

4

Connecticut

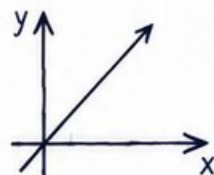
Smarter Balanced

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



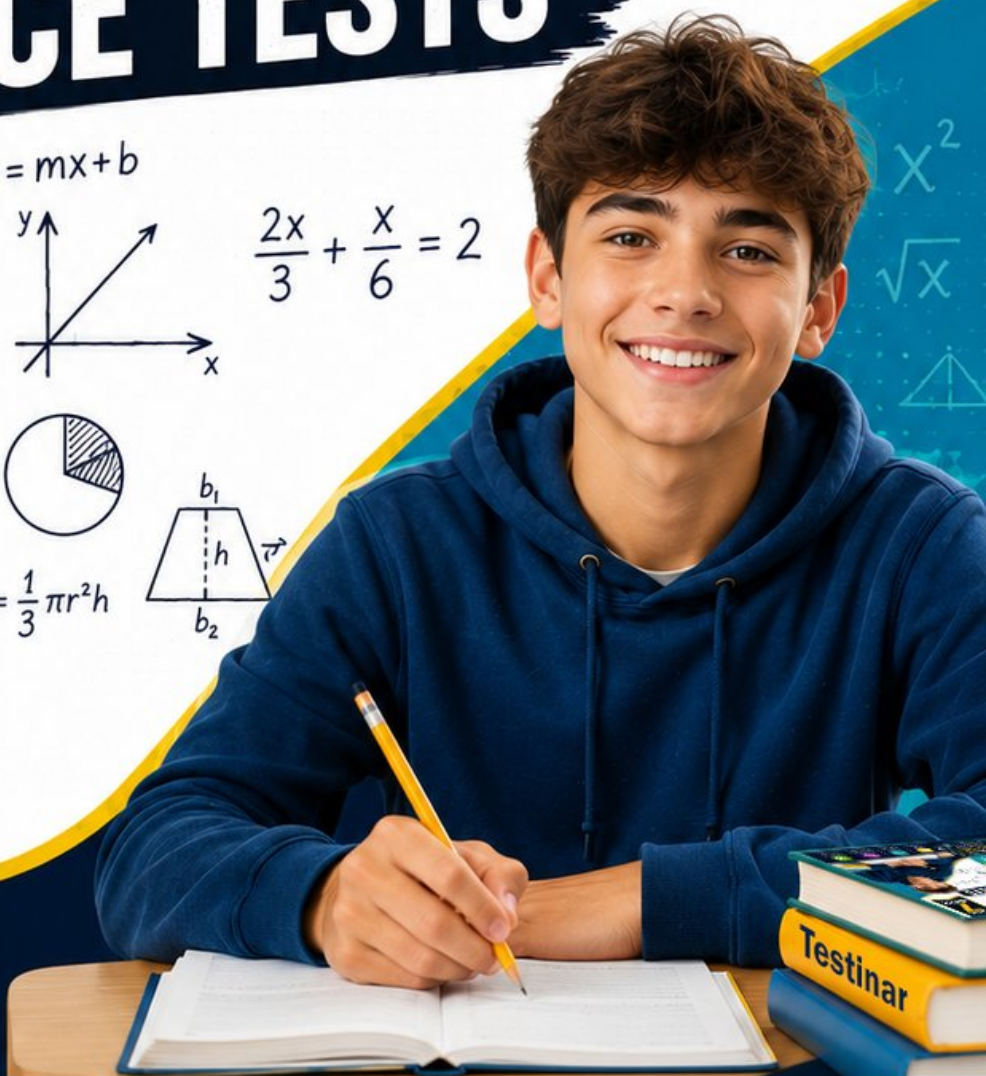
Strengthen
Math Skills



Detailed Answers
& Explanations

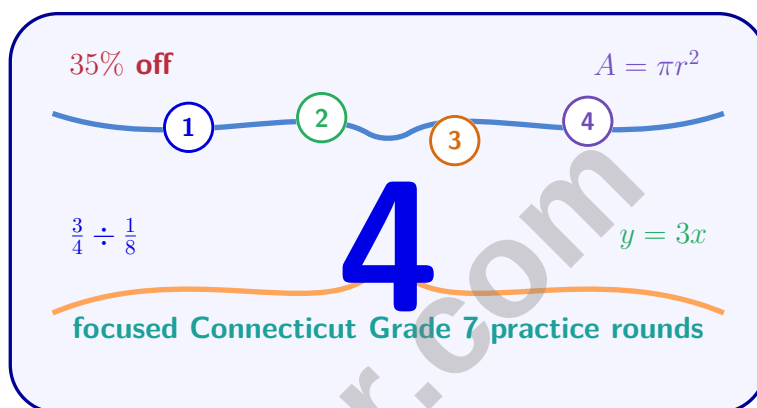


Improve Test
Performance



4 Connecticut Smarter Balanced Grade 7 Math Practice Tests

Four Focused Tests for Grade 7 Review, Reasoning, and Confidence



Four complete 40-question Grade 7 Smarter Balanced 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, Connecticut Grade 7 Problem Solver!

Four focused rounds for sharper Smarter Balanced math thinking

This book gives you four full Grade 7 Smarter Balanced 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 Connecticut 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.

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

- 2) Starting with \$600, an account earns 8% annual compound interest. How much interest is earned after 3 years?

- 3) A cylinder has a lateral surface area of 94.2 cm^2 and a radius of 3 cm. What is the height? Use $\pi \approx 3.14$.

- ☐ A. 5 cm
☐ B. 10 cm
☐ C. 15 cm
☐ D. 20 cm

- 4) Two coffee shops' daily revenue (in hundreds of dollars):

Shop	Mean	MAD
Morning Brew	12	0.8
Late Night Joe	12	2.1

What is the most reliable conclusion?

- ☐ A. Morning Brew is consistently around \$1200 daily
☐ B. Late Night Joe makes more money
