

9

New Hampshire

NH SAS

GRADE 7

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

Program



9 PRINTED TESTS



2 ONLINE TESTS



Use these two additional online practice tests
for **extra review** after the printed tests in this book.



BUILT FOR ACAP
Standards-Aligned



**STRENGTHEN
SKILLS**



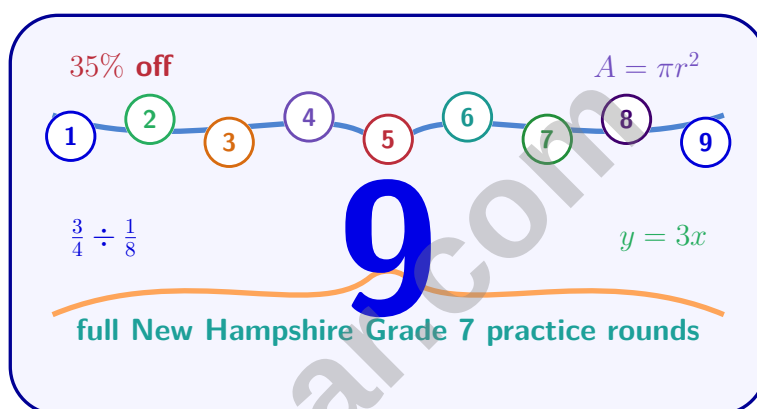
**SHARPEN
THINKING**



BE TEST-READY
Improve Performance

9 New Hampshire NH SAS Grade 7 Math Practice Tests

Standards-Aligned New Hampshire Practice for Proportional Reasoning, Expressions, Geometry, Statistics, and Probability



Nine 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!

Nine focused rounds for sharper NH SAS math thinking

This book gives you nine 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 nine-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?

Nine NH SAS tests, 360 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.
Tests 7–9	Statistics, probability, mixed review, stamina, and choosing efficient strategies.
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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For more practice
& answers

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- 1) A phone plan charges \$0.10 per minute. If m is the number of minutes and c is the cost in dollars, which equation models this?

☐ A. $c = 10m$

☐ C. $m = 0.10c$

☐ B. $c = m + 0.10$

☐ D. $c = 0.10m$

- 2) Three coins are flipped. What is the probability of getting at least one head?

☐ A. $\frac{1}{8}$

☐ C. $\frac{6}{8}$

☐ B. $\frac{3}{8}$

☐ D. $\frac{7}{8}$

- 3) Students were surveyed about after-school activities. The data:

Activity	Sports	Music	Art	Drama
Count	72	48	36	24

Based on this data, what is the experimental probability that a randomly selected student participates in either music or art?

☐ A. $\frac{48}{180}$

☐ C. $\frac{48}{84}$

☐ B. $\frac{84}{180}$

☐ D. $\frac{60}{180}$

- 4) An event planner receives \$3,000 for planning a wedding. She must pay a 12% vendor coordination fee from her earnings. How much does she keep after the fee?

☐ A. \$360

☐ C. \$2,640

☐ B. \$2,400

☐ D. \$3,360

- 5) A student is asked: "If a circle has a diameter of 10 cm, what is the radius?" The student writes: "The radius is 20 cm." What is the student's error?

☐ A. The student multiplied by 2 instead of dividing by 2

☐ C. The student used the wrong units

☐ B. The student forgot that radius exists

☐ D. The student added instead of dividing


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6) Which fraction is equivalent to a probability of 0.75?

- ☐ A. $\frac{1}{4}$
☐ B. $\frac{3}{4}$

- ☐ C. $\frac{1}{2}$
☐ D. $\frac{4}{5}$

7) A coin is flipped, and then a spinner with sections 1, 2, 3, 4, 5, 6 is spun. How many outcomes are in the sample space?

8) A window measures 3 feet wide and 4 feet tall. A scale drawing shows it as 1.5 inches wide. What is the height on the scale drawing?

- ☐ A. 1 inch
☐ B. 4 inches

- ☐ C. 3 inches
☐ D. 2 inches

9) A pair of shoes is on sale for \$45. If the original price was \$60, what is the percent discount?

- ☐ A. 15%
☐ B. 40%

- ☐ C. 33%
☐ D. 25%

10) On a number line, you start at 4 and move 11 units left. Where do you land?

- ☐ A. -15
☐ B. 15

- ☐ C. 7
☐ D. -7



11) A printer produces $\frac{2}{3}$ ream of paper in $\frac{1}{4}$ hour. How many reams can it produce in 3 hours?

☐ A. 6 reams

☐ C. 2 reams

☐ B. $\frac{2}{3}$ reams

☐ D. 8 reams

12) A rental car costs \$25 per day. Which table represents the cost for different numbers of days?

