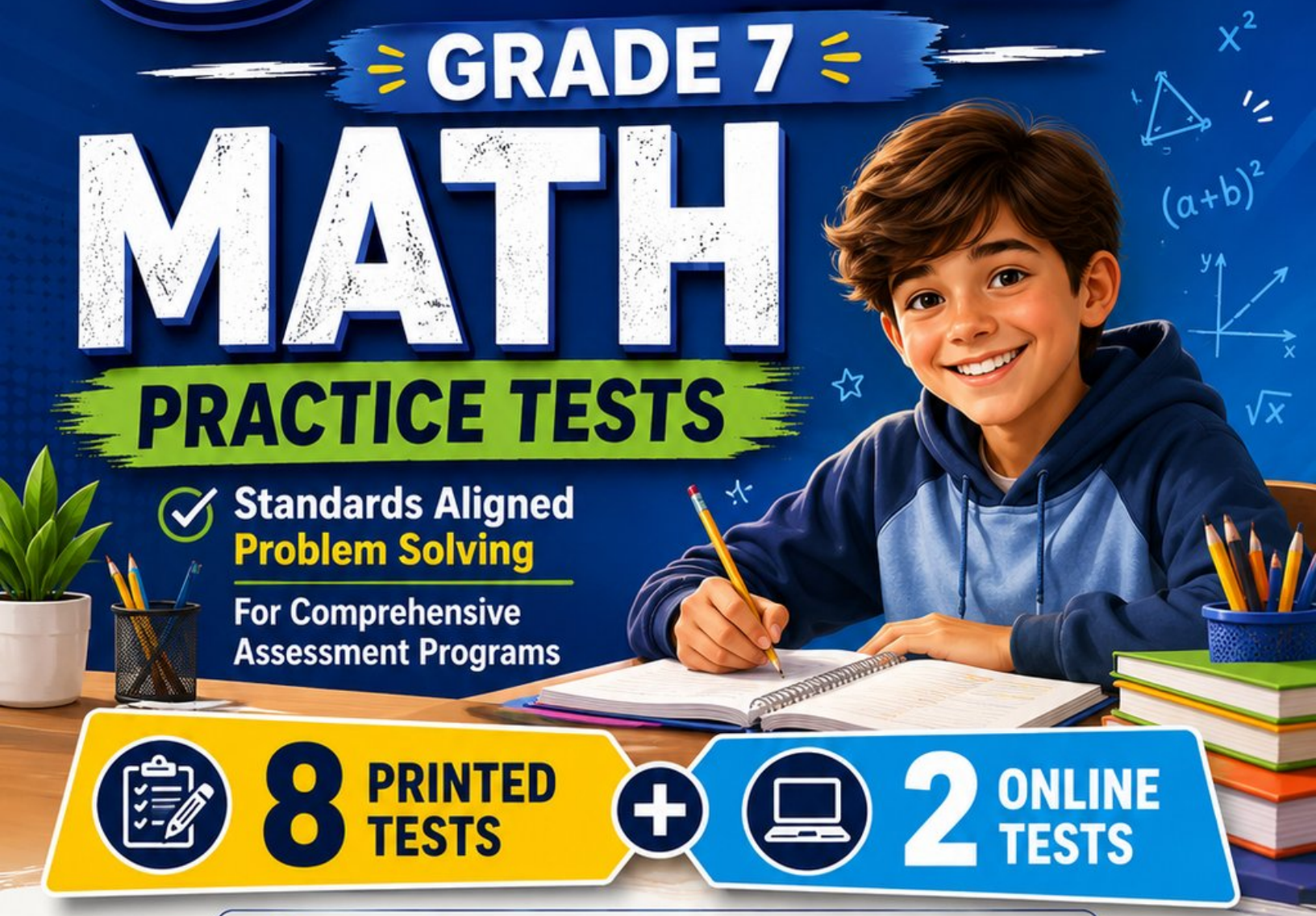
8 Minnesota MCA III

GRADE 7

MATH

PRACTICE TESTS



Standards Aligned
Problem Solving

For Comprehensive Assessment Programs

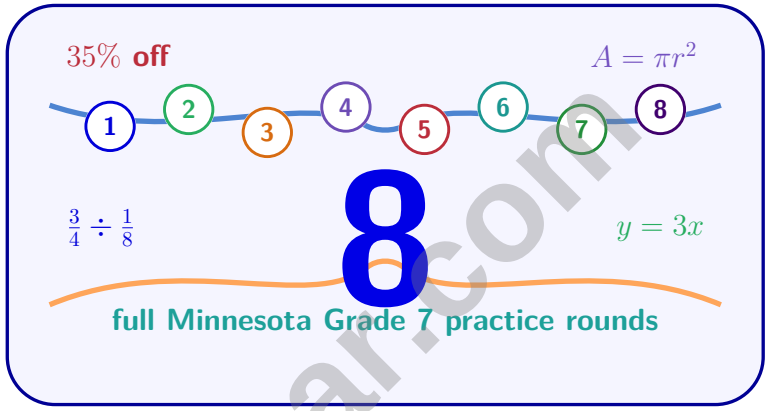
8 PRINTED TESTS + 2 ONLINE TESTS

Use these two additional online practice tests for extra review after the printed tests in this book.

BUILD CONFIDENCE | STRENGTHEN SKILLS | THINK SMARTER | BE TEST-READY

8 Minnesota MCA III Grade 7 Math Practice Tests

A stronger finish with Minnesota Grade 7 unit rates, percent reasoning, transformations, statistics, and compound events



Eight complete 40-question Grade 7 MCA III practice rounds with proportional relationships, percents, rational numbers, expressions, equations, geometry, statistics, probability, answer keys, and clear explanations for every item.

Jay Daie and Reza Nazari

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Welcome, Minnesota Grade 7 Problem Solver!

Eight focused rounds for sharper MCA III math thinking

This book gives you eight full Grade 7 MCA III math practice tests. Each round is built to help you notice structure, compare quantities, use proportional reasoning, handle rational numbers, and explain your thinking with care.

Your Minnesota Practice Promise

I will read every question carefully, choose a strategy that fits, write enough work to prove my answer, and use corrections as training for the next test.

How to Use This Book

An eight-session plan for confident Grade 7 review

1. **Warm up with the review pages.** Notice the big ideas before starting the tests.
2. **Complete one test at a time.** Treat each 40-question round like a real practice session.
