

6

NEW HAMPSHIRE

NH SAS

GRADE

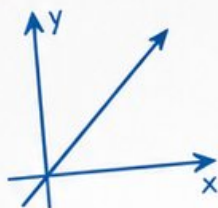
7

MATH

PRACTICE TESTS

Standards Aligned
Problem Solving For
Comprehensive
Assessment Programs

$$y = mx + b$$



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



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



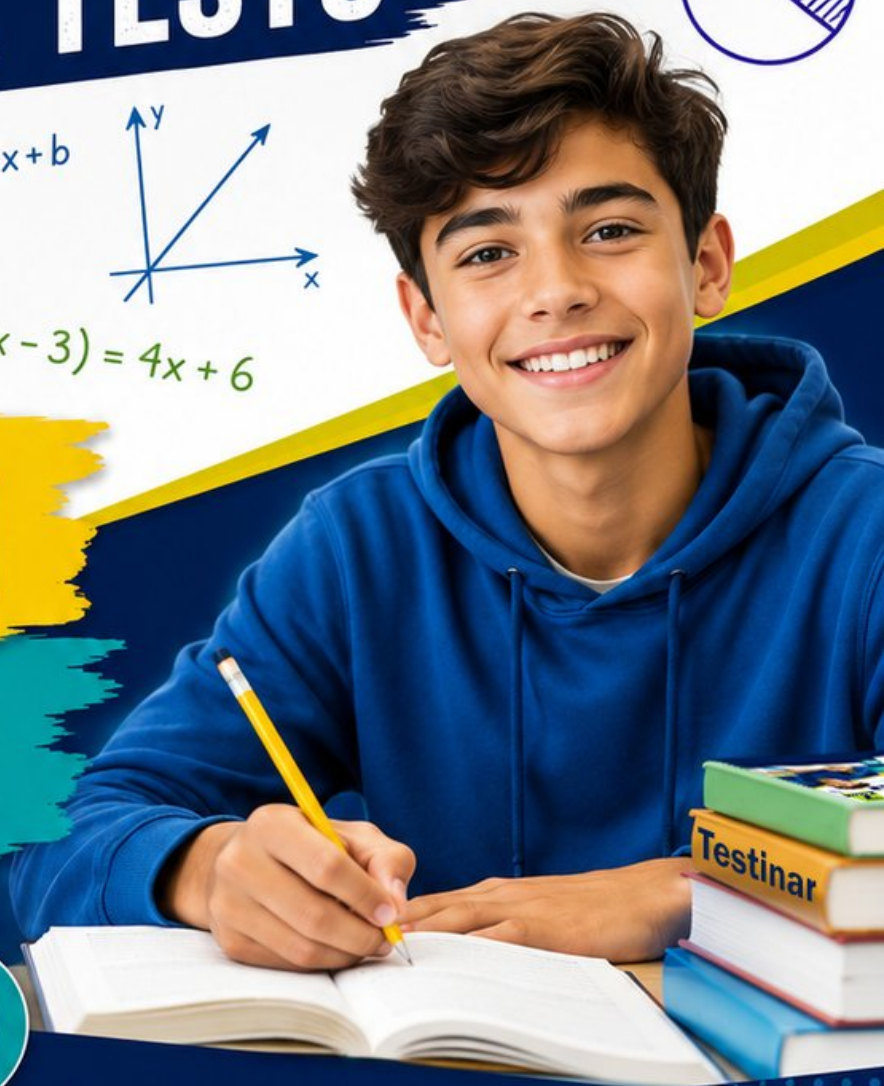
Strengthen
Math Skills



Detailed Answers
& Explanations

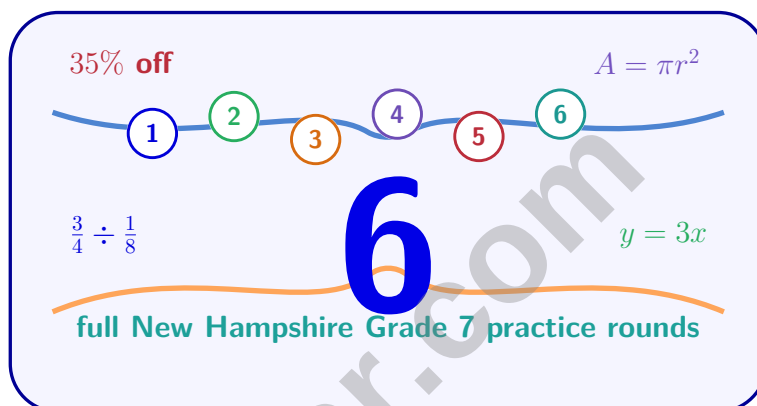


Improve Test
Performance



6 New Hampshire NH SAS Grade 7 Math Practice Tests

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



Six complete 40-question Grade 7 NH SAS 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, New Hampshire Grade 7 Problem Solver!

Six focused rounds for sharper NH SAS math thinking

This book gives you six full Grade 7 NH SAS 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 New Hampshire 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.

New Hampshire 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 NH SAS 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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& answers

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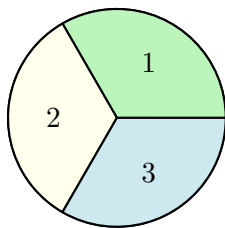
- 1) A table shows the relationship between time (minutes) and water drained from a tank. Check the y/x ratio for each row.

Time (min)	2	5	8
Water (gallons)	10	25	40
Ratio (gal/min)	5	5	5

- ☐ A. Cannot determine from this table ☐ C. Only proportional after 2 minutes
