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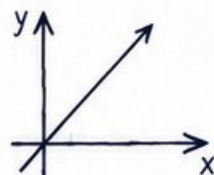
Montana MAST

GRADE
7
MATH

PRACTICE TESTS

Standards Aligned
Problem Solving
For Comprehensive
Assessment Programs

$$y = mx + b$$



$$\frac{2x}{3} + \frac{x}{6} = 2$$



$$V = \frac{1}{3} \pi r^2 h$$

**4 PRINTED TESTS****2 ONLINE TESTS**

USE THESE TWO
**ADDITIONAL ONLINE
PRACTICE TESTS**

FOR EXTRA REVIEW AFTER
THE PRINTED TESTS
IN THIS BOOK.



Build
Confidence



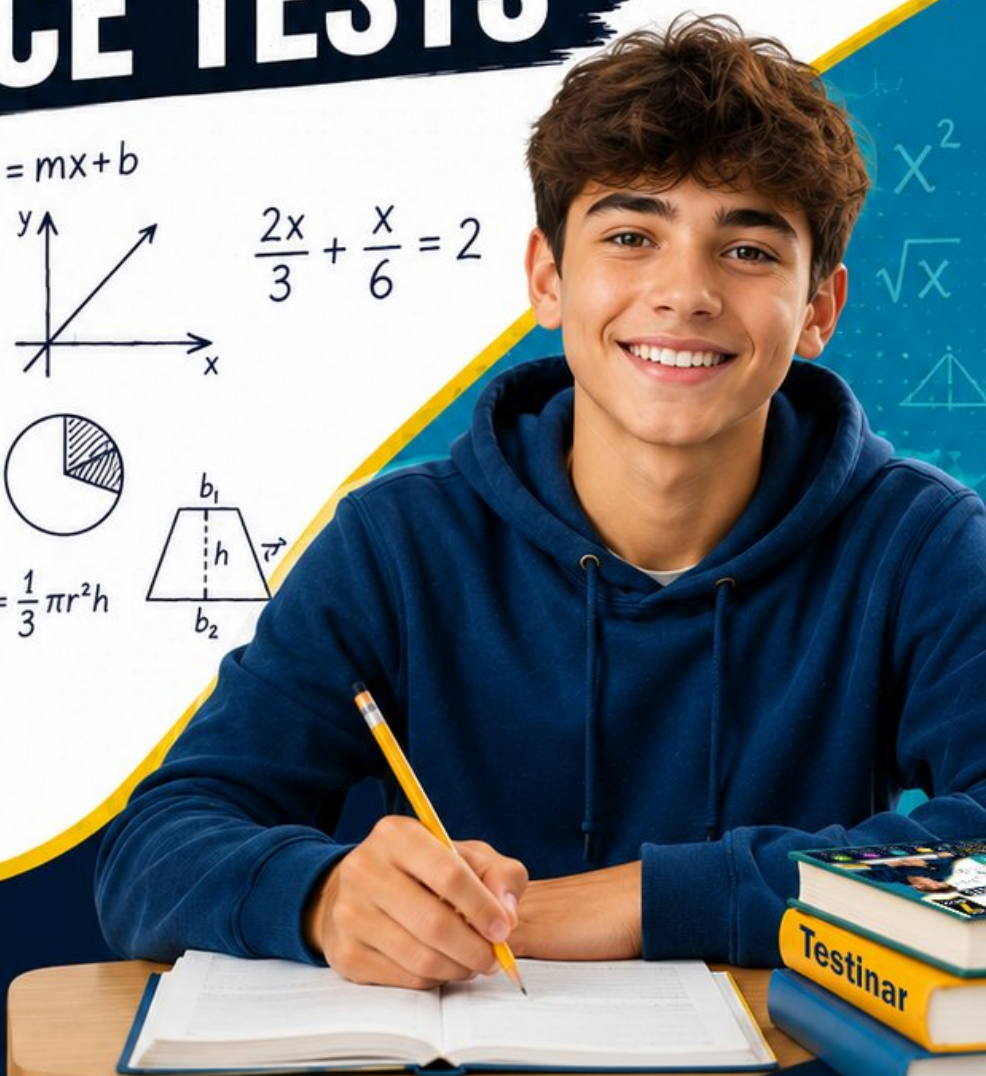
Strengthen
Math Skills



Detailed Answers
& Explanations

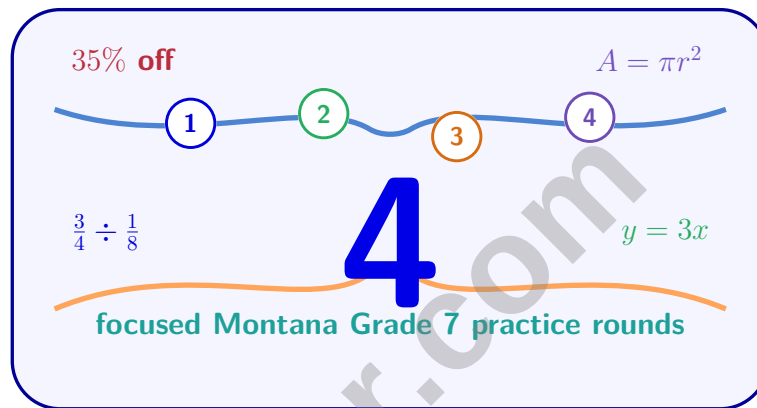


Improve Test
Performance



4 Montana MAST Grade 7 Math Practice Tests

Concise Montana Practice with Keys and Clear Explanations



Four complete 40-question Grade 7 MAST 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, Montana Grade 7 Problem Solver!

Four focused rounds for sharper MAST math thinking

This book gives you four full Grade 7 MAST 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 Montana 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 four-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.

Montana 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?

Four MAST tests, 160 questions, and a focused review path

Part	What You Will Practice
Tests 1–2	Proportional relationships, unit rates, percents, rational-number operations, and careful reading.
Tests 3–4	Expressions, equations, inequalities, scale drawings, geometry, data, probability, 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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& answers

