

6

WEST VIRGINIA

WVGSA

GRADE

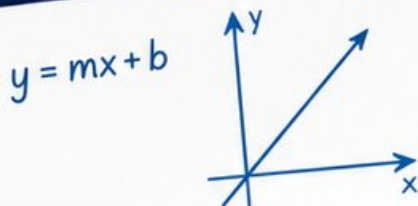
7

MATH

PRACTICE TESTS



Standards Aligned
Problem Solving For
Comprehensive
Assessment Programs



$$2(x - 3) = 4x + 6$$

6 PRINTED TESTS



2 ONLINE TESTS



USE THESE TWO
**ADDITIONAL ONLINE
PRACTICE TESTS**
FOR EXTRA REVIEW AFTER
THE PRINTED TESTS
IN THIS BOOK.



Build
Confidence



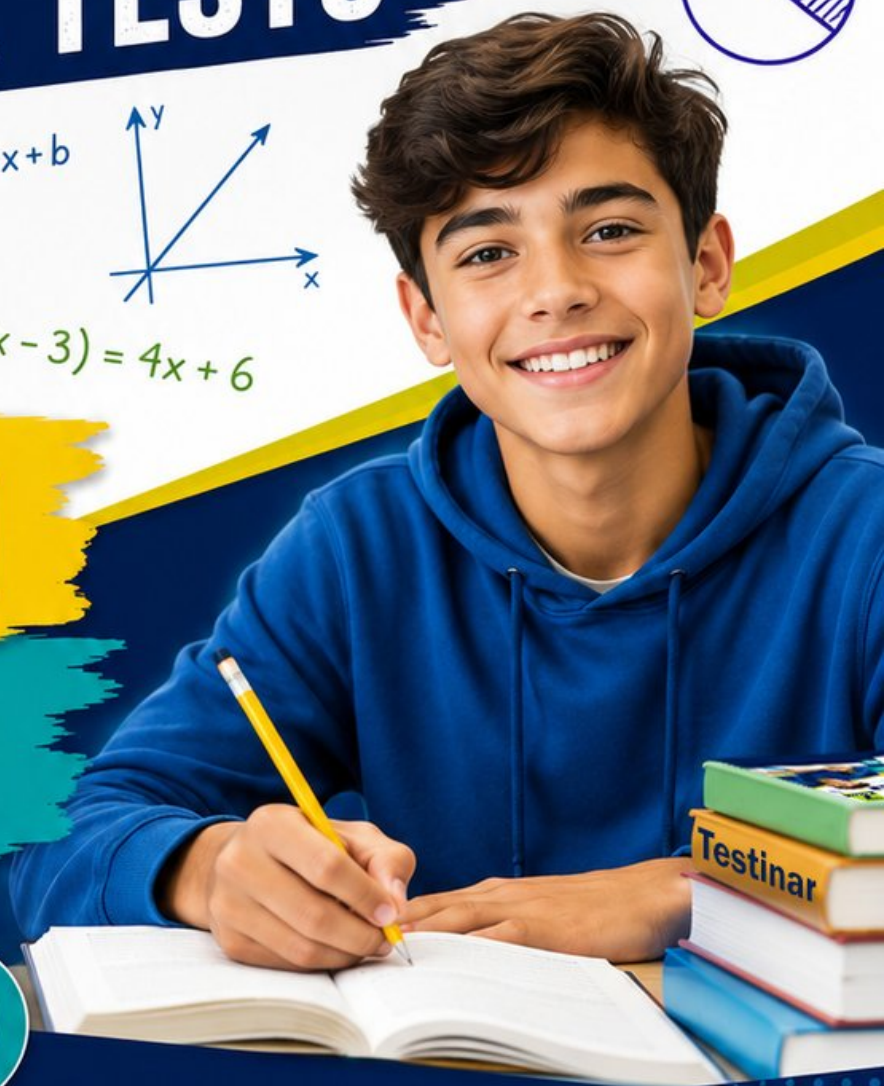
Strengthen
Math Skills



Detailed Answers
& Explanations



Improve Test
Performance



6 West Virginia WVGSA Grade 7 Math Practice Tests

Standards-Aligned Practice with Review, Answer Keys, and Explanations



Six complete 40-question Grade 7 WVGSA 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, West Virginia Grade 7 Problem Solver!

Six focused rounds for sharper WVGSA math thinking

This book gives you six full Grade 7 WVGSA 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 West Virginia 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.

Read

Model

Verify

How to Use This Book

A six-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.

West Virginia 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?