3. **Show your reasoning.** Jot a proportion, equation, diagram, number line, or quick estimate when it helps.
4. **Correct actively.** Rework missed items before reading the explanation.
5. **Choose the next target.** After each test, name one skill and one habit to improve.

Minnesota review rhythm: Work a test, score it, study your misses, then come back ready for the next round with one clear goal.

What Is Inside?

Eight MCA III tests, 320 questions, and a complete review path

Part	What You Will Practice
Tests 1–3	Proportional relationships, unit rates, percents, rational-number operations, and careful reading.
Tests 4–6	Expressions, equations, inequalities, scale drawings, geometry, and multi-step problem solving.
Tests 7–8	Statistics, probability, mixed review, stamina, and choosing efficient strategies.
Answer Pages	Compact keys and explanations that show why each answer works.

The tests are mixed on purpose. Grade 7 success means recognizing which idea is being tested even when the next question changes format.

Table of Contents

1) What is the opposite of -15?

☐ A. 15 (correct)
☐ B. -15 (no sign change)
☐ C. 0 (neither opposite nor equal)
☐ D. $|-15|$ (absolute value, not opposite)

2) An athlete's weight decreases by $\frac{1}{6}$ of 180 pounds over the season. How much weight was lost?

☐ A. 10 pounds
☐ B. 20 pounds
☐ C. 30 pounds
☐ D. 150 pounds

3) A hiker is at an elevation of $1,450$ feet. She climbs up 325 feet, then descends 180 feet. What is her final elevation?

☐ A. $1,595$ feet
☐ B. $1,270$ feet
☐ C. $1,450$ feet
☐ D. $1,955$ feet

4) Which expression is equivalent to $x^2 \cdot x^7 \cdot x^3$?