☐ B. Not proportional; ratios are different ☐ D. Proportional; constant ratio is 5
- 2) Solve: $\frac{1}{2}x + 5 = 9$
- ☐ A. $x = 4$ ☐ C. $x = 8$
☐ B. $x = 6$ ☐ D. $x = 10$
- 3) A school district collects data on student absences. Researchers survey 100 students randomly selected from each grade level. Why is this stratified approach appropriate?
- ☐ A. It reduces the total sample size needed ☐ C. It eliminates the need for random selection
☐ B. It ensures each grade is represented proportionally in the sample ☐ D. It automatically produces a larger sample
- 4) A histogram shows the ages of people visiting a museum. The x-axis shows age intervals (10–20, 20–30, 30–40, etc.), and the heights of the bars show the number of people. What does the height of each bar represent?
- ☐ A. The width of each age interval ☐ C. The average age in each interval
☐ B. The frequency (count) in each age interval ☐ D. The age of the oldest person



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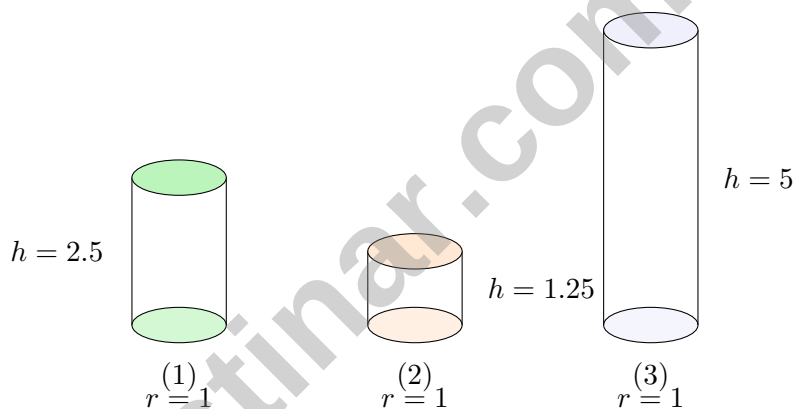


5)

A spinner is divided into 3 equal sections labeled 1, 2, 3. What is the probability of spinning a 2 or a 3?

- ☐ A. $\frac{1}{3}$
☐ B. $\frac{2}{3}$

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



6)

Three cylinders all have $r = 1$ cm and different heights: $h = 2.5, 1.25, 5$ cm. If you order them by volume from smallest to largest, which is correct? Use $\pi \approx 3.14$.