☐ C. Both shops are identical
☐ D. Late Night Joe is more reliable



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- 5) A line plot shows the number of rainy days per month for 12 months. There are 2 months with 8 rainy days, 4 months with 10 rainy days, 3 months with 12 rainy days, 2 months with 14 rainy days, and 1 month with 16 rainy days. What is the median number of rainy days?
- ☐ A. 8 days ☐ C. 11 days
☐ B. 10 days ☐ D. 12 days
- 6) A color (Red or Blue) and a size (Small, Medium, Large) are chosen for a T-shirt. How many different T-shirt combinations are possible?
- ☐ A. 3 ☐ C. 6
☐ B. 5 ☐ D. 8
- 7) A spinner with 8 equal sections is spun twice. The first spin lands on section 3. Does the probability of landing on section 5 on the second spin change?
- ☐ A. Yes, it decreases to $\frac{1}{7}$ ☐ D. No, but now it is 0 because 3 was spun
☐ B. Yes, it increases to $\frac{1}{7}$
☐ C. No, it remains $\frac{1}{8}$
- 8) 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) ☐ C. Both methods produce identical results
☐ B. Traditional Method (consistent with reasonable performance) ☐ D. New Method is clearly superior

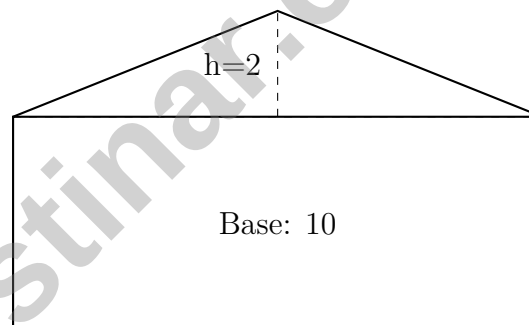


- 9) A game involves spinning a spinner. The results of 600 spins are shown:

Outcome	Green	Yellow	Purple
Times	240	200	160

If the spinner is spun 1 more time, which outcome has the highest experimental probability of occurring?