Six WVGSA tests, 240 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.
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.

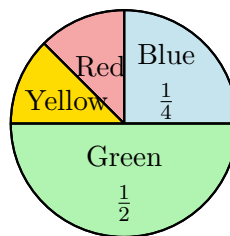


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- 1) A rectangular aquarium tank is 50 cm by 80 cm. An architect creates a scale drawing at scale 1 cm : 10 cm. What are the dimensions of the drawing?
- ☐ A. 5 cm by 8 cm ☐ C. 50 cm by 80 cm
- ☐ B. 10 cm by 16 cm ☐ D. 250 cm by 400 cm
- 2) A paint mixture uses $\frac{2}{5}$ can of white paint and $\frac{3}{5}$ can of blue paint. What is the ratio of white to blue?
- ☐ A. 5 to 3 ☐ C. 2 to 5
- ☐ B. 3 to 2 ☐ D. 2 to 3
- 3) Marcus saves money each week. He already has \$15 and saves \$8 per week. After how many weeks will he have \$63?
- ☐ A. 4 weeks ☐ C. 8 weeks
- ☐ B. 6 weeks ☐ D. 10 weeks
- 4) A survey asks: "How many hours did you study for math?" This is a:
- ☐ A. Biased question ☐ C. Leading question
- ☐ B. Neutral question ☐ D. Voluntary response question



5)

A spinner labeled with probability regions shows: $P(\text{blue}) = \frac{1}{4}$, $P(\text{green}) = \frac{1}{2}$. If red and yellow split the remaining space equally, what is $P(\text{red})$?

- ☐ A. $\frac{1}{8}$ ☐ C. $\frac{1}{2}$
- ☐ B. $\frac{1}{4}$ ☐ D. $\frac{3}{8}$



6) In a compound experiment, you draw a letter from $\{A, E, I\}$ and select a number from 1 to 4. How many outcomes are in the sample space?

☐ A. 7

☐ C. 12

☐ B. 9

☐ D. 16

7) The total surface area of a cylinder with radius r and height h can be expressed as:

☐ A. $\pi r^2 + 2\pi rh$
☐ C. $2\pi r(r + h)$
☐ B. $2\pi rh$ only

☐ D. $\pi r(2r + 2h)$

8) Two basketball teams' free-throw percentages over 10 games are shown below.

Team	Mean	MAD
Tigers	75%	8%
Sharks	72%	4%

Based on this data, which statement is most accurate?

☐ A. The Sharks are more reliable free-throw shooters

☐ C. The Sharks score more points overall

☐ B. The Tigers never miss a free throw

☐ D. Both teams have the same consistency

9) A histogram shows the weights (in pounds) of 50 dogs. The intervals are 10–20 lbs, 20–30 lbs, 30–40 lbs, and 40–50 lbs, with frequencies 8, 15, 20, and 7. Which interval contains the mode?

☐ A. 10–20 lbs

☐ C. 30–40 lbs

☐ B. 20–30 lbs

☐ D. 40–50 lbs


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- 10) A photograph is enlarged from 4 inches wide by 6 inches tall to 10 inches wide. How tall is the enlarged photograph?

- 11) A test for a new medicine was conducted on 1000 patients. 850 patients showed improvement. What is the experimental probability that a patient will show improvement?

- ☐ A. 0.15 ☐ C. 1.18
☐ B. 0.85 ☐ D. 1.76

- 12) A spinner has 5 equal sections numbered 1 through 5. You spin twice. What is the probability of NOT spinning a 1 on either spin?

- ☐ A. $\frac{2}{5}$ ☐ C. $\frac{16}{25}$
☐ B. $\frac{8}{25}$ ☐ D. $\frac{1}{25}$

- 13) The stem-and-leaf plot shows:

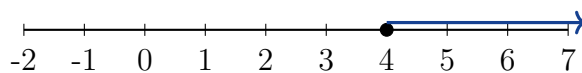
Stem	Leaves
10	1, 5, 7
11	2, 3, 8, 9
12	0, 4, 6

What is the mode?

- ☐ A. 112 ☐ C. 119
☐ B. 118 ☐ D. No mode



1) Solve $x + 6 \geq 10$ and match it to the correct number line.