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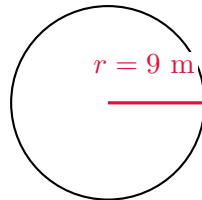
1) A sector measuring 252° represents what percent of a circle?

☐ A. 63%

☐ C. 75%

☐ B. 70%

☐ D. 85%



2)

What is the area of this circle? Use $\pi \approx 3.14$.

☐ A. 56.52 m^2

☐ C. 254.34 m^2

☐ B. 113.04 m^2

☐ D. 508.68 m^2

3) A cylindrical pipe with radius 3.5 inches has a volume of 269.23 cubic inches. What is the height of the pipe? Use $\pi \approx 3.14$.

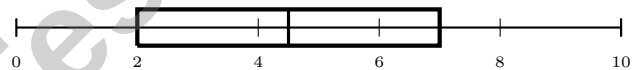
☐ A. 5.5 inches

☐ C. 8.5 inches

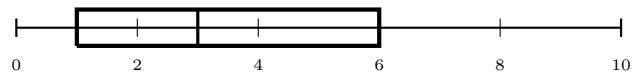
☐ B. 7 inches

☐ D. 9 inches

4) Box plots for two distributions:



Distribution A



Distribution B

Based on these box plots, which distribution has greater variability?

☐ A. Distribution A (larger box)

☐ C. Both have equal variability

☐ B. Distribution B (extends fully 0 to 10, wider range)

☐ D. Cannot determine from box plots



- 5) A histogram shows the number of goals scored by soccer teams in a season: 10–20 goals (4 teams), 20–30 goals (6 teams), 30–40 goals (7 teams), 40–50 goals (3 teams). Which interval has the highest frequency?

- ☐ A. 10–20 goals ☐ C. 30–40 goals
☐ B. 20–30 goals ☐ D. 40–50 goals

- 6) A container has 40 items: 16 are red, 14 are blue, and 10 are green. A student calculates $P(\text{red}) = \frac{16}{40}$, then simplifies to $\frac{2}{5}$. Is this correct?

- ☐ A. No; the correct simplified form is $\frac{1}{5}$. ☐ C. No; it should stay as $\frac{16}{40}$.
☐ B. Yes; $\frac{16}{40} = \frac{2}{5}$. ☐ D. No; the correct form is $\frac{4}{10}$.

- 7) A letter is drawn from the word MATH, and then a number is chosen from 1 to 5. How many outcomes are in the sample space?

