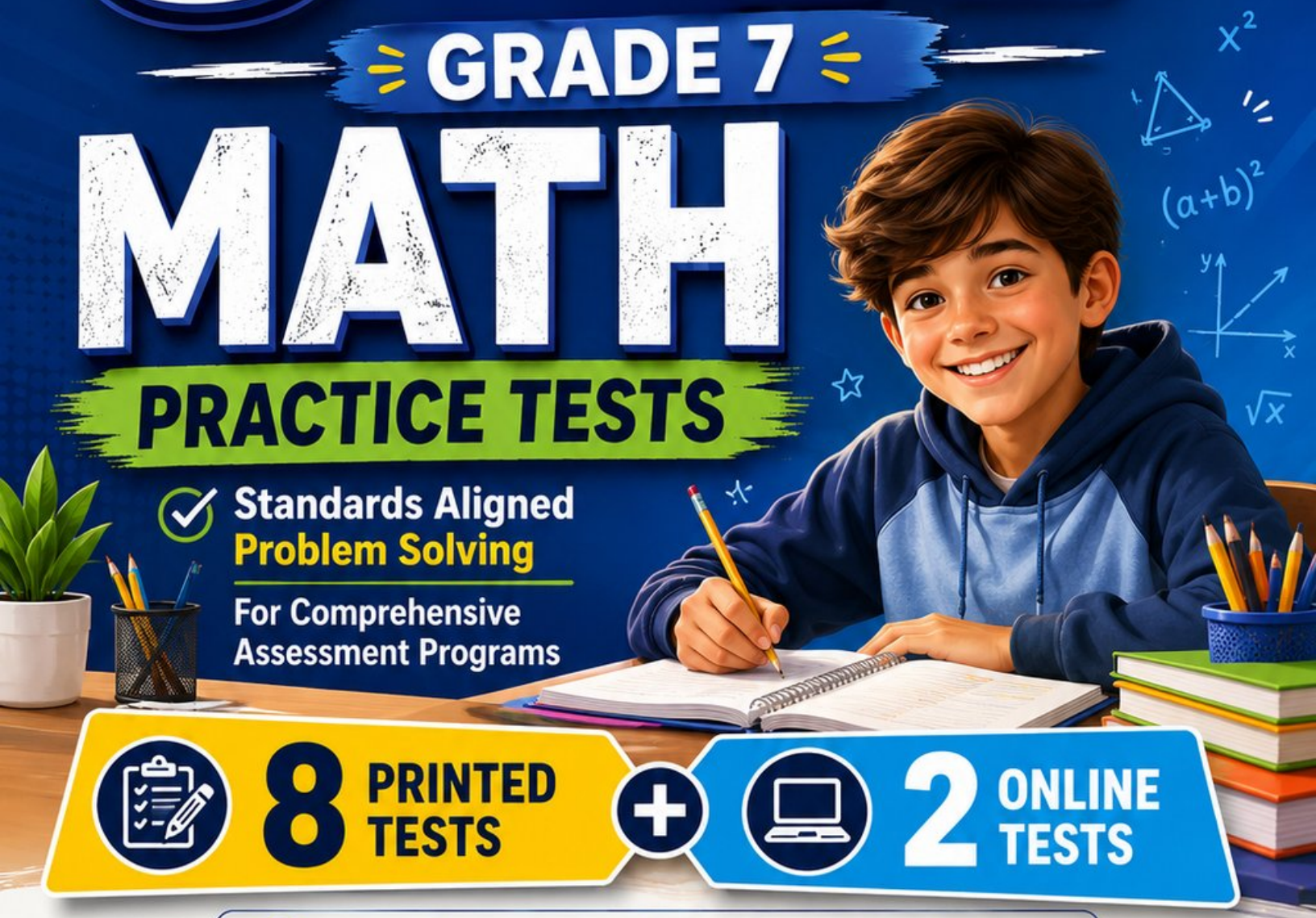
8 North Carolina EOG

GRADE 7

MATH

PRACTICE TESTS



Standards Aligned
Problem Solving

For Comprehensive Assessment Programs

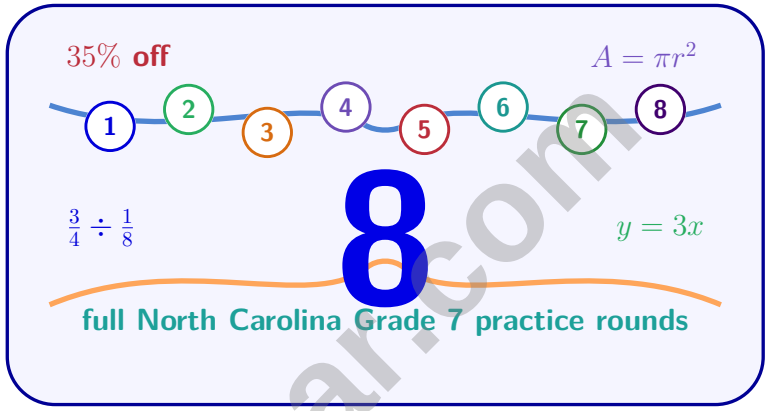
8 PRINTED TESTS + **2 ONLINE TESTS**

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

BUILD CONFIDENCE | STRENGTHEN SKILLS | THINK SMARTER | BE TEST-READY

8 North Carolina EOG Grade 7 Math Practice Tests

A practice-rich path across North Carolina Grade 7 finance math, rational numbers, equations, surface area, volume, and statistics



Eight complete 40-question Grade 7 EOG 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, North Carolina Grade 7 Problem Solver!

Eight focused rounds for sharper EOG math thinking

This book gives you eight full Grade 7 EOG 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 North Carolina 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.

How to Use This Book

An eight-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.

North Carolina 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?

Eight EOG tests, 320 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 7–8	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.

Table of Contents

1) A rectangular prism has length 4 cm, width 3 cm, and height 5 cm. What is its surface area?

☐ A. 47 cm^2
☐ B. 60 cm^2
☐ C. 94 cm^2
☐ D. 120 cm^2

2) Which is equivalent to $(6v + 2) + (3v - 8)$?

☐ A. $9v - 6$
☐ B. $3v - 6$
☐ C. $9v + 10$
☐ D. $9v - 10$

3) Simplify: 7^1