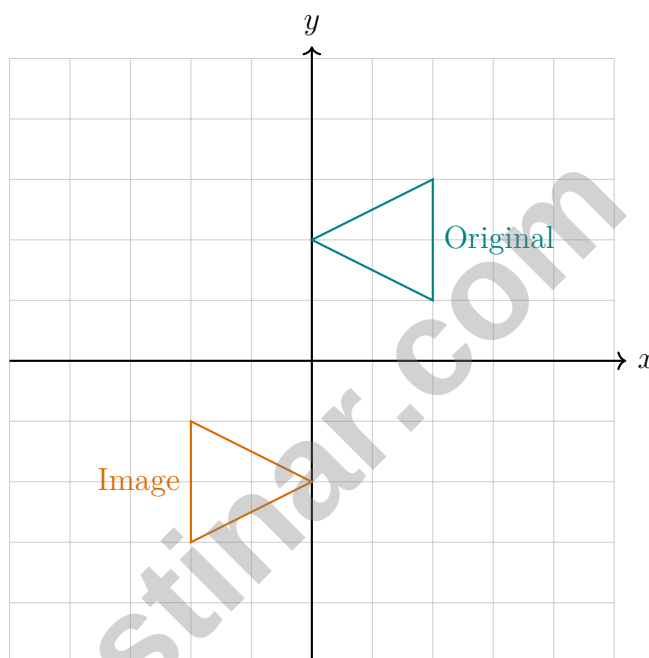


☐ A. $x \geq 4$

☐ C. $x \leq 4$

☐ B. $x > 4$

☐ D. $x < 4$



2)

The teal triangle is transformed to the orange triangle. What is the transformation?

- ☐ A. Reflection over the y -axis followed by reflection over the x -axis
- ☐ B. Rotation of 180° about the origin
- ☐ C. Reflection over the line $y = -x$
- ☐ D. Translation by $(-2, -4)$



3) The value of a car decreased from \$24 000 to \$18 000. What is the percent decrease?

- ☐ A. 33% ☐ C. 16.7%
☐ B. 20% ☐ D. 25%

4) To simulate drawing a card from a standard deck and finding whether it is a heart (probability $\frac{1}{4}$), which spinner design is best?

- ☐ A. Spinner with 2 equal sections (one shaded, one not) ☐ C. Spinner with 6 equal sections (two shaded, four not)
☐ B. Spinner with 4 equal sections (one shaded, three not) ☐ D. Spinner with 13 equal sections (one shaded, twelve not)

5) A coin is flipped and a six-sided die is rolled. How many outcomes are in the sample space?

- ☐ A. 6 ☐ C. 12
☐ B. 8 ☐ D. 36

6) A photographer estimated 180 photos would be taken at an event, but 200 were actually taken. What is the percent error?

- ☐ A. 20% ☐ C. 11.1%
☐ B. 9% ☐ D. 10%

7) Expand and simplify: $3(x + 2) + 2(x - 1)$

- ☐ A. $5x + 4$ ☐ C. $5x + 1$
☐ B. $5x + 6$ ☐ D. $6x + 4$



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1) Which value is equivalent to 2.5×10^{-3} ?

☐ A. 0.025

☐ C. 2,500

☐ B. 0.0025

☐ D. 25,000

2) A circular swimming pool has diameter 15 meters. The owner wants to add a rope around the edge. How much rope is needed? Use $\pi \approx \frac{22}{7}$.

☐ A. $\frac{165}{7}$ m

☐ C. $\frac{495}{7}$ m

☐ B. $\frac{330}{7}$ m

☐ D. $\frac{660}{7}$ m

3) A student mistakenly used the formula $A = \pi d^2$ instead of $A = \pi r^2$ for a circle with diameter 8 inches. What answer did the student get? (Use $\pi \approx 3.14$.)

☐ A. 25.12 in²

☐ C. 100.48 in²

☐ B. 50.24 in²

☐ D. 200.96 in²

4) A cylindrical battery has a radius of 0.9 cm and a height of 4.5 cm. What is its volume? Use $\pi \approx 3.14$.

☐ A. 11.475 cm³

☐ C. 14.553 cm³

☐ B. 12.69 cm³

☐ D. 15.84 cm³

5) Two student groups' homework completion times (in minutes):

Group	Mean	Median	Range
Group 1	30	32	10
Group 2	28	25	30

Which inference is most justified?

☐ A. Group 1 works faster on average

☐ C. Group 1 is more efficient because median exceeds mean

☐ B. Group 2 students have more variable completion times

☐ D. Both groups have identical distributions



- 6) Triangle ABC has sides 13 cm, 5 cm, and 12 cm. Compute $13^2 - (5^2 + 12^2)$.

- 7) A back-to-back stem-and-leaf plot compares the heights of two basketball teams. The stem represents tens of inches. For Team A, stem 7 has leaves 0, 2, 4, 6 (on the left). For Team B, stem 7 has leaves 1, 3, 5, 8 (on the right). How many players are in the 70–79 inch range in total?