- ☐ A. (1), (2), (3)
☐ B. (2), (1), (3)

- ☐ C. (3), (1), (2)
☐ D. (1), (3), (2)



- 7) A manufacturing plant tracks defect rates for two product lines over 10 batches:

Line	Mean Defect Rate	IQR
Product X	2.5%	1.0%
Product Y	2.3%	2.5%

Which product line is better for consistent quality control?

- ☐ A. Product X (slightly higher defect rate is offset by consistency)
- ☐ B. Product Y (lower mean defect rate)
- ☐ C. Both are identical
- ☐ D. Cannot determine without knowing minimum defect rates
- 8) A student chooses a shirt from 5 options and pants from 3 options. How many different outfits are possible?
- ☐ A. 8
- ☐ B. 15
- ☐ C. 20
- ☐ D. 25
- 9) A basketball player tracked free-throw success in practice sessions. The results are:

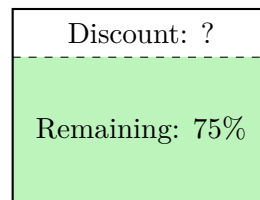
Session	Attempts	Made
Session 1	50	38
Session 2	75	54
Session 3	100	76

What is the overall experimental probability of success across all three sessions?

- ☐ A. 0.75
- ☐ B. 0.76
- ☐ C. $\frac{168}{225}$
- ☐ D. 0.71



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Original: \$120

1)

A percent bar shows that 75% of the original price remains after a discount. The original price is \$120. What is the percent discount?

- ☐ A. 20% ☐ C. 75%
☐ B. 30% ☐ D. 25%

2) Point G is translated by $(-5, 2)$ and ends up at $(1, -4)$. What were the original coordinates of G ?

- ☐ A. $(-4, -2)$ ☐ C. $(-6, 6)$
☐ B. $(6, -6)$ ☐ D. $(6, -2)$

3) A classroom door lock requires entering a code with one digit (0–9) followed by one letter (A–Z). How many possible codes exist?

- ☐ A. 36 ☐ C. 1000
☐ B. 260 ☐ D. 2600

4) A die was rolled multiple times. The experimental probability of rolling a 3 was $\frac{18}{90}$. How many times was the die rolled?

- ☐ A. 18 ☐ C. 72
☐ B. 30 ☐ D. 90



5) A spinner is divided into 8 equal sections numbered 1 through 8. What is the probability of spinning an odd number OR a prime number?

☐ A. $\frac{4}{8}$ (only odd)

☐ C. $\frac{7}{8}$

☐ B. $\frac{6}{8}$ (missing overlap)

☐ D. $\frac{8}{8}$ (all outcomes)

6) Construct a stem-and-leaf plot from the ordered data {56, 58, 61, 64, 67, 69, 72, 75} using stems 5, 6, 7. How many leaves appear under Stem 6?

7) **Four Estimation Attempts**

Attempt	Estimate	Actual	% Error
P	84	100	?
Q	28	32	?
R	66	75	?
S	54	60	?

Which attempt has the largest percent error?

☐ A. P (16%)

☐ C. R (12%)

☐ B. Q (12.5%)

☐ D. S (10%)

8) Expand: $\frac{1}{3}(9y - 12)$

☐ A. $3y - 4$

☐ C. $3y - 12$

☐ B. $9y - 4$

☐ D. $y - 4$



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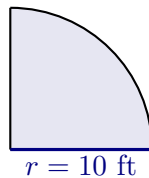
- 1) A quadrilateral $ABCD$ has vertices $A(0, 0)$, $B(4, 0)$, $C(4, 3)$, and $D(0, 3)$. If the quadrilateral is translated by $(-2, 1)$, which of the following is the new location of vertex C ?

☐ A. $(2, 4)$ ☐ C. $(6, 2)$ ☐ B. $(2, 2)$ ☐ D. $(4, 3)$

- 2) A running track's inner circle has radius 30 meters. What is its circumference? Use $\pi \approx 3.14$.

