

4

New Hampshire

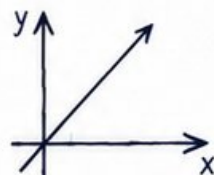
NH SAS

GRADE
7
MATH

PRACTICE TESTS

Standards Aligned
Problem Solving
For Comprehensive
Assessment Programs

$$y = mx + b$$



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



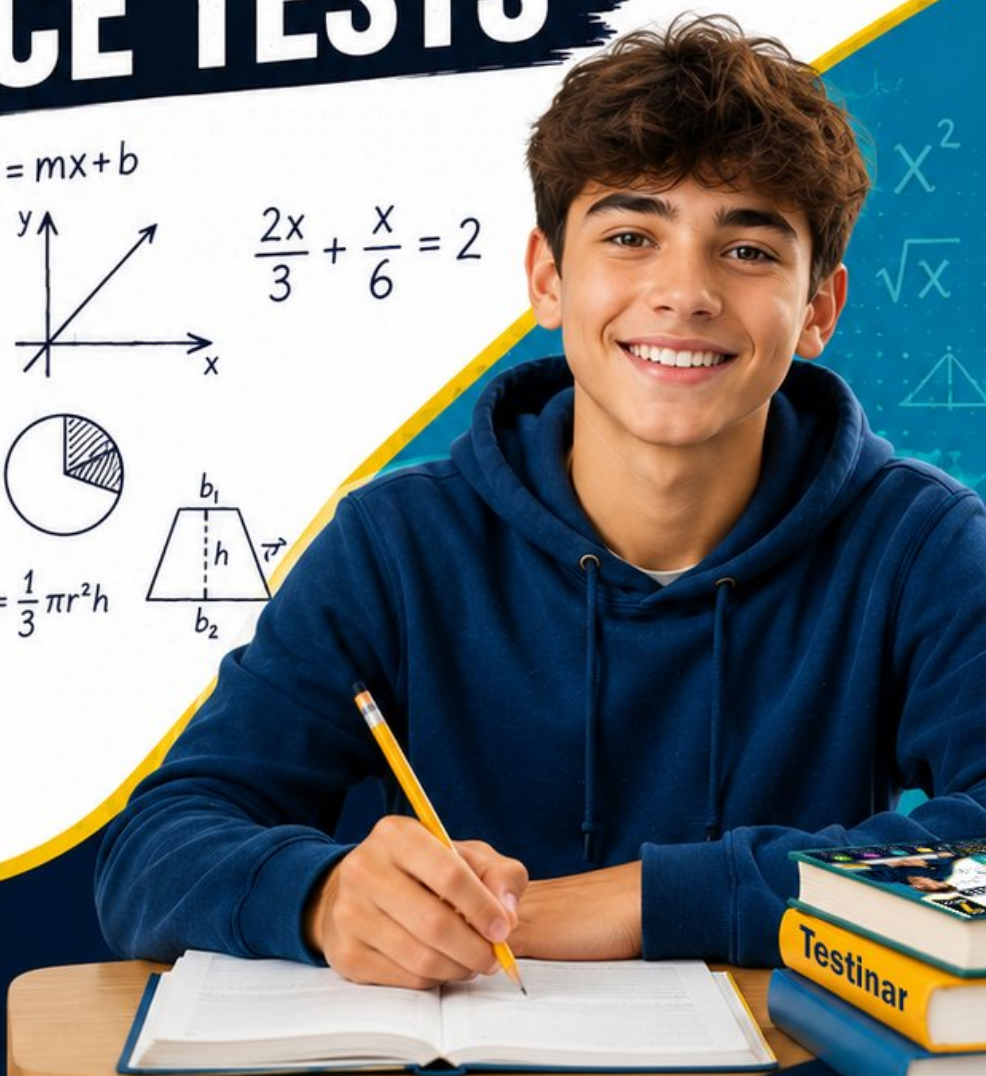
$$V = \frac{1}{3} \pi r^2 h$$



4 PRINTED TESTS

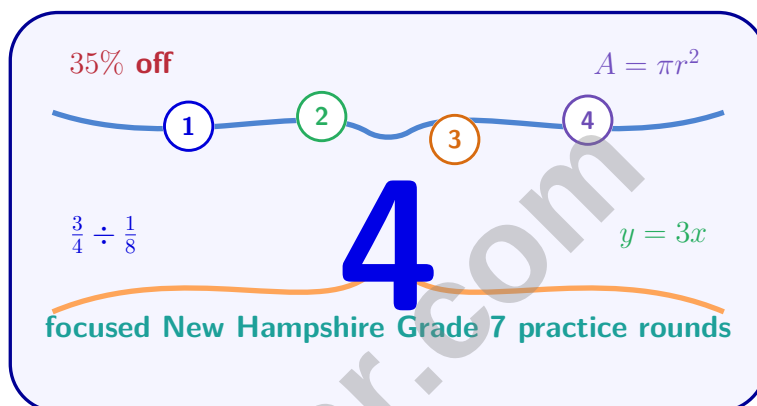


2 ONLINE TESTS

USE THESE TWO
ADDITIONAL ONLINE
PRACTICE TESTSFOR EXTRA REVIEW AFTER
THE PRINTED TESTS
IN THIS BOOK.Build
ConfidenceStrengthen
Math SkillsDetailed Answers
& ExplanationsImprove Test
Performance

4 New Hampshire NH SAS Grade 7 Math Practice Tests

Focused NH SAS Prep with Explanations for Every Item



Four 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!

Four focused rounds for sharper NH SAS math thinking

This book gives you four 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 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.

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?

Four NH SAS 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)

Day	Items Sold	Sample Size
Monday	18	100
Tuesday	36	160
Wednesday	25	125

On which day is the proportion of items sold the lowest?

- ☐ A. Monday
 ☐ C. Wednesday
- ☐ B. Tuesday
 ☐ D. All are equal
- 2) A basketball court has a circular free-throw line with diameter 12 feet. To the nearest foot, what is the circumference? Use $\pi \approx 3.14$.
- ☐ A. 19 ft
 ☐ C. 113 ft
- ☐ B. 75 ft
 ☐ D. 38 ft
- 3) What is the area of a circle with radius $\frac{1}{2}$ meter? Use $\pi \approx 3.14$.
- ☐ A. 0.785 m^2
☐ C. 3.14 m^2
- ☐ B. 1.57 m^2
☐ D. 6.28 m^2
- 4) A cylinder has a volume of 565.2 cubic cm and a height of 20 cm. What is the radius? Use $\pi \approx 3.14$.
