

5

New Hampshire

NH SAS

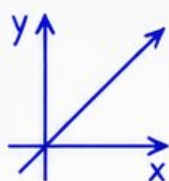
GRADE

7

MATH

PRACTICE TESTS

Standards Aligned
Problem Solving
For Comprehensive
Assessment Programs



$$y = mx + b$$

$$\frac{2}{3} + \frac{1}{6} = \frac{5}{6}$$



$$V = \pi r^2 h$$



5 PRINTED TESTS



2 ONLINE TESTS

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



Build
Confidence



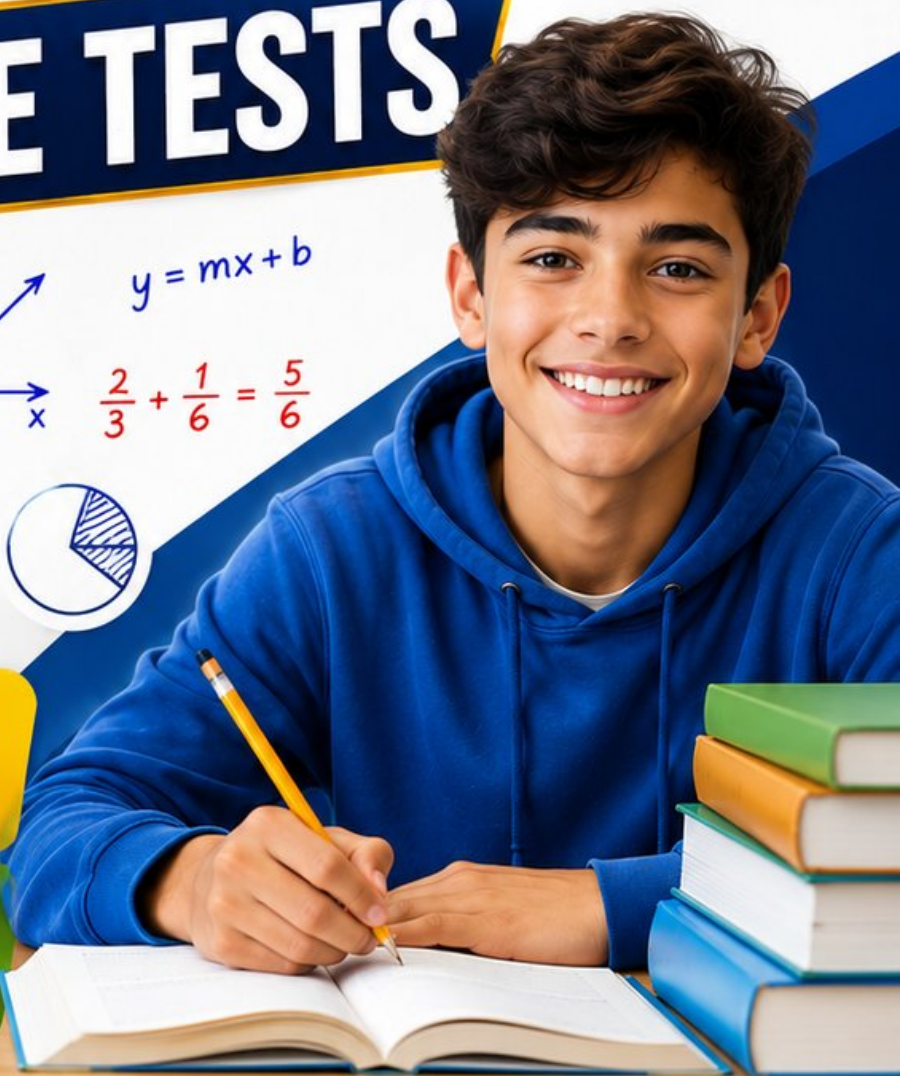
Strengthen
Math Skills



Detailed Answers
& Explanations

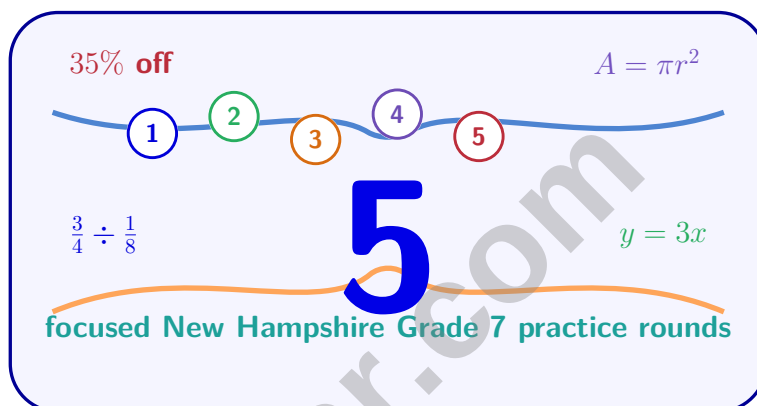


Improve Test
Performance



5 New Hampshire NH SAS Grade 7 Math Practice Tests

Standards Practice with Mixed Review and Complete Answer Support



Five 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!

Five focused rounds for sharper NH SAS math thinking

This book gives you five 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 five-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?

Five NH SAS tests, 200 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 3–5	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.



Scan me!
For more practice
& answers

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1) A recipe calls for $\frac{1}{2}$ cup sugar to make 2 dozen cookies. How much sugar is needed to make 5 dozen cookies?

☐ A. $\frac{5}{2}$ cups

☐ B. $\frac{1}{4}$ cup

☐ C. $\frac{1}{5}$ cup

☐ D. $\frac{5}{4}$ cups

2) What is $-2 - (-6)$?

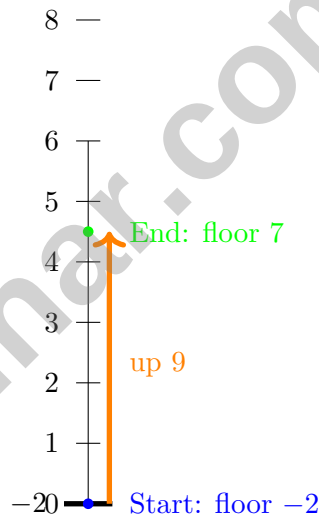
☐ A. 4

☐ B. -8

☐ C. -4

☐ D. 8