☐ A. 94.2 m☐ C. 282.6 m☐ B. 188.4 m☐ D. 565.2 m

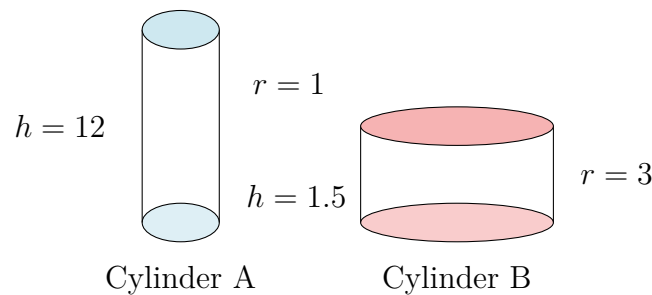
- 3) A bag contains red and blue marbles. A simulation draws a marble, records the color (red), and replaces it. This is repeated 400 times, and red is drawn 284 times. Based on this simulation, what is the estimated probability of drawing a red marble? (Express as a decimal.)



4)

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

☐ A. 31.4 ft^2 ☐ C. 157 ft^2 ☐ B. 78.5 ft^2 ☐ D. 314 ft^2 

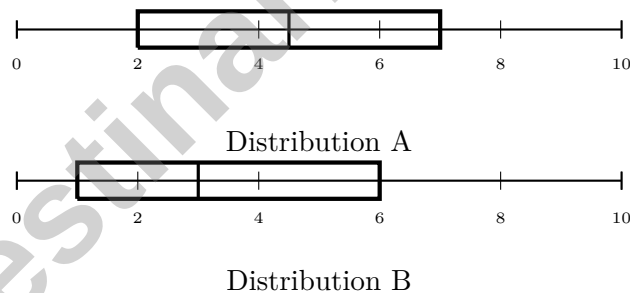


5)

Cylinder A has $r = 1$ and $h = 12$. Cylinder B has $r = 3$ and $h = 1.5$. Use $\pi \approx 3.14$. Which statement is true?

- ☐ A. Cylinder A has the greater volume ☐ D. Volume cannot be compared without units
☐ B. Cylinder B has the greater volume
☐ C. Both cylinders have the same volume

6) Box plots for two distributions:



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



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New Hampshire NH SAS 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 New Hampshire NH SAS practice test.