- ☐ A. 1.5 cm
 ☐ C. 3 cm
- ☐ B. 2 cm
 ☐ D. 4.5 cm
- 5) A class splits into two study groups. Group X: median = 82, IQR = 8. Group Y: median = 82, IQR = 14. Which group has more consistent performance?
- ☐ A. Group X (smaller IQR)
 ☐ C. Both are equally consistent
- ☐ B. Group Y (larger IQR means more diversity)
 ☐ D. Cannot determine without range



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- 6) A restaurant has 3 appetizers, 5 main courses, and 2 desserts. If a diner chooses one of each, how many complete meals are possible?
- ☐ A. 10 ☐ C. 20
☐ B. 15 ☐ D. 30
- 7) Two box plots compare the calories burned (per session) during exercise for two fitness programs. Program 1: IQR = 75 calories. Program 2: IQR = 150 calories. Which program offers more consistent calorie burn?
- ☐ A. Program 1 (smaller IQR means less variation) ☐ C. Both programs are identical
☐ B. Program 2 (larger IQR means more options) ☐ D. Program 2 (higher numbers indicate better)
- 8) A factory tests light bulbs for quality. Out of 1000 bulbs tested, 980 passed inspection. Based on this experimental data, how many bulbs out of 5000 would be expected to pass?
- ☐ A. 980 ☐ C. 4800
☐ B. 3900 ☐ D. 4900
- 9) 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. $\frac{1}{25}$



10) A data set has values: 12, 15, 15, 18, 21, 23, 24, 28. Which is the correct stem-and-leaf plot?

- ☐ A. Stem 1: 2, 5, 5, 8; Stem 2: 1, 3, 4, 8 ☐ C. Stem 1: 2, 5, 5, 8; Stem 2: 3, 4, 8, 1
☐ B. Stem 1: 1, 2, 5, 5; Stem 2: 1, 3, 4, 8 ☐ D. Stem 1: 1, 2, 3, 4; Stem 2: 1, 5, 5, 8

11) A temperature changes from -8 degrees to 8 degrees. What is the total change in temperature?