- ☐ A. 4 players ☐ C. 12 players
☐ B. 8 players ☐ D. 16 players

- 8) A student was asked to rewrite $0.3p + 0.3q$ in factored form. They wrote $0.3(p + q)$. Is their answer correct, and why?

- ☐ A. Yes; 0.3 is a common factor of both terms ☐ C. No; you cannot factor out decimals
☐ B. Yes; adding decimals always works this way ☐ D. No; 0.3 is not the GCF

- 9) A student is analyzing a histogram showing GPA distribution for two graduating classes. Class of 2023: concentrated at 3.2–3.8. Class of 2024: concentrated at 3.0–3.6. Which statement is a valid comparison?

- ☐ A. Class 2023 has a higher typical GPA than Class 2024 ☐ C. Both classes have identical GPAs
☐ B. Class 2024 performed better overall ☐ D. GPA cannot be compared between classes



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West Virginia WVGSA 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 West Virginia WVGSA practice test.



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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice A is correct.** (7.G.1-7.G.5) Divide by scale factor: $50 \text{ cm} \div 10 \text{ cm/cm} = 5 \text{ cm}$ and $80 \div 10 = 8 \text{ cm}$.
- 2) **Choice D is correct.** (7.RP.1-7.RP.3) The ratio is $\frac{2}{5} : \frac{3}{5} = 2 : 3$.
- 3) **Choice B is correct.** (7.EE.3-7.EE.4) Set up: $8w + 15 = 63 \Rightarrow 8w = 48 \Rightarrow w = 6$.
- 4) **Choice B is correct.** (7.SP.1-7.SP.4) This question is straightforward and doesn't suggest any particular answer. It is neutral because it simply asks for factual information without bias.
- 5) **Choice A is correct.** (7.SP.5-7.SP.8) Remaining space: $1 - \frac{1}{4} - \frac{1}{2} = \frac{1}{4}$. Split equally: $\frac{1}{4} \div 2 = \frac{1}{8}$.
- 6) **Choice C is correct.** (7.SP.5-7.SP.8) Letters: 3; numbers: 4. Total: $3 \times 4 = 12$ outcomes.
- 7) **Choice C is correct.** (7.G.4-7.G.6) Total surface area includes two circular bases ($2\pi r^2$) and lateral area ($2\pi rh$), which factors to $2\pi r(r + h)$.
- 8) **Choice A is correct.** (7.SP.1-7.SP.4) Although Tigers have a higher mean (75% vs. 72%), the Sharks have much lower MAD (4% vs. 8%), indicating more consistent free-throw shooting.
- 9) **Choice C is correct.** (7.SP.1-7.SP.4) The mode is in the interval with the highest frequency. The 30–40 lbs interval has a frequency of 20, which is the highest among all intervals.
- 10) **The correct answer is 15.** (7.G.1-7.G.5) Scale factor = $\frac{10}{4} = 2.5$. New height = $6 \times 2.5 = 15$ inches.
- 11) **Choice B is correct.** (7.SP.6) Experimental probability = $\frac{850}{1000} = 0.85$.
- 12) **Choice C is correct.** (7.SP.5-7.SP.8) $P(\text{not } 1) = \frac{4}{5}$ on each spin. Both spins: $\frac{4}{5} \cdot \frac{4}{5} = \frac{16}{25}$.
- 13) **Choice D is correct.** (7.SP.1-7.SP.4) Each value appears exactly once, so there is no repeating value. There is no mode.
- 14) **Choice C is correct.** (7.SP.5-7.SP.8) A probability of 0.1 is very low, so the event is unlikely to occur.
- 15) **Choice D is correct.** (7.RP.3) Percent error = $\frac{|700-800|}{800} \times 100\% = \frac{100}{800} \times 100\% = 12.5\%$.
- 16) **Choice B is correct.** (7.EE.1-7.EE.2) Distribute $\frac{1}{2}$: $(4a) \cdot \frac{1}{2} + (6) \cdot \frac{1}{2} = 2a + 3$.
- 17) **Choice D is correct.** (7.RP.3) At 5 years: $I = 4500(0.055)(5) = \$1237.50$, so $A = \$5737.50$. At 3 years: $I = 4500(0.055)(3) = \$742.50$, so $A = \$5242.50$. Difference: $5737.50 - 5242.50 = \$495$.
- 18) **Choice A is correct.** (7.NS.1-7.NS.3) $5 - 9 = 5 + (-9) = -4$.
- 19) **Choice C is correct.** (7.EE.1) A simplified expression has all like terms combined. Option C has no like terms remaining.
- 20) **Choice D is correct.** (7.RP.1-7.RP.3) Divide actual width by scale: $50 \text{ m} \div 10 \text{ m per cm} = 5 \text{ cm}$.
- 21) **The correct answer is A,B.** (7.G.1-7.G.5) Correct answers: (A) $(1, 0) \rightarrow (1 + 2, 0 + 3) = (3, 3) \rightarrow (-3, 3)$. (B) $(0, 0) \rightarrow (2, 3) \rightarrow (-2, 3)$. Both steps verified. Distractors: (C) True but not a unique property of this transformation (all rigid transformations preserve congruence). (D) False—rigid transformations do not change size.
- 22) **Choice C is correct.** (7.RP.3) $\frac{84}{300} = \frac{7}{25} = 0.28 = 28\%$.
- 23) **Choice C is correct.** (7.NS.1b) Model descent as $800 + (-950) = -150$. The negative result means 150 feet below ground level.
- 24) **Choice A is correct.** (7.EE.1-7.EE.2) Substitute: $5 - 3(4 - 2) = 5 - 3(2) = 5 - 6 = -1$.
- 25) **Choice C is correct.** (7.EE.1-7.EE.2) Expand $8(x + 2) = 8x + 16$. Check others: A) $8x + 16$ ✓, B) $4(2x + 4) = 8x + 16$ ✓, D) $2(4x + 8) = 8x + 16$ ✓. Only C) $8x + 2 \neq 8x + 16$ is not equivalent.
- 26) **The correct answer is 14.** (7.G.4-7.G.6) $C = 2\pi r \Rightarrow 88 = 2 \times \frac{22}{7} \times r \Rightarrow 88 = \frac{44}{7}r \Rightarrow r = 88 \times \frac{7}{44} = 14 \text{ cm}$.
- 27) **Choice A is correct.** (7.EE.4b) Subtract 7 from both sides: $x < 12 - 7 = 5$.
- 28) **Choice C is correct.** (7.SP.1-7.SP.4) 37.5% of $800 = 0.375 \times 800 = 300$ students.
- 29) **The correct answer is 100.48.** (7.G.4-7.G.6) Full circle: $A = 3.14 \times 8^2 = 3.14 \times 64 = 200.96 \text{ in}^2$. Semicircle: $\frac{200.96}{2} = 100.48 \text{ in}^2$.
- 30) **Choice B is correct.** (7.RP.1-7.RP.3) Must pass through origin $(0, 0)$. Only option B qualifies. Slope is $\frac{9}{3} = 3$, so $y = 3x$.