3) An elevator starts at floor -2 (basement). It goes up 9 floors. What floor is it on?



☐ A. Floor -11

☐ B. Floor -7

☐ C. Floor 7

☐ D. Floor 11



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4) If 25 is 10% of a number, what is the number?

☐ A. 150

☐ C. 250

☐ B. 200

☐ D. 300

Sale Analysis		
Item	Original	Sale Price
Widget	\$20	\$16
Gadget	\$30	\$24

5)

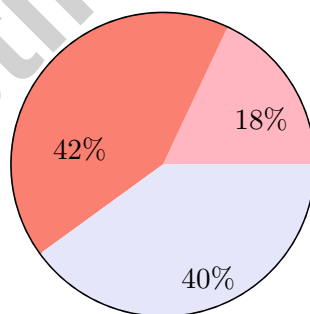
A store applies consistent discount rates. Based on the table, what is the discount percent for both items?

☐ A. 10%

☐ C. 25%

☐ B. 33%

☐ D. 20%



6)

The circle graph displays student participation in after-school activities. Light pink is sports (18%), salmon is clubs (42%), and lavender is arts (40%). If 600 students attend the school, how many participate in clubs?

☐ A. 108

☐ C. 240

☐ B. 180

☐ D. 252



7) A student computed $-8 + 5$ and got -13 . What was the error?

- ☐ A. Subtracted instead of added ☐ C. Used the wrong sign for the result
☐ B. Added the absolute values without keeping correct sign ☐ D. The answer is correct

8) What is $\frac{3}{4} \div \frac{1}{2}$?

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

9) Evaluate $2x + 4y - 3z$ when $x = 1$, $y = 2$, and $z = -1$.

- ☐ A. 13 ☐ C. 15
☐ B. 11 ☐ D. 5

10) A lemonade stand charges \$0.75 per cup. What is the constant of proportionality for revenue per cup?

11) A phone plan costs \$15 per month plus \$0.10 per text message. Is the total cost proportional to the number of text messages?