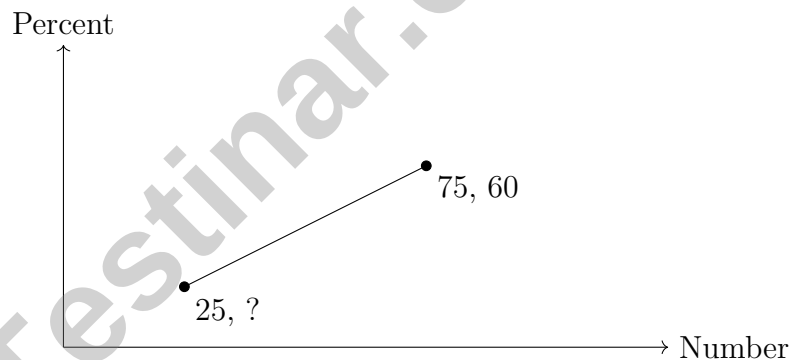
Days	1	2	3
Option A: Cost	25	50	75
Option B: Cost	26	50	74

☐ A. Option A

☐ C. Neither

☐ B. Option B

☐ D. Both



13)

On a double number line, the point (75, 60) is marked. What percent corresponds to 25?

☐ A. 15%

☐ C. 25%

☐ B. 30%

☐ D. 20%



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1) A retailer marks items up by 45% from their cost of \$60. What is the selling price?

☐ A. \$105

☐ C. \$33

☐ B. \$270

☐ D. \$87

2) A recipe uses $\frac{3}{4}$ cup of milk for $\frac{1}{3}$ batch. How much milk is needed for a full batch?

☐ A. $\frac{1}{9}$ cup

☐ C. $\frac{1}{4}$ cup

☐ B. 1 cup

☐ D. $2\frac{1}{4}$ cups

3) If pencils cost \$0.75 each with no bulk discount, is cost proportional to quantity?

☐ A. Cannot determine without a starting point

☐ C. Yes, but only if quantity is even

☐ B. No, because there is a base cost of one pencil

☐ D. Yes, $k = 0.75$

4) A proportional relationship is $y = \frac{3}{5}x$. When $x = 25$, what is y ?

☐ A. $y = 12$

☐ C. $y = 18$

☐ B. $y = 20$

☐ D. $y = 15$

5) Which equation represents a proportional relationship with a constant of proportionality of 3?

☐ A. $y = 3x + 2$

☐ C. $y = \frac{x}{3}$

☐ B. $y = x + 3$

☐ D. $y = 3x$

6) Which factorization is incomplete (not fully factored)?

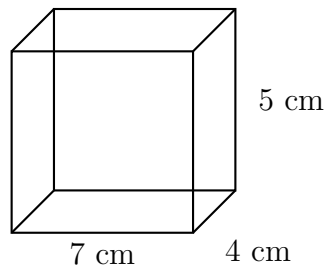
☐ A. $32x + 48 = 16(2x + 3)$

☐ C. $18a + 12b = 3(6a + 4b)$

☐ B. $21y - 14 = 7(3y - 2)$

☐ D. $6m + 9n = 3(2m + 3n)$





7)

The diagram shows a rectangular prism with dimensions $7\text{ cm} \times 5\text{ cm} \times 4\text{ cm}$. What is the surface area?

☐ A. 166 cm^2

☐ C. 256 cm^2

☐ B. 140 cm^2

☐ D. 384 cm^2

8) Solve: $0.5x + 2 < 7$

☐ A. $x < 10$

☐ C. $x < 18$

☐ B. $x > 10$

☐ D. $x < 4.5$

9) Evaluate $\frac{a+b}{2}$ when $a = 6$ and $b = 10$.

☐ A. 6

☐ C. 10

☐ B. 16

☐ D. 8

10) A streaming service costs \$12.99 per month plus a one-time setup fee of \$19.99. Which expression shows the total cost C for n months?

☐ A. $C = 19.99 + 12.99n$

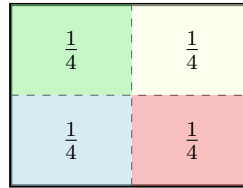
☐ C. $C = 19.99(n + 12.99)$

☐ B. $C = 19.99n + 12.99$

☐ D. $C = 12.99n + 12.99$



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1)

A rectangular area model shows four equal regions. Is this a uniform probability model?

- ☐ A. No, the model does not sum to 1. ☐ D. Yes, but only if we add more regions.
☐ B. No, regions have different areas.
☐ C. Yes, each region has probability $\frac{1}{4}$.

2) Solve for x : $-6(x - 3) = 12$

- ☐ A. $x = 1$ ☐ C. $x = 3$
☐ B. $x = 2$ ☐ D. $x = 5$

3) A map uses a scale of 1 cm : 15 km. If a road is 450 km long, what length would it be on the map?