☐ A. 0
☐ B. 1
☐ C. 7
☐ D. 49

4) A hair salon charges $25 for a haircut and $8 per hair treatment. If the bill is $73, which equation represents t, the number of treatments?

☐ A. $25t + 8 = 73$
☐ B. $8t + 25 = 73$
☐ C. $8 + 25t = 73$
☐ D. $25(t + 8) = 73$

5) A number decreased by 9 and then tripled equals 15. Which equation matches this?

☐ A. $3(x - 9) = 15$
☐ B. $3x - 9 = 15$
☐ C. $(x - 9) \div 3 = 15$
☐ D. $x - 9 \times 3 = 15$

Multiply each part by 2:

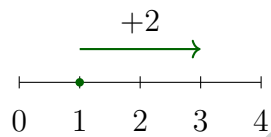
$$2(x+8) = 2x+16$$

6)

Which equation is equivalent to $2(x+8) = 30$?

- ☐ A. $2x + 8 = 30$
- ☐ B. $2x + 16 = 30$
- ☐ C. $x + 16 = 30$
- ☐ D. $2x = 38$

7)



The number line shows adding 2 to get the result. What was the original number?

- ☐ A. 0
- ☐ B. 1
- ☐ C. 2
- ☐ D. 3

8) A student invests \$1,000 at 5% annual compound interest. Calculate the balance after 2 years.

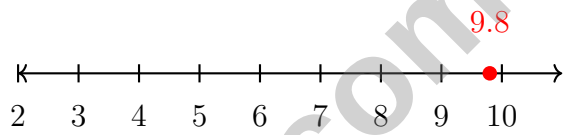
9) Which inequality represents "the sum of a number and 2 is not equal to 7"?

☐ A. $n + 2 \neq 7$
☐ B. $n + 2 = 7$
☐ C. $n \neq 5$
☐ D. $n + 7 \neq 2$

10) A proportional relationship between calories and grams of protein is given by $y = 4x$. How many grams of protein are in a food with 32 calories?

☐ A. 256 grams
☐ B. 36 grams
☐ C. 128 grams
☐ D. 8 grams

11) Which point represents $9.8 - 3.2$ on the number line below?



☐ A. 6.6
☐ B. 7.6
☐ C. 6.5
☐ D. 13.0

12) Identify the student error: $\frac{3}{7} \div \frac{2}{5} = \frac{3}{7} \times \frac{2}{5} = \frac{6}{35}$.