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Hi, Persistent Problem Solver!

◇ Some Grade 7 questions ask you to hold several ideas in your mind at once. That can feel hard, and that is exactly why practice matters. ◇

★ **Remember this:** You showed persistence by continuing through the set. That habit is powerful because difficult problems often open after one more good attempt. You practiced across 6 full Grade 7 practice tests, and that repeated effort matters. ★

Persistence Tools

- **Try a Smaller Case:** Use an easier number to see the pattern.
- **Draw It:** Make the situation visible.
- **Restate It:** Say the question in your own words.
- **Check One Step:** Fix the first unclear place.

Grade 7 test-day tip: When stuck, do not restart everything. Find the first step you trust, then rebuild from there.

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

Jay Daie

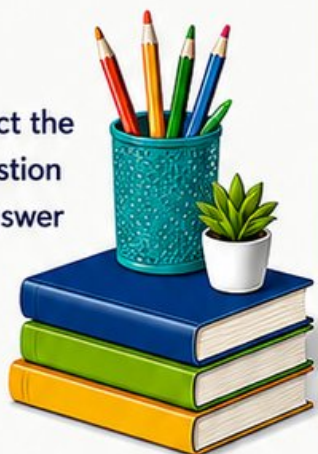
Your Persistence Coach

PRACTICE TODAY. SUCCEED TOMORROW!

This book includes **6** 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:

6 Full-Length Printed Tests

2 Online Practice Tests

 Detailed Answers & 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



Build Confidence

Practice regularly to feel prepared and test-ready.



Strengthen Math Skills

Develop key math concepts and problem solving abilities.



Improve Understanding

Learn with clear explanations and step-by-step solutions.



Test Confidence

Familiarize with test formats and improve accuracy and speed.



Boost Performance

Apply your knowledge and achieve your best score!

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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