- ☐ A. 10 cm ☐ C. 30 cm
☐ B. 20 cm ☐ D. 45 cm

4) An architect draws a rectangular lobby 3.5 inches by 4.5 inches at scale 1 in : 12 ft. If the scale is changed to 1 in : 6 ft, what are the new dimensions?

- ☐ A. 3.5 in by 4.5 in ☐ C. 1.75 in by 2.25 in
☐ B. 7 in by 9 in ☐ D. 14 in by 18 in



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5) A cone is cut by a plane that passes through the apex and the base circle. What is the shape of the cross-section?

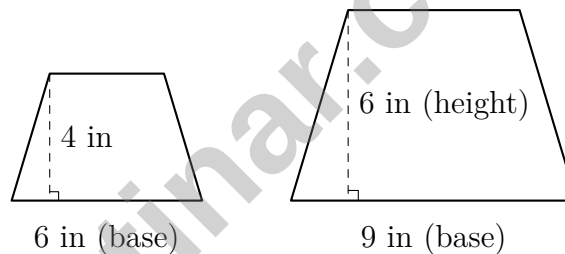
- ☐ A. Circle
☐ B. Isosceles triangle
☐ C. Ellipse
☐ D. Semicircle

6) Angle X is supplementary to an angle of 47° . What is the measure of angle X ?

- ☐ A. 133°
☐ B. 93°
☐ C. 43°
☐ D. 227°

7) What is the rule for reflecting a point over the line $y = -x$?

- ☐ A. $(x, y) \rightarrow (y, x)$
☐ B. $(x, y) \rightarrow (-y, -x)$
☐ C. $(x, y) \rightarrow (-x, -y)$
☐ D. $(x, y) \rightarrow (y, -x)$



8)

The two trapezoids are similar. The left trapezoid has a base of 6 inches and a height of 4 inches. The right trapezoid has a base of 9 inches. What is the scale factor from left to right?