☐ A. No error; the answer is correct
☐ B. Error: should multiply by the reciprocal $\frac{5}{2}$, not $\frac{2}{5}$
☐ C. Error: forgot to flip the sign
☐ D. Error: should add, not divide

13) Convert $\frac{1}{16}$ to a decimal.

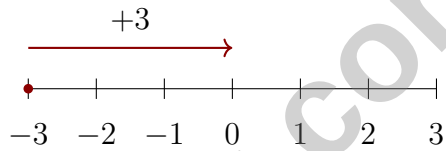
☐ A. 0.0625
☐ B. 0.16
☐ C. 0.625
☐ D. 0.916

1) A rectangular prism has length 15 cm and width 6 cm. If the height is tripled from 2 cm to 6 cm, how much does the volume increase?

☐ A. 180 cm^3
☐ B. 360 cm^3
☐ C. 540 cm^3
☐ D. 720 cm^3

2) The circumference of a circle is 50.24 meters. Using $\pi \approx 3.14$, find the diameter.

3)



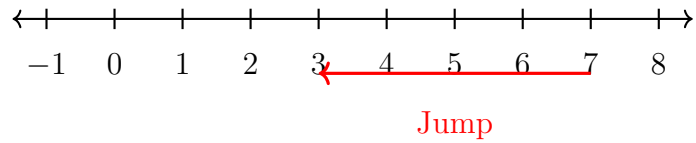
The number line shows a number increased by 3 equals 0. What is the original number?

☐ A. −3
☐ B. −2
☐ C. 0
☐ D. 3

4) A drawing of a rectangular park uses a scale of 1 in : 200 ft. In the drawing, the park is 3 inches by 2 inches. What is the actual area of the park in square feet?

☐ A. 120000 sq ft
☐ B. 240000 sq ft
☐ C. 360000 sq ft
☐ D. 480000 sq ft

5) Which expression matches the number line below?

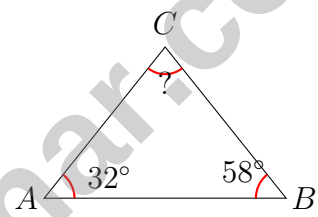


☐ A. $7 - 3 = 4$
☐ B. $3 + 7 = 10$
☐ C. $3 - 7 = -4$
☐ D. $7 + 3 = 10$

6) A recipe calls for $2\frac{1}{2}$ cups of flour, written as $(2 + 0.5)$ cups. A baker triples the recipe. Which expression best shows the distributive property being applied?

☐ A. $3 \times 2.5 = 7.5$
☐ B. $3(2 + 0.5)$
☐ C. $3(2) + 3(0.5)$
☐ D. 7.5 cups total

7)



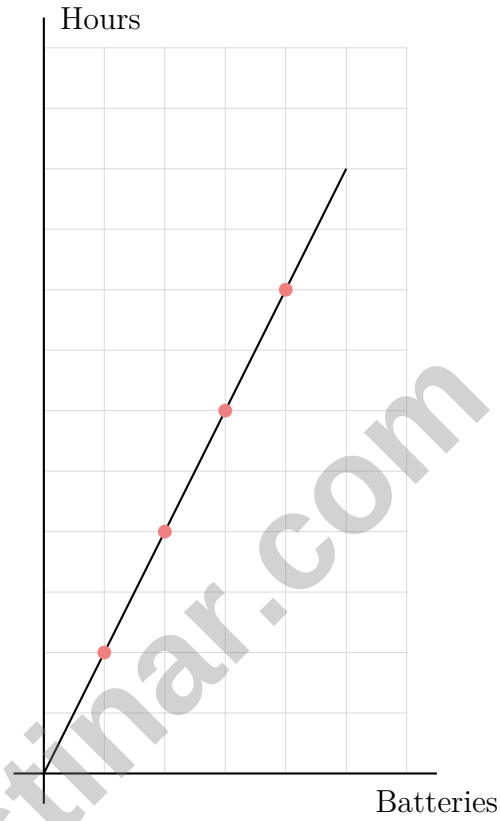
In triangle ABC, angle A is $32°$ and angle B is $58°$. How many distinct triangles with these angle measures can be drawn?