☐ A. x^5
☐ B. x^{12}
☐ C. x^{13}
☐ D. x^{42}

5) Solve: $4x + 3 = 15$

☐ A. $x = 2$
☐ B. $x = 3$
☐ C. $x = 4$
☐ D. $x = 6$

6) A party planner charges \$12 per person for p people. A \$25 setup fee applies to each group of people. If the total is \$97, which equation correctly shows this cost structure?

☐ A. $12(p + 25) = 97$
☐ B. $(12 + 25)p = 97$
☐ C. $12p + 25 = 97$
☐ D. $25(12 - p) = 97$

7) A catering company charges a fixed price per meal. For a party of 8 people, the cost is \$160. How much is charged per meal?

☐ A. \$8
☐ B. \$160
☐ C. \$30
☐ D. \$20

8) A bank account loss of \$168 is distributed equally among 7 months. What is the loss per month?

☐ A. \$24 per month
☐ B. −\$24 per month
☐ C. \$168 per month
☐ D. Undefined

9) Which is the smallest number?

☐ A. 3.2×10^{-5}
☐ B. 3.2×10^{-4}
☐ C. 3.2×10^{-6}
☐ D. 3.2×10^{-3}

10) Simplify: $(8u - 6) - (5u + 3)$

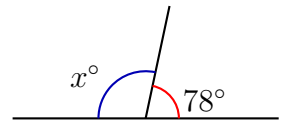
☐ A. $3u - 9$
☐ B. $3u + 9$
☐ C. $13u - 9$
☐ D. $3u - 3$

11) Simplify: $-2(x - 3) + 5x$.

☐ A. $-2x + 6 + 5x = 3x + 6$
☐ B. $3x + 3$
☐ C. $-7x + 6$
☐ D. $5x - 6$

12) A data company offers cloud storage at \$9.99 per month with a one-time activation fee of \$29.99. Which expression shows the total cost C for n months?

☐ A. $C = 29.99n + 9.99$
☐ B. $C = 9.99n + 29.99$
☐ C. $C = 9.99 + 29.99n$
☐ D. $C = (9.99 + 29.99)n$

13) 

Two lines intersect. One angle measures 78°. The angle adjacent to this angle is x. What is x?

☐ A. 12° ☐ C. 102°
☐ B. 78° ☐ D. 180°

14) A bank account earns 3% annual interest on a balance of \$1 000. How much interest will the account earn in one year?

15) Which product is the smallest?

☐ A. 5×2 ☐ C. $5 \times (-2)$
☐ B. $(-5) \times 3$ ☐ D. $(-5) \times (-2)$

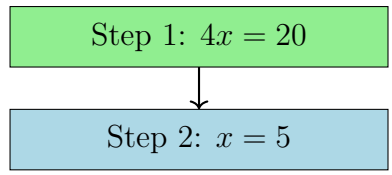
16) A box plot compares the test scores of two tutoring methods. Traditional Method: Median = 75, Range = 25. New Method: Median = 78, Range = 35. Which method is better?

☐ A. New Method (higher median, but less consistent)
☐ B. Traditional Method (consistent with reasonable performance)
☐ C. Both methods produce identical results
☐ D. New Method is clearly superior

1) Which value is NOT a valid probability?

☐ A. 0
☐ B. 0.5
☐ C. 1
☐ D. 1.01

2)



What equation did Step 1 start from?

☐ A. $4x + 5 = 20$
☐ B. $4x - 5 = 15$
☐ C. $4x + 8 = 28$
☐ D. $4x - 4 = 16$

3) Combine: $(-7m - 3) + (11m + 9)$

☐ A. $4m + 6$
☐ B. $4m - 6$
☐ C. $-18m + 6$
☐ D. $18m + 6$

4) A plumber charges \$65 for a service call and \$40 per hour of work. The total bill was \$185. Which equation helps find h, the number of hours worked?

☐ A. $40 + 65h = 185$
☐ B. $65 + 40h = 185$
☐ C. $65(h + 40) = 185$
☐ D. $40h = 185 + 65$

5) Which model correctly shows $5+(-5)=0$ using a chip diagram where red = positive and blue = negative?