- ☐ A. Yes ☐ C. Only if you send fewer than 50 texts
☐ B. Only if you pay more than \$20 ☐ D. No

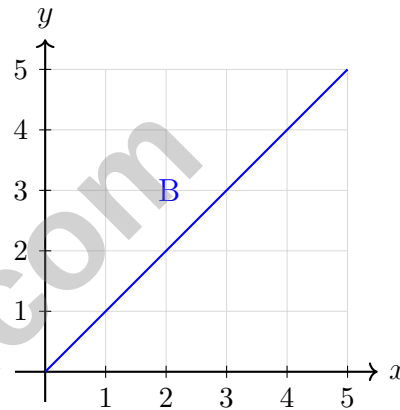
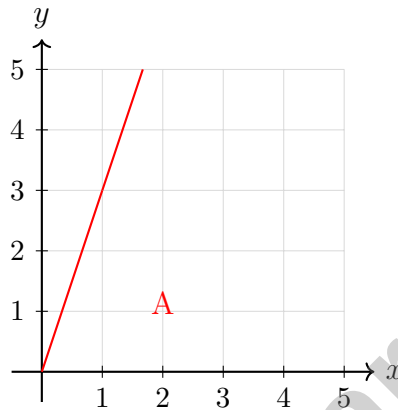


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1) If 52% of a school's 650 students are girls, which is the most efficient method to find the number of girls?

- ☐ A. Divide 650 by 52
- ☐ B. Use a proportion: $\frac{52}{100} = \frac{x}{650}$ and cross-multiply
- ☐ C. Add $52 + 650$ and take $\frac{1}{2}$
- ☐ D. Convert 52% to a decimal and multiply: 0.52×650

2) Which graph shows the relationship $y = 3x$?



- ☐ A. Both lines
- ☐ B. Blue line
- ☐ C. Neither line
- ☐ D. Red line
- 3) A factory produces widgets at a constant rate. In 6 hours, 180 widgets are produced. What is the constant of proportionality (widgets per hour)?
- ☐ A. 20 widgets/hr
- ☐ B. 36 widgets/hr
- ☐ C. 25 widgets/hr
- ☐ D. 30 widgets/hr



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& answers

- 4) A triangular prism has two triangular bases, each with base 12 cm and height 9 cm (isosceles triangle). The prism extends 10 cm. Assuming the two equal sides of the triangle are each 10.8 cm, what is the approximate surface area?

☐ A. 108 cm^2 ☐ C. 444 cm^2
☐ B. 216 cm^2 ☐ D. 540 cm^2

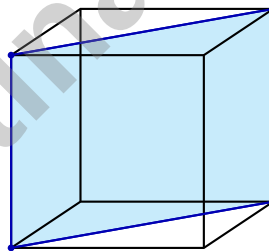
- 5) A simulation consists of rolling a die and flipping a coin, recording both results. This is the compound event. How many equally likely outcomes are in the sample space?

☐ A. 6 ☐ C. 12
☐ B. 8 ☐ D. 36

- 6) A student claims that $x = 5$ is a solution to $2x - 1 > 7$. Is the student correct?

☐ A. Yes, because $2(5) - 1 = 9 > 7$ ☐ C. Yes, the solution is exactly 5
☐ B. No, because $2(5) - 1 = 9 \not> 8$ ☐ D. No, because $5 > 7$ is false

rectangular cross-section



7)

A plane cuts diagonally through the cube as shown. What is the shape of the resulting cross-section?

☐ A. Rectangle ☐ C. Parallelogram
☐ B. Square ☐ D. Isosceles trapezoid



1) Which statement best explains why simulation results often differ from theoretical probabilities?

- ☐ A. The simulation tool is always imperfect
- ☐ B. Random variation causes small differences in finite samples
- ☐ C. Theoretical probability is always wrong
- ☐ D. More simulations guarantee exact agreement with theory

2) If $(-20) \div y = -4$, what is y ?

- ☐ A. -5
- ☐ B. 5
- ☐ C. -80
- ☐ D. 80

3) Evaluate $\frac{3a-1}{2}$ when $a = 3$.