Letters: M, A, T, H Numbers: 1, 2, 3, 4, 5

- ☐ A. 9 ☐ C. 20
☐ B. 15 ☐ D. 25

- 8) Two box plots show the test scores of Class A (median = 82, range = 30) and Class B (median = 78, range = 14). The box plot for Class A spans from 67 to 97; Class B spans from 71 to 85. Which statement is best supported by the visuals?

- ☐ A. Class A and Class B score ranges overlap from 71 to 85 ☐ C. Class B is always worse regardless of median
☐ B. Class A's scores varied more and its typical score was higher ☐ D. Class A has higher minimum but Class B more consistent



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- 9) A business has a loss of \$55 (represented as -55). To break even, what signed number must be added to the loss?

- 10) A fair die is rolled and a fair coin is flipped. What is the probability of rolling a 5 AND flipping heads?

☐ A. $\frac{1}{12}$
☐ B. $\frac{1}{6}$

☐ C. $\frac{1}{8}$
☐ D. $\frac{5}{12}$

- 11) A survey of 150 students asked which sport they play. The results:

Sport	Soccer	Basketball	Tennis
Students	48	57	45

Based on this data, what is the experimental probability that a randomly selected student plays basketball?

☐ A. $\frac{57}{105}$
☐ B. $\frac{48}{150}$

☐ C. $\frac{57}{150}$
☐ D. $\frac{45}{150}$

- 12) Given raw data: 51, 54, 58, 61, 64, 68, 71, 75. In a stem-and-leaf plot, what is the correct representation?

- ☐ A. Stem 5: 1, 4, 8; Stem 6: 1, 4, 8; Stem 7: 1, 5
☐ B. Stem 5: 1, 4, 5, 8; Stem 6: 1, 4; Stem 7: 1, 5
☐ C. Stem 5: 1, 4, 8; Stem 6: 1, 4; Stem 7: 1, 5, 8
☐ D. Stem 5: 51, 54, 58; Stem 6: 61, 64; Stem 7: 71, 75



- 1) A six-sided die shows the numbers 1, 1, 2, 3, 3, 3 on its faces. What is the probability of rolling a 1?

☐ A. $\frac{1}{6}$
☐ B. $\frac{2}{5}$

☐ C. $\frac{2}{6}$
☐ D. $\frac{1}{2}$

- 2) Use a chip model to represent $-4 + (-2)$. How many chips of each type remain?



- 3) Temperature drops 2 degrees per hour for 6 hours. What is the total change?

☐ A. 4 degrees
☐ B. -4 degrees

☐ C. -12 degrees
☐ D. 12 degrees

- 4) A fruit stand sells apples and oranges in the ratio 12 : 8. In simplest form, what is the ratio?

☐ A. 6 : 4
☐ B. 4 : 3

☐ C. 2 : 3
☐ D. 3 : 2

- 5) A rectangle is inscribed in a circle. One side is 8 cm and an adjacent side is 6 cm. Is there a unique rectangle that satisfies these conditions?

☐ A. Yes, exactly one
☐ B. No, infinitely many

☐ C. No, but there are exactly two
☐ D. No rectangle fits these conditions



6) A student claims: “An arc is the same as a chord.” Is this correct?

- ☐ A. Yes, they are the same
- ☐ B. No; an arc is a curved part of the circle, while a chord is a straight line segment
- ☐ C. Yes, but only if the arc is very small
- ☐ D. No; a chord is always longer than an arc

7) On a number line, which point represents a number whose absolute value is 10?



- ☐ A. Only 10
- ☐ B. Only -10
- ☐ C. Both 10 and -10
- ☐ D. Only 0

8) Which expression represents “the quotient of the sum of x and y by 3”?

- ☐ A. $\frac{x}{3} + y$
- ☐ B. $3(x + y)$
- ☐ C. $\frac{x+y}{3}$
- ☐ D. $\frac{x}{3} + \frac{y}{3}$

9) Simplify: $\frac{1}{3}a + \frac{2}{3}a + b$

- ☐ A. $a + b$
- ☐ B. $\frac{3}{6}a + b$
- ☐ C. $\frac{1}{2}a + b$
- ☐ D. $a + 3b$



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1) Which scale would make the drawing *larger* than the actual object?

☐ A. 1 in : 10 ft

☐ C. 2 in : 1 ft

☐ B. 1 in : 5 ft

☐ D. 1 in : 100 ft

2) Two box plots show salaries (in thousands of dollars) for two companies. Company P: Min 30, Q1 40, Median 50, Q3 65, Max 90; Company Q: Min 35, Q1 42, Median 48, Q3 60, Max 85. Which company has higher salaries overall?