12) A composite figure is formed by joining a trapezoid (parallel sides 5 cm and 7 cm, height 4 cm) with a rectangle (7 cm $\times$ 3 cm). What is the total area?

- ☐ A. 24 cm^2 ☐ C. 48 cm^2
☐ B. 45 cm^2 ☐ D. 60 cm^2

13) A triangular prism has a triangular base with area 42 mm^2 and volume 252 mm^3 . What is the height of the prism?

- ☐ A. 12 mm ☐ C. 6 mm
☐ B. 8 mm ☐ D. 3 mm



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1) A phone plan costs \$50 per month. With a promotional 5% reduction, the cost becomes $50 - 0.05(50)$. Rewrite this in the form $50(?)$.

☐ A. $50(0.95)$

☐ C. $50(1.05)$

☐ B. $50(0.05)$

☐ D. $50(1 - 0.05)$

2) What is $-\frac{3}{5} \times (-2.5)$?

☐ A. -1.5

☐ C. 2.5

☐ B. 1.5

☐ D. -2.5

3) Which scenario is NOT proportional?

☐ A. A vendor sells notebooks at \$2 each
(cost vs. quantity)

☐ C. A phone plan costs \$0.10 per
minute (cost vs. minutes)

☐ B. A car travels 60 miles per hour
(distance vs. time)

☐ D. A student grows 0.5 inches per year
starting from birth (height vs. age)

4) A triangle has two angles of 45° and 65° . If one side is 10 cm, how many distinct triangles can be drawn?

☐ A. Infinitely many

☐ C. 1

☐ B. 0

☐ D. 2

5) A stock loses 15 points. Express this as a signed number.

☐ A. -15 (correct; loss is negative)

☐ C. 15 (ignores the loss/negative
direction)

☐ B. 0 (no change)

☐ D. -30 (double the loss)



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6) A student simplifies $6x + 2x - 4x$ and gets $4x$. Is this correct?

- ☐ A. Yes, all terms were combined correctly.
- ☐ B. No, the correct answer is $12x$.
- ☐ C. No, the correct answer is $3x$.
- ☐ D. No, the answer cannot be simplified.

7) Which factorization is correct?

- ☐ A. $10x + 15 = 5(2x + 3)$
- ☐ B. $10x + 15 = 2(5x + 7.5)$
- ☐ C. $10x + 15 = 10(x + 1.5)$
- ☐ D. $10x + 15 = 3(3x + 5)$

8) A cube has surface area 600 cm^2 . What is its edge length?

- ☐ A. 5 cm
- ☐ B. 10 cm
- ☐ C. 100 cm
- ☐ D. 3600 cm

9) A simulation estimates the probability of an event to be 0.40 based on 250 trials. In another simulation with the same event and 1000 trials, the estimated probability is 0.38. Which statement is true?

- ☐ A. The first simulation is more accurate
- ☐ B. The second simulation is more reliable because it uses more trials
- ☐ C. Both simulations must have made errors
- ☐ D. The true probability is exactly 0.39

10) The temperature was -3°C at dawn. By noon, it had risen 18°C . What was the noon temperature?



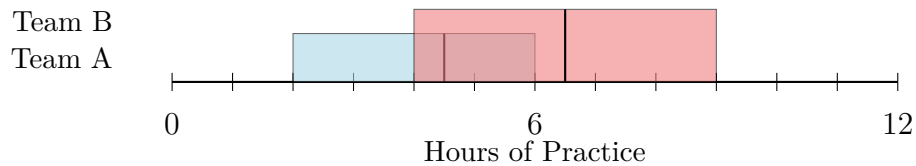
1) Factor: $6ab - 9b + 3b$

☐ A. $3b(2a - 2)$

☐ C. $b(6a - 9 + 3)$

☐ B. $3(2ab - 3b + b)$

☐ D. $3b(2a)$



2)

The box plots show practice hours for two soccer teams. Based on the visual, what is true about their centers and spreads?