- ☐ A. Green
 ☐ C. Purple
☐ B. Yellow
 ☐ D. All are equally likely
- 10) When converting data into a stem-and-leaf plot, a student mistakenly interprets stem 11 with leaf 2 as 1.12 instead of 112. This is an example of which type of error?
- ☐ A. Reading error
 ☐ C. Conceptual error
☐ B. Computational error
 ☐ D. Rounding error



11)

A pennant shape is made of a rectangle (base 10 inches, height 4 inches) with a triangle on top (base 10 inches, height 2 inches). A student forgot that triangles use $\frac{1}{2}$ and calculated the triangle area as $10 \times 2 = 20 \text{ in}^2$. By how much did the student overestimate?

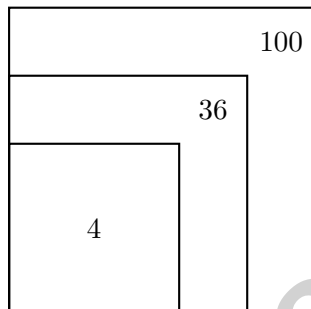
- ☐ A. 10 in^2
☐ C. 30 in^2
☐ B. 20 in^2
☐ D. 40 in^2



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- 1) A fitness center wants to know about its members' exercise habits. It surveys members only during evening hours when most people are at the gym. What is this sampling bias called?

- ☐ A. Stratified bias ☐ C. Measurement bias
☐ B. Selection bias ☐ D. Convenience sampling



2)

Based on the areas shown, what are the side lengths?

- ☐ A. 2, 6, 10 ☐ C. 2, 8, 10
☐ B. 2, 6, 12 ☐ D. 4, 6, 10

- 3) Which expression is equivalent to $2a + 2b + 2c$?

- ☐ A. $2(a + b + c)$ ☐ C. $2abc$
☐ B. $2(a + b) + c$ ☐ D. $(2 + a)(2 + b)(2 + c)$

- 4) What is $\frac{1}{3} \times \frac{1}{2}$?

- ☐ A. $\frac{1}{6}$ ☐ C. $\frac{2}{6}$
☐ B. $\frac{1}{5}$ ☐ D. $\frac{2}{3}$



5) A cyclist travels at an average speed of 15 miles per hour. How far does the cyclist travel in 2.5 hours?

☐ A. 27.5 miles

☐ C. 35 miles

☐ B. 30 miles

☐ D. 37.5 miles

6) A retirement account balance nearly triples in 12 years with annual compound interest. Which rate is most consistent with this growth?

Rate	At 6 yrs	At 12 yrs	Multiplier	Triples?
2%	\$1,126	\$1,268	1.27x	No
6%	\$1,419	\$2,013	2.01x	No
9.5%	\$1,629	\$2,652	2.65x	Close!
15%	\$2,313	\$5,350	5.35x	No

☐ A. 2%

☐ C. 9.5%

☐ B. 6%

☐ D. 15%

7) Simplify: $\frac{1}{2}a + \frac{1}{4}a$

☐ A. $\frac{1}{8}a$

☐ C. $\frac{3}{4}a$

☐ B. $\frac{1}{6}a$

☐ D. $\frac{2}{6}a$

8) A hiker starts at an elevation of 500 feet and descends 750 feet. What is the hiker's final elevation? (Represent descent as a negative change.)