Model A:

5 red + 2 blue

Model B:

5 red + 5 blue

☐ A. Model A
☐ B. Both models show the same thing
☐ C. Neither model
☐ D. Model B

6) A bike shop offers frames in 2 sizes (Small, Large) and 4 colors (Black, White, Red, Green). A customer mistakenly counts the colors first as 4, then multiplies by only 1 size instead of 2. What error did the customer make, and what is the correct answer?

☐ A. The error is using addition; correct: 8
☐ B. The error is forgetting one size; correct: 8
☐ C. The error is confusing size and color; correct: 6
☐ D. The error is not using the counting principle; correct: 4

7) A line graph shows monthly website traffic (in thousands of visitors): Jan 10, Feb 15, Mar 20, Apr 18, May 25, Jun 30. Which month shows the largest increase compared to the previous month?

☐ A. June (increase of 5)
☐ B. March (increase of 5)
☐ C. May (increase of 7)
☐ D. February (increase of 5)

1) A composite figure is made of a right isosceles triangle (legs 8 cm each) attached to a square (8 cm × 8 cm). What is the total area?

☐ A. 64 cm^2
☐ B. 96 cm^2
☐ C. 100 cm^2
☐ D. 128 cm^2

2) A shape has a vertex at $(2, 2)$. After a transformation, the vertex moves to $(-2, 2)$. Which of the following transformations could produce this result?

☐ A. Reflection over the y-axis
☐ B. Reflection over the x-axis
☐ C. Rotation of 180°
☐ D. Reflection over the line $y = x$

3) A histogram shows the age distribution of volunteers at a community center. The interval 40–50 years has a frequency of 18. If there are 120 total volunteers, what percentage are in the 40–50 age range?

☐ A. 12.5%
☐ B. 15%
☐ C. 18%
☐ D. 40%

4) A stem-and-leaf plot of student heights (in cm) shows:

Stem	Leaves
14	8, 9
15	0, 2, 4, 6, 8
16	1, 3, 5, 7, 9
17	0, 2, 4

What is the mean of the data? (Rounded to nearest whole number)

☐ A. 158
☐ B. 159
☐ C. 160
☐ D. 161

5) Expand: $(x + 5) \cdot (-2)$

- ☐ A. $-2x - 10$
- ☐ B. $-2x + 5$
- ☐ C. $2x - 10$
- ☐ D. $x - 10$

6) When subtracting a negative number, why do we add its opposite instead?

- ☐ A. Because subtraction and addition are the same operation
- ☐ B. Because subtracting the opposite of a number is equivalent to adding the number itself
- ☐ C. To make the problem easier to solve
- ☐ D. Because negative numbers cannot be subtracted

7)

Simple Interest Balance Growth

Year 0	Year 1	Year 2	Year 3
\$1000	\$1050	\$1100	\$1150
P	+\$50	+\$50	+\$50

Based on the table, what is the annual interest rate?

- ☐ A. 2.5%
- ☐ B. 10%
- ☐ C. 7.5%
- ☐ D. 5%

8) Identify the unlike terms in this expression: $4a + 3b + 2a + 5c$

- ☐ A. $4a$ and $2a$
- ☐ B. $3b$ and $5c$
- ☐ C. $4a$ and $3b$
- ☐ D. $2a$ and $5c$

Minnesota MCA III Grade 7 Practice Test Answer Keys

How to use this section with a Grade 7 student:

1. check the answer first and circle any item that needs another look
2. retry the problem with fresh work before reading the explanation
3. write one short lesson learned from each missed or guessed item

A strong review routine turns every correction into a sharper plan for the next Minnesota MCA III practice test.

Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

1) **Choice A is correct.** 7.NS.1-7.NS.3 The opposite of a number reverses its sign. The opposite of -15 is 15. Note: the absolute value $|-15| = 15$ looks the same but represents distance, not the additive inverse.
2) **Choice C is correct.** 7.NS.1-7.NS.3 Weight loss: $\frac{1}{6} \times 180 = 30$ pounds.
3) **Choice A is correct.** 7.NS.1-7.NS.3 Final elevation $= 1,450 + 325 - 180 = 1,595$ feet.
4) **Choice B is correct.** 7.EE.1-7.EE.2 Add all exponents: $x^2 \cdot x^7 \cdot x^3 = x^{2+7+3} = x^{12}$.
5) **Choice B is correct.** 7.EE.3-7.EE.4 Subtract 3: $4x = 12$. Divide by 4: $x = 3$.
6) **Choice C is correct.** 7.EE.4a The setup fee ($25) is a one-time charge, so it is not distributed. Cost is $12 per p people plus $25: $12p + 25 = 97$. Solving: $12p = 72$, so $p = 6$ people.
7) **Choice D is correct.** 7.RP.1-7.RP.3 Unit rate $= \$160 \div 8 = \$20$ per meal.
8) **Choice A is correct.** 7.NS.1-7.NS.3 A loss of $168 is -168. Loss per month: $(-168) \div 7 = -24$. This means the account loses $24 per month (or has a change of $-\$24$/month).
9) **Choice C is correct.** 7.NS.1-7.NS.3 With the same coefficient, the number with the most negative exponent is the smallest. -6 is most negative.
10) **Choice A is correct.** 7.EE.1-7.EE.2 Distribute the negative: $8u - 6 - 5u - 3 = (8u - 5u) + (-6 - 3) = 3u - 9$.
11) **Choice A is correct.** 7.EE.1-7.EE.2 Distribute -2: $-2(x) - 2(-3) + 5x = -2x + 6 + 5x$. Combine: $-2x + 5x + 6 = 3x + 6$.
12) **Choice B is correct.** 7.EE.4a Activation fee is $29.99 plus $9.99 per month. Formula: $C = 9.99n + 29.99$.
13) **Choice C is correct.** 7.G.1-7.G.5 Adjacent angles on a line are supplementary: $x = 180 - 78 = 102°$.
14) **The correct answer is** $30 . 7.RP.3 Interest earned: $0.03 \times 1000 = \$30$.
15) **Choice B is correct.** 7.NS.2 A: $5 \times 2 = 10$. B: $(-5) \times 3 = -15$. C: $5 \times (-2) = -10$. D: $(-5) \times (-2) = 10$. The smallest is -15 (only B).
16) **Choice A is correct.** 7.SP.3 The New Method has a higher median (78 vs. 75), suggesting better average performance. However, its larger range (35 vs. 25) indicates less consistency. Trade-off: higher average but more variability.
17) **Choice D is correct.** 7.SP.5-7.SP.8 Option D: $0.4 + 0.4 + 0.3 = 1.1 \neq 1$, so it is not valid. All other options sum to 1.
18) **The correct answer is B,C.** 7.NS.1-7.NS.3 Choice A: $-\frac{1}{2} + \frac{1}{2} = 0$ (zero, not negative). Choice B: $-3.5 - 2.1 = -5.6$ (negative, correct). Choice C: $4 - 9 = -5$ (negative, correct). Choice D: $\frac{2}{3} + \frac{1}{3} = 1$ (positive).
19) **Choice D is correct.** 7.RP.3 Commission rate $= \frac{100}{250} = 0.40 = 40\%$.
20) **Choice D is correct.** 7.RP.1-7.RP.3 The unit rate is $\frac{5}{2} = 2.5$. For $x = 6$: $y = 6 \times 2.5 = 15$.
21) **Choice C is correct.** 7.G.4-7.G.6 The L-shape is split into two rectangles: one is 7×5, the other is 3×3. Add their areas: $35 + 9 = 44$ m^2.
22) **Choice A is correct.** 7.G.4-7.G.6 1 m = 100 cm, so 1 m^3 $= (100)^3 = 1{,}000{,}000$ cm^3 $= 10^6$ cm^3. Thus 2 m^3 $= 2 \times 10^6$ cm^3.
23) **Choice A is correct.** 7.G.1-7.G.5 Given two adjacent sides of a rectangle (8 cm and 6 cm), the rectangle is completely determined. The circle's radius is half the diagonal length $\sqrt{8^2 + 6^2}/2 = 5$ cm.
24) **Choice C is correct.** 7.G.4-7.G.6 You can draw a radius from the center to any point on the circle, so there are infinitely many radii.
25) **The correct answer is** 11 . 7.NS.1-7.NS.3 $\sqrt{25} = 5$ and $\sqrt{36} = 6$, so $5 + 6 = 11$.
26) **The correct answer is** 9 . 7.EE.1-7.EE.2 Substitute: $\frac{6+9+12}{3} = \frac{27}{3} = 9$.
27) **Choice D is correct.** 7.G.1-7.G.5 With two known angles, the third angle is $180° - 38° - 67° = 75°$ (fixed). However, varying the side opposite any angle creates infinitely many similar but non-congruent triangles.
28) **The correct answer is** 14 . 7.EE.1-7.EE.2 The expression simplifies to $5a + 4$. With $a = 2$, the value is $10 + 4 = 14$.
29) **Choice C is correct.** 7.SP.1-7.SP.4 $\frac{27}{90} = \frac{x}{2700}$. Reduce to $\frac{3}{10} \Rightarrow x = 810$.
30) **Choice D is correct.** 7.RP.1-7.RP.3 Maya: $\frac{7/8}{1/4} = \frac{7}{8} \times 4 = \frac{7}{2} = 3.5$ mph. Alex: $\frac{5/6}{1/3} = \frac{5}{6} \times 3 = \frac{5}{2} = 2.5$ mph. Maya is faster.