- ☐ A. Team A: median ≈ 4.5 ; Team B: median ≈ 6.5 ; Team B more spread
- ☐ B. Team A practices more than Team B
- ☐ C. Both teams practice identically
- ☐ D. Medians cannot be compared from box plots

3) A composite figure is made of a right isosceles triangle (legs 8 cm each) attached to a square ($8 \text{ cm} \times 8 \text{ cm}$). What is the total area?

☐ A. 64 cm^2

☐ C. 100 cm^2

☐ B. 96 cm^2

☐ D. 128 cm^2

4) A prism has a base area of 72 ft^2 and a volume of 576 ft^3 . What is its height?

☐ A. 6 ft

☐ C. 12 ft

☐ B. 8 ft

☐ D. 504 ft



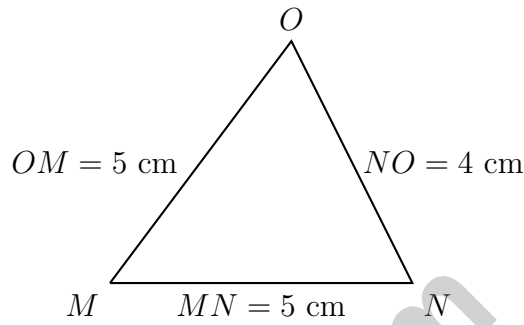
5) Which is the best approximation for π ?

☐ A. $\frac{22}{7}$

☐ B. 3

☐ C. 2.5

☐ D. 4



6)

Triangle MNO has sides $MN = 5$ cm, $NO = 4$ cm, and $OM = 5$ cm. What type of triangle is MNO ?

☐ A. Scalene☐ B. Isosceles☐ C. Equilateral☐ D. Right triangle

7) 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?