- ☐ A. 4
- ☐ B. 8
- ☐ C. 5
- ☐ D. 3

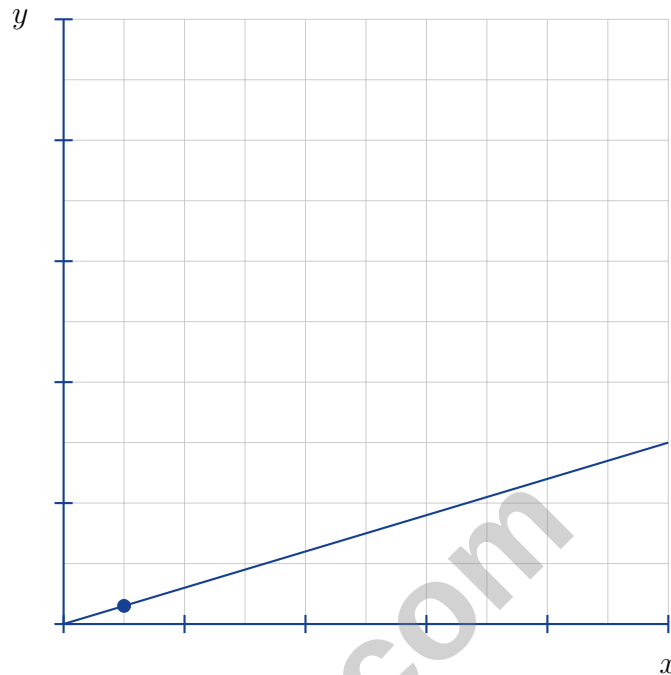
4) A student is comparing two equations written by classmates for the same problem: "An online store charges \$6 per item plus \$3.50 shipping." Student A writes: $T = 6n + 3.50$. Student B writes: $T = 3.50 + 6n$. Which statement is true?

- ☐ A. Only Student A is correct.
- ☐ B. Only Student B is correct.
- ☐ C. Both are correct because addition is commutative.
- ☐ D. Neither is correct; the answer is $T = 6(n + 3.50)$.

5) Solve: $\frac{2x-1}{3} \leq 5$

- ☐ A. $x \leq 8$
- ☐ B. $x \leq \frac{16}{2}$
- ☐ C. $x \leq 7$
- ☐ D. $x > 8$





6)

Based on this graph of a proportional relationship, which statement is true?

- ☐ A. The line does not pass through the origin.
- ☐ B. When $x = 10$, $y = 5$.
- ☐ C. The equation is $y = 0.5x$.
- ☐ D. The unit rate is 0.3.

7) Convert 0.125 to a fraction in simplest form.

- ☐ A. $\frac{1}{8}$
- ☐ B. $\frac{125}{1000}$
- ☐ C. $\frac{1}{12}$
- ☐ D. $\frac{5}{40}$