☐ A. 0
☐ B. 1
☐ C. Exactly 2
☐ D. Infinitely many

8) A six-sided die has the faces labeled $1, 1, 2, 4, 5, 6$ (one face shows 1 twice and there is no 3). Each face is equally likely. What is the probability of rolling a 1 or 2?

☐ A. $\frac{1}{2}$
☐ B. $\frac{2}{6}$
☐ C. $\frac{1}{4}$
☐ D. $\frac{4}{6}$

1) A graph shows the proportional relationship between video game controller batteries (units) and playtime (hours).



What is the constant of proportionality (hours per battery)?

☐ A. 1
☐ B. 3
☐ C. 0.5
☐ D. 2

2) A line graph shows the growth of a plant over 8 weeks (height in cm): Week 1: 5, Week 2: 7, Week 3: 9, Week 4: 11, Week 5: 12, Week 6: 13, Week 7: 14, Week 8: 14.5. Based on this trend, which prediction is most reasonable for Week 9?

☐ A. 15 cm
☐ B. 14 cm
☐ C. 10 cm
☐ D. 20 cm

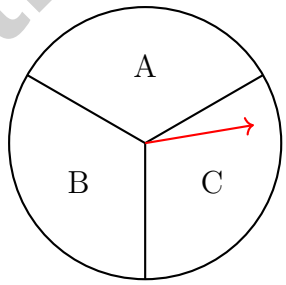
3) A survey uses a probability model with outcomes {Agree, Neutral, Disagree}. The model shows $P(\text{Agree}) = \frac{7}{20}$ and $P(\text{Disagree}) = \frac{1}{4}$. Find $P(\text{Neutral})$.

☐ A. $\frac{6}{20}$
☐ B. $\frac{8}{20}$
☐ C. $\frac{9}{20}$
☐ D. $\frac{12}{20}$

4) A mosaic is a square (14 cm × 14 cm) with four identical corner triangles removed (each 3 cm × 3 cm right triangle). What is the remaining area?

☐ A. 160.5 cm^2
☐ B. 178 cm^2
☐ C. 196 cm^2
☐ D. 205.5 cm^2

5) A spinner is divided into 3 equal sections labeled A, B, and C. What is the probability of spinning A?



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

North Carolina EOG 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 North Carolina EOG practice test.

Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

1) **Choice C is correct.** 7.G.4-7.G.6 $SA = 2(lw + lh + wh) = 2(4 \cdot 3 + 4 \cdot 5 + 3 \cdot 5) = 2(12 + 20 + 15) = 2(47) = 94$ cm^2.
2) **Choice A is correct.** 7.EE.1-7.EE.2 Combine: $(6v + 3v) + (2 - 8) = 9v - 6$.
3) **Choice C is correct.** 7.EE.1-7.EE.2 Any base to the first power equals itself: $7^1 = 7$.
4) **Choice B is correct.** 7.EE.4a Haircut is \$25 plus \$8 per treatment. Equation: $8t + 25 = 73$.
5) **Choice A is correct.** 7.EE.3-7.EE.4 "Decreased by 9 and then tripled" means: subtract 9 first, then multiply by 3: $3(x - 9) = 15$.
6) **Choice B is correct.** 7.EE.4a The distributive property gives $2 \cdot x + 2 \cdot 8 = 30$, so $2x + 16 = 30$.
7) **Choice B is correct.** 7.EE.3-7.EE.4 The arrow starts at 1 and moves 2 units right to 3; original was 1.
8) **The correct answer is** \$1102.50 **.** 7.RP.3 Year 1: $1000 \times 1.05 = 1050$. Year 2: $1050 \times 1.05 = 1102.50$.
9) **Choice A is correct.** 7.EE.4b "The sum of a number and 2" is $n + 2$; "is not equal to 7" is $\neq 7$.
10) **Choice D is correct.** 7.RP.1-7.RP.3 From $y = 4x$, if $y = 32$, then $32 = 4x$, so $x = 32 \div 4 = 8$ grams.
11) **Choice A is correct.** 7.NS.1-7.NS.3 Moving left 3.2 units from 9.8: $9.8 - 3.2 = 6.6$.
12) **Choice B is correct.** 7.NS.1-7.NS.3 Correct: $\frac{3}{7} \div \frac{2}{5} = \frac{3}{7} \times \frac{5}{2} = \frac{15}{14}$, not $\frac{6}{35}$.
13) **Choice A is correct.** 7.NS.2d Divide $1 \div 16 = 0.0625$. Since $16 = 2^4$, this is a terminating decimal.
14) **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.
15) **Choice B is correct.** 7.SP.1-7.SP.4 The mode is 3 hours (appears 4 times), which best represents the typical week's practice. The mode is most useful for identifying the most common value.
16) **Choice A is correct.** 7.EE.1-7.EE.2 A 7% increase is $p + 0.07p = p(1 + 0.07) = 1.07p$. Factoring shows the scale factor.
17) **The correct answer is** $(6, 7)$ **.** 7.NS.1-7.NS.3 $6^2 = 36$ and $7^2 = 49$. Since $36 < 40 < 49$, the answer is between 6 and 7.
18) **Choice C is correct.** 7.SP.3 City A clusters at 70–75 (range 5), indicating consistency. City B spans 50–90 (range 40), showing high variability. Both distributions include temperatures 70–75 degrees, so they overlap there.
19) **The correct answer is** 11 **.** 7.EE.1 The expression simplifies to $3a + 8b$. With $a = 1$ and $b = 1$, the value is $3 + 8 = 11$.
20) **Choice A is correct.** 7.SP.5-7.SP.8 Since $P(\text{Win}) + P(\text{Lose}) = 1$, we have $P(\text{Lose}) = 1 - 0.75 = 0.25$. (Negative probabilities are undefined.)
21) **Choice A is correct.** 7.NS.2 Option A directly disproves the claim: negative times positive (-10) is smaller, not larger, than positive times positive (10). The products are equal in magnitude but opposite in sign, showing the claim is false. Options B, C, D also work but use less intuitive magnitudes.
22) **The correct answer is A,D.** 7.NS.1-7.NS.3 Statement A is true: the opposite of -5 is 5 (positive). Statement D is true: -5 and 5 are each 5 units from zero. Statement B is false because opposites have the same absolute value. Statement C is false: $5 + (-5) = 0$, not 10.
23) **Choice C is correct.** 7.RP.3 Commission rate $= \frac{150}{2500} = 0.06 = 6\%$.
24) **The correct answer is** 8 **.** 7.EE.1-7.EE.2 The expression expands to $3y - 4$. With $y = 4$, the value is $12 - 4 = 8$.
25) **Choice A is correct.** 7.G.4-7.G.6 True triangle area: $\frac{1}{2} \times 10 \times 2 = 10$ in^2. Student's error: $20 - 10 = 10$ in^2 overestimate.
26) **Choice C is correct.** 7.RP.1-7.RP.3 Scale: 1 cm = 2 m. For 8 m: $\frac{1}{2} = \frac{x}{8}$, so $x = 4$ cm.
27) **Choice B is correct.** 7.G.4-7.G.6 Volume $= l \times w \times h = 5 \times 4 \times 8 = 160$ m^3.
28) **Choice B is correct.** 7.G.1-7.G.5 All equilateral triangles with side 7 cm are congruent. Given three specific side lengths, exactly one shape is determined.
29) **Choice C is correct.** 7.G.4-7.G.6 An arc is any portion of the circle's perimeter (circumference).
30) **Choice B is correct.** 7.G.1-7.G.5 Two triangles with the same three side lengths are congruent by SSS, regardless of the order in which the sides are listed. Congruence depends only on matching side lengths.

Hi, Stamina Builder!

◇ This wide-ranging book gave you eight serious Grade 7 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. Completing practice tests builds more than math knowledge. It builds the focus needed to think clearly for a long stretch. ◇

⋆ **Remember this:** That stamina matters. On real test day, calm pacing can be just as important as remembering a formula. ⋆

Stamina Skills

- **Breathe:** Reset before a difficult page.
- **Pace:** Do not spend too long in one place.
- **Return:** Come back to skipped questions with fresh eyes.
- **Finish Strong:** Use the last minutes to check.

Grade 7 test-day tip: Practice a simple reset: pause, breathe, reread, then choose your next step.

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

Jay Daie

Your Test-Stamina Coach

PRACTICE TODAY. SUCCEED TOMORROW!

This book includes **8** 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:

- **8** 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!

Don't lose it—your extra practice and success start here!

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FOR MORE PRACTICE TESTS

PRACTICE REGULARLY | STAY FOCUSED | SOLVE CONFIDENTLY | SUCCEED BRIGHTLY