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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice D is correct.** (7.RP.1-7.RP.3) All y/x ratios equal 5 gallons per minute, confirming a proportional relationship.
- 2) **Choice C is correct.** (7.EE.3-7.EE.4) Subtract 5: $\frac{1}{2}x = 4$. Multiply by 2: $x = 8$.
- 3) **Choice B is correct.** (7.SP.1-7.SP.4) Stratified sampling from each grade ensures all groups are included, preventing bias toward any single grade level.
- 4) **Choice B is correct.** (7.SP.1-7.SP.4) In a histogram, the height of each bar represents the frequency (count or number of data points) in that interval.
- 5) **Choice B is correct.** (7.SP.5-7.SP.8) Favorable outcomes: 2, 3 (2 sections). $P(2 \text{ or } 3) = \frac{2}{3}$.
- 6) **Choice B is correct.** (7.G.4-7.G.6) (1): $V = \pi r^2 h = 3.14 \times (1)^2 \times 2.5 = 7.85 \text{ cm}^3$. (2): $V = 3.14 \times (1)^2 \times 1.25 = 3.925 \text{ cm}^3$. (3): $V = 3.14 \times (1)^2 \times 5 = 15.7 \text{ cm}^3$. Order: (2) < (1) < (3).
- 7) **Choice A is correct.** (7.SP.1-7.SP.4) Product X: mean 2.5%, IQR 1.0% (tight middle spread, consistent control). Product Y: mean 2.3%, IQR 2.5% (wider spread, less predictable). For quality control, consistency (smaller IQR) matters more than a 0.2% mean advantage.
- 8) **Choice B is correct.** (7.SP.5-7.SP.8) By the counting principle: 5 shirts $\times$ 3 pants = 15 different outfits.
- 9) **Choice B is correct.** (7.SP.6) Total attempts: $50 + 75 + 100 = 225$. Total made: $38 + 54 + 76 = 168$. Probability: $\frac{168}{225} \approx 0.747 \approx 0.76$ (or exactly $\frac{56}{75}$).
- 10) **Choice B is correct.** (7.SP.5-7.SP.8) With replacement, the deck is restored and events are independent. $P(\text{black second}) = \frac{26}{52} = \frac{1}{2}$.
- 11) **Choice A is correct.** (7.SP.1-7.SP.4) There are 13 values (odd). Ordered: 72, 75, 78, 78, 81, 83, 85, 86, 89, 90, 92, 94, 97. The 7th value is 85.
- 12) **Choice A is correct.** (7.SP.5-7.SP.8) A standard die only has faces 1–6, so rolling a 7 is impossible (probability = 0).
- 13) **The correct answer is 40.** (7.G.1-7.G.5) Perimeter scales linearly by the scale factor. Larger perimeter = $16 \times 2.5 = 40$ inches.
- 14) **Choice C is correct.** (7.SP.1-7.SP.4) $\frac{8}{40} = \frac{x}{200}$. Reduce: $\frac{1}{5} = \frac{x}{200} \Rightarrow x = 40$.
- 15) **Choice C is correct.** (7.RP.3) A: $\frac{|27-30|}{30} \times 100\% = 10\%$. B: $\frac{|32-30|}{30} \times 100\% \approx 6.7\%$. C: $\frac{|36-30|}{30} \times 100\% = 20\%$. D: $\frac{|28-30|}{30} \times 100\% \approx 6.7\%$. Estimate C (20%) has the largest percent error.
- 16) **Choice B is correct.** (7.EE.1-7.EE.2) Distribute -3 : $-3(x) - 3(-6) = -3x + 18$. Negative times negative is positive.
- 17) **Choice D is correct.** (7.RP.3) Using $I = Prt$: $75 = 500 \times 0.05 \times t \Rightarrow 75 = 25t \Rightarrow t = 3$.
- 18) **Choice D is correct.** (7.NS.1-7.NS.3) $-1 - (-5) = -1 + 5 = 4$. Move right 5 units from -1 on the number line.
- 19) **Choice C is correct.** (7.RP.1-7.RP.3) Divide actual by plan: $20 \text{ feet} \div 2 \text{ inches} = 10 \text{ feet per inch}$, so scale is 1 inch : 10 feet.
- 20) **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.
- 21) **The correct answer is 125.6.** (7.G.4-7.G.6) Circumference = $2\pi r = 2 \times 3.14 \times 5 = 31.4 \text{ m}$. Distance = $4 \times 31.4 = 125.6 \text{ m}$.
- 22) **Choice B is correct.** (7.NS.1b) Option B groups the two negative numbers first ($-6 + (-7) = -13$), then adds the positive: $-13 + 13 = 0$. This is easier than computing left-to-right.
- 23) **Choice B is correct.** (7.EE.1-7.EE.2) Find GCF of 8, 12, 16, 24. Factors of 8: 1, 2, 4, 8. Factors of 12: 1, 2, 3, 4, 6, 12. Factors of 16: 1, 2, 4, 8, 16. Factors of 24: 1, 2, 3, 4, 6, 8, 12, 24. The GCF of all four is 4.
- 24) **Choice D is correct.** (7.RP.3) 25% of 80 is $0.25 \times 80 = 20$, not 15. The student made an error.
- 25) **Choice D is correct.** (7.RP.3) Discount = $\frac{1}{4} \times 28 = \7 . Sale price = $28 - 7 = \$21$.
- 26) **Choice A is correct.** (7.EE.1) Combine coefficients: $(12 - 7 + 3)x = 8x$.
- 27) **Choice C is correct.** (7.SP.1-7.SP.4) 25% of $360^\circ = 0.25 \times 360^\circ = 90^\circ$.
- 28) **Choice D is correct.** (7.RP.3) Set up the proportion: $\frac{3}{4} = \frac{p}{100}$. Cross-multiply: $4p = 300$, so $p = 75\%$.



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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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