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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) Unit rate: $\frac{1/2}{2} = \frac{1}{4}$ cup per dozen. For 5 dozen: $\frac{1}{4} \times 5 = \frac{5}{4}$ cups.
- 2) **Choice A is correct.** (7.NS.1-7.NS.3) Subtracting a negative becomes addition: $-2 - (-6) = -2 + 6 = 4$.
- 3) **Choice C is correct.** (7.NS.1b) Starting at floor -2 and moving up 9 floors: $-2 + 9 = 7$. The elevator reaches floor 7.
- 4) **Choice C is correct.** (7.RP.3) If $25 = 0.10 \times n$, then $n = \frac{25}{0.10} = 250$.
- 5) **Choice D is correct.** (7.RP.3) Widget: discount = $(20 - 16)/20 = 4/20 = 0.20 = 20\%$. Gadget: discount = $(30 - 24)/30 = 6/30 = 0.20 = 20\%$. Both are 20% off.
- 6) **Choice D is correct.** (7.SP.1-7.SP.4) 42% of $600 = 0.42 \times 600 = 252$ students.
- 7) **Choice B is correct.** (7.NS.1-7.NS.3) Correct answer: $-8 + 5 = -3$. The student likely added $|-8| + |5| = 13$ and then used the negative sign, forgetting that when adding numbers with different signs, the result has the sign of the larger absolute value.
- 8) **Choice C is correct.** (7.NS.1-7.NS.3) Multiply by the reciprocal: $\frac{3}{4} \div \frac{1}{2} = \frac{3}{4} \times \frac{2}{1} = \frac{6}{4} = \frac{3}{2}$.
- 9) **Choice A is correct.** (7.EE.1-7.EE.2) Substitute: $2(1) + 4(2) - 3(-1) = 2 + 8 + 3 = 13$.
- 10) **The correct answer is 0.75.** (7.RP.1-7.RP.3) Revenue is price per cup times cups sold, so the constant is 0.75.
- 11) **Choice D is correct.** (7.RP.1-7.RP.3) The equation is $\text{Cost} = 15 + 0.10t$. The constant \$15 (fixed fee) means not proportional.
- 12) **Choice D is correct.** (7.RP.1-7.RP.3) Unit rate = $240 \div 8 = 30$ widgets per hour.
- 13) **Choice C is correct.** (7.RP.3) Cross-multiplying $\frac{90}{18} = \frac{p}{100}$ gives $p = 500$. The correct setup is $\frac{18}{90} = \frac{p}{100}$, yielding $p = 20\%$.
- 14) **Choice C is correct.** (7.RP.3) Simple interest over 10 years: Interest = $\$100 \times 0.03 \times 10 = \30 . Total = $\$100 + \$30 = \$130$. This illustrates the trade-off between immediate wants (enjoying the game now) and long-term savings (compounding money for college)—a Grade-7 investing concept.
- 15) **Choice A is correct.** (7.NS.2d) Divide $5 \div 16 = 0.3125$. Since $16 = 2^4$, this is a terminating decimal.
- 16) **Choice C is correct.** (7.NS.1-7.NS.3) Total cost: $12.50 \times 7.5 = 93.75$ dollars.
- 17) **Choice B is correct.** (7.NS.1-7.NS.3) $3^2 = 9$ and $3.2^2 = 10.24$. Since 10 is very close to 9, $\sqrt{10} \approx 3.16$, closest to 3.2.
- 18) **The correct answer is 3.9375.** (7.RP.1-7.RP.3) Scale: $\frac{1}{2}$ inch : 4 feet means 1 inch : 8 feet. Dimensions on plan: $18 \div 8 = 2.25$ inches and $14 \div 8 = 1.75$ inches. Area = $2.25 \times 1.75 = 3.9375$ sq in.
- 19) **Choice A is correct.** (7.NS.1-7.NS.3) Average = $\frac{9.2+8.8+9.5+9.1+8.9}{5} = \frac{45.5}{5} = 9.1$ seconds.
- 20) **Choice B is correct.** (7.NS.1-7.NS.3) $3.9 \times 10^6 = 3,900,000$ and $4.1 \times 10^5 = 410,000$. Since the exponent 6 is larger, 3.9×10^6 is larger.
- 21) **The correct answer is A,B.** (7.RP.1-7.RP.3) $k = 5/20 = 0.25$ miles per minute, so A is correct. When $t = 40$: $d = 0.25 \times 40 = 10$ miles, so B is correct. C is incorrect: $d = 0.25t$, not $4t$. D is incorrect: $d = 0.25 \times 60 = 15$ miles, not 12.
- 22) **Choice A is correct.** (7.EE.1-7.EE.2) A 25% discount removes 25%, so we keep $1 - 0.25 = 0.75$ of the original price.
- 23) **Choice A is correct.** (7.SP.5-7.SP.8) Each sector is $\frac{120}{360} = \frac{1}{3}$ of the whole circle, so $P(\text{Blue}) = \frac{1}{3}$. Distractors: B is $\frac{1}{4}$ (too small), C is $\frac{2}{3}$ (counts two sectors), D is $\frac{2}{5}$ (incorrect ratio).
- 24) **Choice B is correct.** (7.NS.2) Loss of \$3 per day for 5 days: $(-3) \times 5 = -15$. The total change is $-\$15$.
- 25) **The correct answer is \$81.** (7.RP.3) $I = 600 \times 0.045 \times 3 = \81 .
- 26) **Choice A is correct.** (7.SP.3) Athletic Group clusters tightly around 8 glasses with range 3 (6–9). Casual Group ranges from 2–10 (range 8) with uneven distribution, indicating less consistent hydration habits.
- 27) **Choice D is correct.** (7.RP.3) Design fee = $0.15 \times 200 = \$30$. Total = $200 + 30 = \$230$.
- 28) **Choice B is correct.** (7.G.4-7.G.6) Rectangle: $5 \times 4 = 20 \text{ in}^2$. Trapezoid: $\frac{1}{2}(5+3) \times 2 = 8 \text{ in}^2$. Total: $20 + 8 = 28 \text{ in}^2$.
- 29) **Choice C is correct.** (7.RP.1-7.RP.3) Ratio 2 : 9. If water = 18, then $\frac{2}{9} = \frac{x}{18}$, so $x = 2 \times 2 = 4$ cups salt.



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 5 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 **5** 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:

5 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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