8) Simplify: $\frac{3}{5}x + \frac{2}{5}x$

☐ A. x

☐ B. $\frac{5}{10}x$

☐ C. $\frac{6}{5}x$

☐ D. $\frac{1}{5}x$



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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 A is correct.** (7.SP.1-7.SP.4) Compare each day's proportion. Monday: $\frac{18}{100} = 0.18$ (18%). Tuesday: $\frac{36}{160} = 0.225$ (22.5%). Wednesday: $\frac{25}{125} = 0.20$ (20%). Monday has the lowest proportion at 18%.
- 2) **Choice D is correct.** (7.G.4-7.G.6) $C = \pi d = 3.14 \times 12 = 37.68 \approx 38$ ft.
- 3) **Choice A is correct.** (7.G.4-7.G.6) $A = \pi r^2 = 3.14 \times \left(\frac{1}{2}\right)^2 = 3.14 \times 0.25 = 0.785$ m².
- 4) **Choice C is correct.** (7.G.4-7.G.6) $565.2 = 3.14 \times r^2 \times 20 \Rightarrow 565.2 = 62.8r^2 \Rightarrow r^2 = 9 \Rightarrow r = 3$ cm.
- 5) **Choice A is correct.** (7.SP.1-7.SP.4) Same median (82) but Group X has IQR = 8 (middle 50% spans 8 units) while Group Y has IQR = 14 (wider middle spread). Group X is more consistent.
- 6) **Choice D is correct.** (7.SP.5-7.SP.8) By the counting principle: $3 \times 5 \times 2 = 30$ complete meals.
- 7) **Choice A is correct.** (7.SP.3) Consistency is key for fitness tracking. IQR measures the spread of the middle 50% of data. Program 1's smaller IQR (75 calories vs. 150 calories) indicates tighter clustering in the central range, meaning calorie burn is more predictable across sessions.
- 8) **Choice D is correct.** (7.SP.6) Experimental probability of passing = $\frac{980}{1000} = 0.98$. We use this rate to predict outcomes in a larger sample: $0.98 \times 5000 = 4900$ expected passing bulbs.
- 9) **Choice C is correct.** (7.SP.5-7.SP.8) $P(\text{not } 1) = \frac{4}{5}$ on each spin. Both spins: $\frac{4}{5} \cdot \frac{4}{5} = \frac{16}{25}$.
- 10) **Choice A is correct.** (7.SP.1-7.SP.4) Leaves must be listed in order and correspond to the tens digit (stem).
- 11) **The correct answer is 16.** (7.NS.1-7.NS.3) The change is final minus initial: $8 - (-8) = 8 + 8 = 16$ degrees.
- 12) **Choice B is correct.** (7.G.4-7.G.6) Decompose into a trapezoid and a rectangle. Trapezoid: $\frac{1}{2}(5+7) \times 4 = \frac{1}{2} \times 12 \times 4 = 24$ cm². Rectangle: $7 \times 3 = 21$ cm². Add: $24 + 21 = 45$ cm².
- 13) **Choice C is correct.** (7.G.4-7.G.6) $h = \frac{V}{B} = \frac{252}{42} = 6$ mm.
- 14) **Choice C is correct.** (7.G.4-7.G.6) The three chords are: AB (diameter), CD (diameter), and AC . Each connects two points on the circle.
- 15) **Choice B is correct.** (7.SP.5-7.SP.8) An even chance means equally likely to happen or not, which is $P = 0.5 = 50\%$.
- 16) **Choice A is correct.** (7.G.1-7.G.5) This is the converse of the Pythagorean theorem. When the square of the longest side equals the sum of squares of the other two sides, the angle opposite the longest side is a right angle.
- 17) **Choice A is correct.** (7.NS.1-7.NS.3) Distance is found using absolute value: $|-12 - 3| = |-15| = 15$ or equivalently $|3 - (-12)| = 15$. Only choice A gives the correct distance.
- 18) **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.
- 19) **Choice C is correct.** (7.RP.3) 55% of 200 is $0.55 \times 200 = 110$ students.
- 20) **Choice D is correct.** (7.RP.3) Correct calculation: tax = $0.07 \times 85 = \$5.95$, final = $85 + 5.95 = \$90.95$. Student's error was treating 7% as the amount \$0.07 instead of computing 7% of the discounted price.
- 21) **Choice B is correct.** (7.SP.1-7.SP.4) $54^\circ \div 360^\circ \times 100 = 15\%$.
- 22) **The correct answer is -30.** (7.NS.2) Change per minute is -7.5 meters. After 4 minutes: $(-7.5) \times 4 = -30$ meters.
- 23) **Choice D is correct.** (7.RP.1-7.RP.3) Unit rate = $\frac{2/3}{1/5} = \frac{2}{3} \times 5 = \frac{10}{3}$ rooms per hour.
- 24) **Choice D is correct.** (7.RP.1-7.RP.3) Substitute into $y = -2x$: when $x = 1$, $y = -2(1) = -2$. Point $(1, -2)$ is on the line.
- 25) **Choice D is correct.** (7.RP.1-7.RP.3) The ratio salt:water is $3 : 12 = 1 : 4$, so $s = \frac{1}{4}w$.
- 26) **Choice D is correct.** (7.RP.1-7.RP.3) Calculate the unit rate from each data point: $\$450 \div 3 = \150 per month and $\$1200 \div 8 = \150 per month. Since both unit rates are \$150 per month, the relationship is proportional.
- 27) **Choice D is correct.** (7.RP.3) Using the proportion $\frac{40}{100} = \frac{x}{125}$, cross-multiply: $x = 50$.
- 28) **Choice B is correct.** (7.SP.5-7.SP.8) Total marbles: $3 + 5 + 2 = 10$. Red: 3 out of 10 gives $\frac{3}{10}$. (Blue would be $\frac{5}{10}$, green $\frac{2}{10}$, not red $\frac{7}{10}$).



One Last Encouragement

Hi, Determined Student!

◇ You did meaningful Grade 7 practice. That matters because confidence is built through action, not waiting until everything feels easy. 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:** Carry this with you: you can learn hard things by breaking them into steps, asking good questions, and reviewing with honesty. ★

Take This With You

- **You Can Start:** Even when the problem looks big.
- **You Can Adjust:** When the first method is not enough.
- **You Can Learn:** From every corrected mistake.
- **You Can Improve:** One practice session at a time.

Grade 7 test-day tip: Walk into test day ready to think, not ready to be perfect. Thinking clearly is the goal.

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

Jay Daie

Your Grade 7 Math Friend

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:

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2 Online Practice Tests

 Detailed Answers & Explanations



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Give your child the tools to build strong math skills, confidence, and a positive attitude toward learning.

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Practice regularly to feel prepared and test-ready.



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Develop key math concepts and problem solving abilities.



Improve Understanding

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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

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2 EXTRA ONLINE TEST ACCESS CODE IS INSIDE THE BOOK!

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