☐ A. Company P (higher median and Q3)

☐ C. Both companies pay equally

☐ B. Company Q (higher minimum)

☐ D. Company Q (higher maximum)

3) A stem-and-leaf plot shows:

Stem	Leaves
22	0, 3, 7
23	1, 4, 6, 9
24	2, 5, 8

What is the sum of the minimum and maximum values?

☐ A. 470

☐ C. 468

☐ B. 471

☐ D. 473

4) A refrigerator is set to maintain a temperature of -2°C . It drops $\frac{1}{4}^{\circ}\text{C}$ per hour. What will the temperature be after 8 hours?



5) A composite figure is made of a rectangle (8 ft by 5 ft) with a square (3 ft by 3 ft) attached to one side. What is the total area?

☐ A. 40 ft²☐ C. 49 ft²☐ B. 45 ft²☐ D. 56 ft²

6) A trapezoidal prism has a trapezoidal base with parallel sides 4 cm and 6 cm and a height of 3 cm (height of the trapezoid). The depth of the prism is 10 cm. What is the volume? (Area of trapezoid = $\frac{1}{2}(b_1 + b_2) \times h$)

☐ A. 60 cm³☐ C. 150 cm³☐ B. 75 cm³☐ D. 300 cm³

7) A triangle is to be constructed with one angle of 30°, another angle of 50°, and one side of 10 cm. How many distinct triangles can be constructed?

☐ A. 0☐ C. 2☐ B. 1☐ D. Infinitely many

8) A hiker travels $4\frac{1}{2}$ miles on one trail, then $3\frac{3}{4}$ miles on another trail. What is the total distance (in miles)?

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

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

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Montana MAST 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 Montana MAST practice test.