- ☐ A. 1.25
☐ B. 1.5
☐ C. 1.67
☐ D. 2



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) The constant of proportionality is \$0.10 per minute, so $c = 0.10m$.
- 2) **Choice D is correct.** (7.SP.5-7.SP.8) Easier using complement: $P(\text{at least one head}) = 1 - P(\text{all tails}) = 1 - \frac{1}{8} = \frac{7}{8}$.
- 3) **Choice B is correct.** (7.SP.6) Total students: $72 + 48 + 36 + 24 = 180$. Music or Art: $48 + 36 = 84$. Experimental probability = $\frac{84}{180} = \frac{7}{15}$.
- 4) **Choice C is correct.** (7.RP.3) Coordination fee = $0.12 \times 3000 = \$360$. Amount kept = $3000 - 360 = \$2,640$.
- 5) **Choice A is correct.** (7.G.4-7.G.6) The correct radius is $10 \div 2 = 5$ cm. The student incorrectly multiplied: $10 \times 2 = 20$ cm.
- 6) **Choice B is correct.** (7.SP.5-7.SP.8) $\frac{3}{4} = 0.75$. Dividing $3 \div 4 = 0.75$.
- 7) **The correct answer is 12.** (7.SP.5-7.SP.8) Coin outcomes: 2. Spinner outcomes: 6. Total: $2 \times 6 = 12$ outcomes.
- 8) **Choice D is correct.** (7.RP.1-7.RP.3) Scale factor: $3 \text{ ft} / 1.5 \text{ in} = 2 \text{ ft per inch}$. Height: $4 \div 2 = 2$ inches.
- 9) **Choice D is correct.** (7.RP.3) Discount is $60 - 45 = 15$. Percent: $\frac{15}{60} = \frac{1}{4} = 25\%$.
- 10) **Choice D is correct.** (7.NS.1b) Moving left on a number line means adding a negative: $4 + (-11) = -7$. You land at -7 .
- 11) **Choice D is correct.** (7.RP.1-7.RP.3) Unit rate: $\frac{2/3}{1/4} = \frac{2}{3} \times 4 = \frac{8}{3}$ reams/hour. In 3 hours: $\frac{8}{3} \times 3 = 8$ reams.
- 12) **Choice A is correct.** (7.RP.1-7.RP.3) At \$25/day: 1 day costs \$25, 2 days cost \$50, 3 days cost \$75. Option A is correct.
- 13) **Choice D is correct.** (7.RP.3) On a proportional double number line, the ratio is constant: $\frac{60}{75} = \frac{4}{5}$. For 25: set up $\frac{25}{x} = \frac{75}{60}$, so $x = 20$.
- 14) **Choice C is correct.** (7.RP.3) Time in the market is a key factor in investment returns. Starting early maximizes compound growth. Options A, B, and D are false or misleading.
- 15) **Choice C is correct.** (7.EE.1-7.EE.2) Check C: $(2c + 3) + (5c - 2) = (2c + 5c) + (3 - 2) = 7c + 1$ ✓.
- 16) **Choice B is correct.** (7.G.1-7.G.5) Actual length: $8 \text{ cm} \times 32 = 256 \text{ cm} = 2.56 \text{ m}$.
- 17) **Choice C is correct.** (7.G.1-7.G.5) Original scale 1:5 means $1 \text{ cm} = 5 \text{ m}$. New scale 1:2.5 means $1 \text{ cm} = 2.5 \text{ m}$. Real-world distance per cm halved (5 to 2.5), so drawing expands. Scale factor ratio: $2.5 \div 5 = 0.5$, so drawing dimension ratio = $1 \div 0.5 = 2$. New dimensions: $4 \times 2 = 8 \text{ cm}$ and $6 \times 2 = 12 \text{ cm}$.
- 18) **Choice A is correct.** (7.G.1-7.G.5) A 90° counterclockwise rotation maps $(x, y) \rightarrow (-y, x)$. Working backward, if $(-y, x) = (2, -5)$, then $y = -2$ and $x = 5$, so $W = (5, 2)$.
- 19) **The correct answer is A,B.** (7.G.4-7.G.6) A is correct: volume $V = B \times h$ for any prism. B is correct: $V = 4^3 = 64 \text{ cm}^3$. C is false: doubling height doubles volume, not triples it. D is false: a triangular prism can have larger volume than a rectangular prism depending on dimensions.
- 20) **Choice C is correct.** (7.NS.1-7.NS.3) $\sqrt{289} = 17$ feet because $17 \times 17 = 289$.
- 21) **Choice A is correct.** (7.NS.1-7.NS.3) Total needed for average of 500 over 4 days = $500 \times 4 = 2000$ calories. Already burned: $450 + 510 + 495 = 1455$ calories. Needed Thursday: $2000 - 1455 = 545$ calories.
- 22) **Choice A is correct.** (7.NS.1-7.NS.3) $2.75 \times 10^{-6} = 0.00000275$. Move decimal 6 places left.
- 23) **Choice A is correct.** (7.EE.1-7.EE.2) A 25% markup is $c + 0.25c = c(1 + 0.25) = 1.25c$.
- 24) **Choice D is correct.** (7.EE.3-7.EE.4) Add 6: $\frac{x}{2} = 10$. Multiply by 2: $x = 20$.
- 25) **Choice D is correct.** (7.SP.5-7.SP.8) 5 is not on the spinner, so $P(5) = 0$. The others are correct.
- 26) **Choice B is correct.** (7.NS.2) $-2\frac{1}{3} = -\frac{7}{3}$. So $-\frac{7}{3} \times (-3) = \frac{7 \times 3}{3} = 7$. Negative times negative is positive.
- 27) **Choice A is correct.** (7.SP.1-7.SP.4) The tens digit (6) is the stem; the ones digit (7) is the leaf.
- 28) **Choice B is correct.** (7.G.4-7.G.6) Decompose into a rectangle and a triangle. Rectangle: $8 \times 5 = 40$ sq units. Triangle: $\frac{1}{2} \times 2 \times 5 = 5$ sq units. Add: $40 + 5 = 45$ sq units.
- 29) **Choice C is correct.** (7.RP.3) The housing bar reaches \$1200 on the vertical axis.
- 30) **Choice A is correct.** (7.RP.3) $1000(1 + r)^2 = 1440 \Rightarrow (1 + r)^2 = 1.44 \Rightarrow 1 + r = 1.20 \Rightarrow r = 0.20 = 20\%$.



Hi, Confident Learner!

◇ This high-stamina book gave you nine substantial Grade 7 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. Grade 7 math can feel big because it brings together rational numbers, expressions, equations, geometry, probability, and data. ◇

★ **Remember this:** But big topics become manageable when you practice one skill at a time. That is what you have been doing with every test in this book. ★

Confidence Builders

- **Know the Goal:** Identify what the question asks.
- **Use Vocabulary:** Math words point to math actions.
- **Show Work:** Give yourself something to check.
- **Celebrate Effort:** Practice is proof that you are moving.

Grade 7 test-day tip: When reviewing, do not only mark wrong answers. Write one sentence about what you learned from each one.

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

Jay Daie

Your Confidence Coach

PRACTICE TODAY. SUCCEED TOMORROW!

This book includes **9** 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:

9 Full-Length Printed Tests

2 Online Practice Tests

 Detailed Answer 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



Stronger Math Skills

Build a solid foundation through targeted practice and review.



Better Problem Solving

Develop logical thinking and effective solution strategies.



Deeper Understanding

Reinforce key concepts with clear explanations and meaningful practice.



Test Confidence

Familiarize with test formats and improve accuracy and speed.



Achieve Success

Build confidence and perform your best on test day.

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!

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SUCCEED
BRIGHTLY