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- 1) Which pair correctly matches likelihood terms with their probabilities?
- ☐ A. Impossible = 0.5, Certain = 0.5 ☐ C. Impossible = -1, Certain = 2
- ☐ B. Impossible = 0, Certain = 1 ☐ D. Impossible = 1, Certain = 0
- 2) A histogram displays the age distribution of members at two gyms. Gym Alpha: ages 20–35 have the most members. Gym Beta: ages evenly distributed across 18–65. Which gym best serves a targeted demographic?
- ☐ A. Gym Alpha (serves a specific younger demographic) ☐ C. Both gyms serve identical demographics
- ☐ B. Gym Beta (more diverse membership) ☐ D. Gym Beta (younger members on average)
- 3) A storage shed floor plan shows a large rectangle (14 ft $\times$ 10 ft) with two triangular sections attached to the shorter sides (each triangle has base 10 ft and height 4 ft). What is the total floor area?
- ☐ A. 100 ft² ☐ C. 180 ft²
- ☐ B. 140 ft² ☐ D. 220 ft²
- 4) A bank account starts with a balance of \$250.75. The account loses \$12.50 per month for 5 months. What is the final balance?

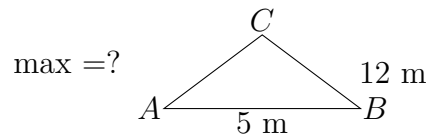


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- 5) A rectangular prism has a volume of 360 in^3 . If the length is 10 inches and the width is 6 inches, what is the height?

☐ A. 3 in
☐ B. 6 in

☐ C. 9 in
☐ D. 12 in



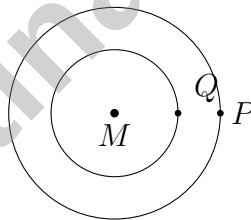
6)

Greta wants to draw a triangle with sides 5 m and 12 m. If the third side is a whole number of meters, what is the maximum possible length?

☐ A. 15 m
☐ B. 16 m

☐ C. 17 m
☐ D. 18 m

- 7) Two concentric circles (circles with the same center) are drawn. Which point is the center of both circles?



☐ A. P
☐ B. Q

☐ C. M
☐ D. Cannot be determined



Connecticut Smarter Balanced 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 Connecticut Smarter Balanced practice test.