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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice B is correct.** (7.SP.1-7.SP.4) $252^\circ \div 360^\circ \times 100 = 70\%$.
- 2) **Choice C is correct.** (7.G.4-7.G.6) $A = 3.14 \times 9^2 = 3.14 \times 81 = 254.34 \text{ m}^2$.
- 3) **Choice B is correct.** (7.G.4-7.G.6) $V = \pi r^2 h \Rightarrow 269.23 = 3.14 \times 12.25 \times h \Rightarrow 269.23 = 38.465h \Rightarrow h = 7$ inches.
- 4) **Choice B is correct.** (7.SP.1-7.SP.4) Distribution A: whiskers from 0 to 10, box from 2 to 7 (IQR = 5), median 4.5. Distribution B: whiskers from 0 to 10, box from 1 to 6 (IQR = 5), median 3. Both have same range and IQR, but B's whiskers show more extreme spread. B has greater overall variability (wider range of individual values).
- 5) **Choice C is correct.** (7.SP.1-7.SP.4) The 30–40 interval has a frequency of 7, which is higher than 4, 6, or 3.
- 6) **Choice B is correct.** (7.SP.5-7.SP.8) $\frac{16}{40} = \frac{2}{5}$ is correct. $\text{GCD}(16, 40) = 8$, so $\frac{16}{40} = \frac{2}{5}$.
- 7) **Choice C is correct.** (7.SP.5-7.SP.8) Letters: 4 (M, A, T, H); numbers: 5 (1 to 5). By the counting principle: $4 \times 5 = 20$ outcomes.
- 8) **Choice B is correct.** (7.SP.3) Class A's range of 30 (67–97) is larger than Class B's range of 14 (71–85), showing greater variability. Class A's median (82) is higher than Class B's (78). Despite overlap at 71–85, Class A is higher and more variable overall.
- 9) **The correct answer is 55.** (7.NS.1-7.NS.3) To cancel out the loss of -55 , you add its opposite, which is $+55$. Then $-55 + 55 = 0$ (break even).
- 10) **Choice A is correct.** (7.SP.5-7.SP.8) $P(5) \cdot P(\text{heads}) = \frac{1}{6} \cdot \frac{1}{2} = \frac{1}{12}$.
- 11) **Choice C is correct.** (7.SP.6) Basketball was chosen by 57 out of 150 students. Experimental probability = $\frac{57}{150}$.
- 12) **Choice A is correct.** (7.SP.1-7.SP.4) Data 51, 54, 58, 61, 64, 68, 71, 75 maps: Stem 5: 1, 4, 8; Stem 6: 1, 4, 8; Stem 7: 1, 5. Answer A is correct.
- 13) **Choice A is correct.** (7.G.4-7.G.6) Large rectangle: $20 \times 15 = 300 \text{ m}^2$. Three removed sections: $3 \times (3 \times 2) = 18 \text{ m}^2$. Remaining: $300 - 18 = 282 \text{ m}^2$.
- 14) **Choice D is correct.** (7.G.4-7.G.6) $V = l \times w \times h = 14 \times 8 \times 6 = 672 \text{ cm}^3$.
- 15) **Choice A is correct.** (7.G.1-7.G.5) An equilateral triangle has all sides and all angles equal. Since the angle sum is 180° and all three angles are equal, each angle is $180^\circ \div 3 = 60^\circ$.
- 16) **Choice B is correct.** (7.SP.5-7.SP.8) Flipping 10 heads in a row has a very small probability ($\frac{1}{1024} \approx 0.001$) but is possible. Rolling a 7 on a standard die is impossible (probability = 0).
- 17) **Choice C is correct.** (7.SP.1-7.SP.4) Proportion from sample: $\frac{40}{60} = \frac{2}{3}$. Apply to population: $\frac{2}{3} \times 3000 = 2000$ expected successes.
- 18) **Choice D is correct.** (7.NS.1-7.NS.3) $10 - (-5) = 10 + 5 = 15$. Always convert subtraction of a negative to addition.
- 19) **Choice C is correct.** (7.RP.3) 22% of 400 is $0.22 \times 400 = 88$ books.
- 20) **The correct answer is A,D.** (7.RP.1-7.RP.3) A and D are unit rates because each gives a price per single unit of weight. Option B is a distance, and option C is a total count.
- 21) **The correct answer is -12 .** (7.NS.2) $-9 \times \frac{4}{3} = \frac{-36}{3} = -12$.
- 22) **Choice D is correct.** (7.RP.3) Store A: $95 \times 0.75 = \$71.25$. Store B: $110 \times 0.65 = \$71.50$. Store A is cheaper.
- 23) **The correct answer is 34.** (7.G.1-7.G.5) By Triangle Inequality, $c < 20 + 15 = 35$. The largest whole number less than 35 is 34 cm.
- 24) **Choice D is correct.** (7.RP.1-7.RP.3) From the table, $\frac{1}{2}$ page in $\frac{1}{6}$ hour gives unit rate $\frac{1/2}{1/6} = \frac{1}{2} \times 6 = 3$ pages per hour.
- 25) **Choice D is correct.** (7.RP.1-7.RP.3) Set up proportion: $\frac{2}{3} = \frac{8}{y}$. Cross multiply: $2y = 24$, so $y = 12$.
- 26) **Choice B is correct.** (7.RP.1-7.RP.3) In a proportional relationship written as $y = kx$, the coefficient of x is the constant of proportionality. The constants are 3 and 5, and $5 > 3$, so $y = 5x$ has the greater constant.
- 27) **Choice D is correct.** (7.RP.1-7.RP.3) The unit-rate marker at (1, 0.7) shows $k = 0.7$. So the equation is $y = 0.7x$.
- 28) **Choice D is correct.** (7.RP.3) Discount amount: $200 - 150 = 50$. Using the proportion $\frac{50}{200} = \frac{p}{100}$: $p = 25\%$.



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You Know More Than You Think

Hi, Skilled Learner!

◇ After working through Grade 7 practice, you now have more tools than you may realize: models, formulas, graphs, equations, and reasoning habits. ◇

★ **Remember this:** The next step is learning when to use each tool. That comes from practice, review, and the courage to try a method even when you are unsure. This version gave you 4 opportunities to rehearse test-day habits. ★

Tools You Can Use

- **Models:** Make relationships visible.
- **Equations:** Represent unknowns clearly.
- **Graphs:** Show change and location.
- **Formulas:** Organize measurement problems.

Grade 7 test-day tip: Before solving, name the tool you plan to use. That small choice makes your work more intentional.

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

Jay Daie

Your Skill-Building Coach

PRACTICE TODAY. SUCCEED TOMORROW!

This book includes **4** 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:

4 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



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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!

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- ✓ 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!

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