Author's Note

A Math Hero Moment

Hi, Math Hero!

◇ This wide-ranging book gave you eight serious Grade 7 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. You showed up for Grade 7 practice again and again. That is what real growth looks like: steady effort, honest review, and a willingness to try. ◇

⋆ **Remember this:** A math hero is not someone who never misses a question. A math hero learns from the miss and comes back stronger. ⋆

Hero Habits

- **Courage:** You try problems that are not automatic.
- **Honesty:** You review what needs work.
- **Patience:** You let skills grow over time.
- **Pride:** You recognize the effort you gave.

Grade 7 test-day tip: Save one solved problem you are proud of. Looking back at progress helps motivation stay strong.

If you want to share something or ask a question, please email me at jay@testinar.com.

Jay Daie

Your Math Hero Guide

PRACTICE TODAY. SUCCEED TOMORROW!

This book includes **8** full-length Math practice tests and **2** online tests to help Grade 7 students build confidence, strengthen skills, and excel on standardized assessments.

Each practice test is carefully crafted to reflect the latest standards and includes a variety of question types, realistic test conditions, and detailed answer explanations.

Perfect for classroom use, homework, test preparation, and extra practice at home.

THIS BOOK INCLUDES:

- **8** Full-Length Printed Tests
- **2** Online Practice Tests
- Detailed Answer Explanations

MORE PRACTICE. GREATER RESULTS.

Give your child the tools to build strong math skills, confidence, and a positive attitude toward learning.

WHAT YOU'LL GAIN

Stronger Math Skills
Build a solid foundation through targeted practice and review.

Better Problem Solving
Develop logical thinking and effective solution strategies.

Deeper Understanding
Reinforce key concepts with clear explanations and meaningful practice.

Test Confidence
Familiarize with test formats and improve accuracy and speed.

Achieve Success
Build confidence and perform your best on test day.

TOPICS COVERED

- Ratios & Proportions
- The Number System
- Expressions & Equations
- Geometry
- Percents & Decimals
- Statistics & Probability
- Data Analysis
- Measurement & Conversions
- Algebraic Thinking
- And More!

2 ONLINE TESTS

Use these two additional online practice tests for extra review after the printed tests in this book.

2 EXTRA ONLINE TEST ACCESS CODE IS INSIDE THE BOOK!

Don't lose it—your extra practice and success start here!

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FOR MORE PRACTICE TESTS

PRACTICE REGULARLY | STAY FOCUSED | SOLVE CONFIDENTLY | SUCCEED BRIGHTLY