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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice B is correct.** (7.SP.5-7.SP.8) $\frac{16}{40} = \frac{2}{5}$ is correct. $\text{GCD}(16,40)=8$, so $\frac{16}{40} = \frac{2}{5}$.
- 2) **The correct answer is \$155.83.** (7.RP.3) Final balance: $600(1.08)^3 = 600 \times 1.2597 = 755.83$. Interest earned: $755.83 - 600 = 155.83$.
- 3) **Choice A is correct.** (7.G.4-7.G.6) Lateral area $= 2\pi rh \Rightarrow 94.2 = 2(3.14)(3)(h) \Rightarrow 94.2 = 18.84h \Rightarrow h = 5$ cm.
- 4) **Choice A is correct.** (7.SP.1-7.SP.4) Both have the same mean (\$1200), but Morning Brew has a smaller MAD (0.8 vs. 2.1), indicating more consistent daily revenue.
- 5) **Choice C is correct.** (7.SP.1-7.SP.4) With 12 data points, the median is the average of the 6th and 7th values. Counting: positions 1–2 are 8, positions 3–6 are 10, position 7–9 are 12. The 6th and 7th values average to 11.
- 6) **Choice C is correct.** (7.SP.5-7.SP.8) Colors: 2; sizes: 3. By the counting principle: $2 \times 3 = 6$ combinations.
- 7) **Choice C is correct.** (7.SP.5-7.SP.8) Spinning a spinner multiple times produces independent events. The first outcome does not affect future spins.
- 8) **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.
- 9) **Choice A is correct.** (7.SP.6) Green: $\frac{240}{600} = 0.40$; Yellow: $\frac{200}{600} \approx 0.33$; Purple: $\frac{160}{600} \approx 0.27$. Green has the highest probability.
- 10) **Choice C is correct.** (7.SP.1-7.SP.4) The student misunderstands how stems and leaves combine, not reading or computational. This is a conceptual misunderstanding.
- 11) **Choice A is correct.** (7.G.4-7.G.6) True triangle area: $\frac{1}{2} \times 10 \times 2 = 10 \text{ in}^2$. Student's error: $20 - 10 = 10 \text{ in}^2$ overestimate.
- 12) **Choice B is correct.** (7.G.4-7.G.6) Base area $= \frac{1}{2} \times 10 \times 6 = 30 \text{ in}^2$. Depth $= \frac{V}{B} = \frac{360}{30} = 12$ in.
- 13) **Choice B is correct.** (7.G.4-7.G.6) A chord of length r is shorter than the diameter $d = 2r$. Such a chord exists and is a valid chord in the circle.
- 14) **Choice D is correct.** (7.G.1-7.G.5) AAA (Angle–Angle–Angle) guarantees similarity, not congruence. The triangles could be different sizes but the same shape. At least one side length is needed to prove congruence.
- 15) **Choice C is correct.** (7.SP.5-7.SP.8) $0.75 = \frac{3}{4}$, so it is located $\frac{3}{4}$ of the way along the number line.
- 16) **Choice C is correct.** (7.SP.1-7.SP.4) $\frac{84}{200} = \frac{x}{50000}$. Reduce: $\frac{21}{50} = \frac{x}{50000} \Rightarrow x = 21000$.
- 17) **Choice A is correct.** (7.NS.1-7.NS.3) When subtracting from a negative number, move further left on the number line: $-5 - 3 = -8$.
- 18) **Choice D is correct.** (7.SP.1-7.SP.4) 42% of $600 = 0.42 \times 600 = 252$ students.
- 19) **The correct answer is -30 .** (7.NS.2) Change per minute is -7.5 meters. After 4 minutes: $(-7.5) \times 4 = -30$ meters.
- 20) **Choice C is correct.** (7.RP.3) $\frac{48}{60} = \frac{4}{5} = 0.80 = 80\%$.
- 21) **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.
- 22) **Choice C is correct.** (7.RP.3) Tax $= 0.12 \times 250 = \$30$. Total $= 250 + 30 = \$280$.
- 23) **Choice D is correct.** (7.RP.3) The discount is $\frac{20}{100} \times 50 = 10$, so you save \$10.
- 24) **Choice D is correct.** (7.RP.1-7.RP.3) Unit rate $= \frac{5/8}{1/2} = \frac{5}{8} \times 2 = \frac{10}{8} = \frac{5}{4}$ floors per hour.
- 25) **Choice D is correct.** (7.RP.1-7.RP.3) A proportional relationship requires constant ratio $y/x = k$, not just increasing y values.
- 26) **Choice D is correct.** (7.RP.1-7.RP.3) Volume equals rate times time. At 6 liters per minute, $V = 6t$.
- 27) **Choice D is correct.** (7.RP.1-7.RP.3) Using either marked point: $(2, 1)$ gives $k = 1/2 = 0.5$; $(4, 2)$ gives $k = 2/4 = 0.5$. Constant of proportionality is 0.5.
- 28) **Choice D is correct.** (7.SP.5-7.SP.8) Total: 360° . Green: $180^\circ \Rightarrow P(\text{green}) = \frac{180}{360} = \frac{1}{2}$. Blue: $\frac{60}{360} = \frac{1}{6}$. Red: $\frac{120}{360} = \frac{1}{3}$ (non-uniform model).
- 29) **Choice D is correct.** (7.RP.3) Origination fee $= 0.01 \times 300000 = \$3,000$.



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Hi, Brave Learner!

◇ No one gets stronger by only doing easy problems. The questions that slowed you down were part of the training. This carefully paced book gave you four steady Grade 7 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. ◇

★ **Remember this:** Mistakes are not proof that you cannot do math. They are directions. They show what to review, what to ask about, and what to practice next. ★

How to Use Mistakes

- **Name It:** Was it reading, setup, arithmetic, or checking?
- **Fix It:** Correct the work while the question is fresh.
- **Repeat It:** Try one similar problem soon.
- **Remember It:** Write the lesson in your own words.

Grade 7 test-day tip: Treat every corrected error as a point you are preparing to earn next time.

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

Jay Daie

Your Brave-Learning 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



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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