4 North Carolina EOG

GRADE 7 MATH

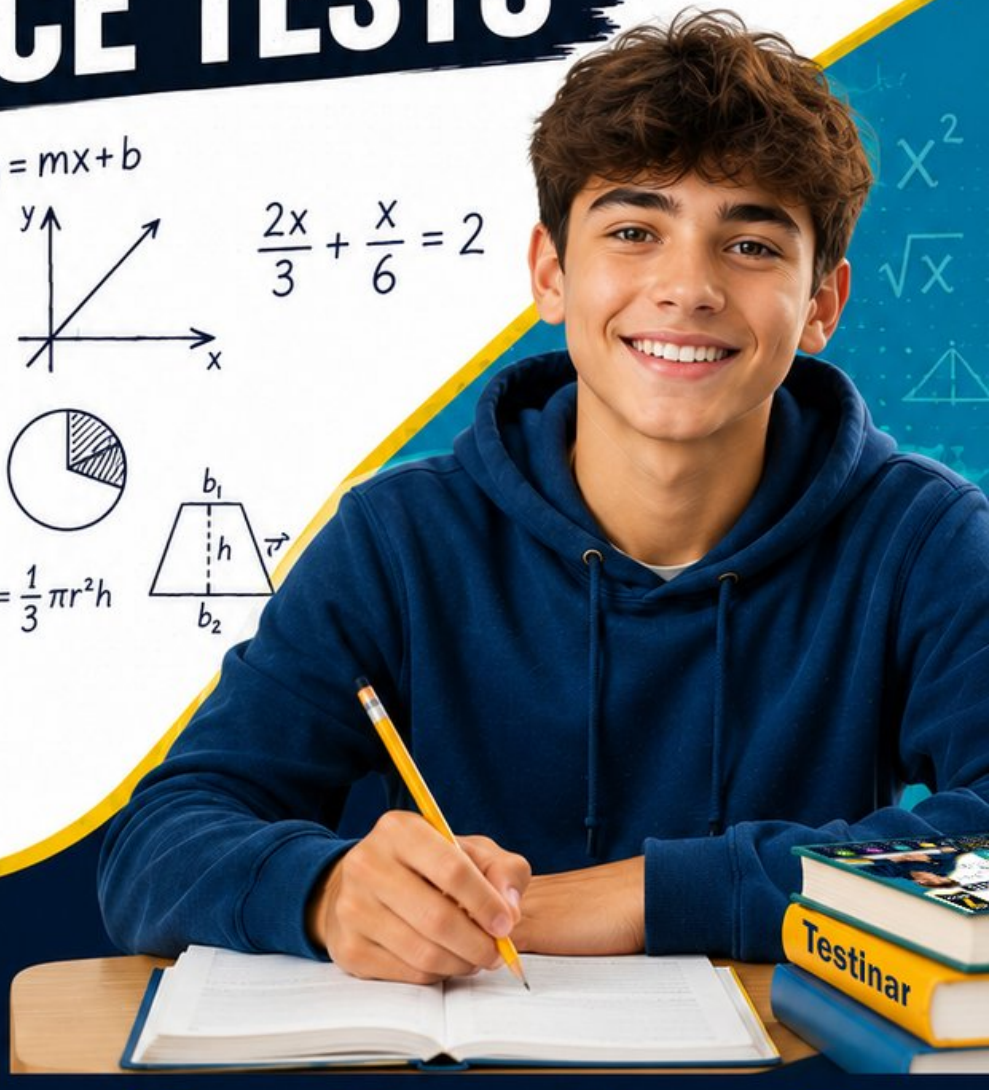
PRACTICE TESTS

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

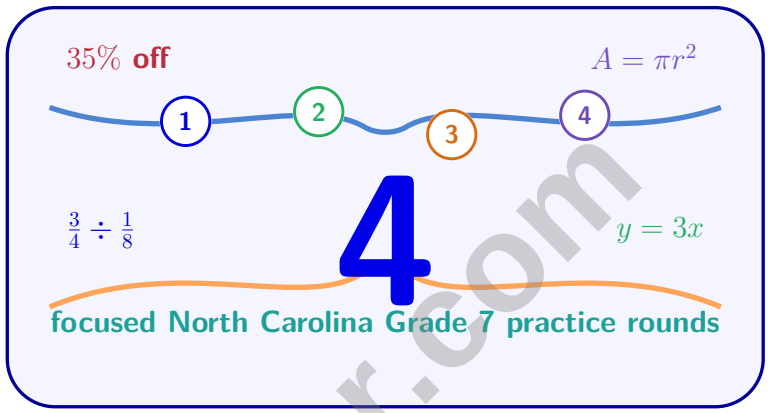
2 ONLINE TESTS

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

- Build Confidence
- Strengthen Math Skills
- Detailed Answers & Explanations
- Improve Test Performance

4 North Carolina EOG Grade 7 Math Practice Tests

Four Focused EOG Rounds with Complete Answer Support



Four 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!

Four focused rounds for sharper EOG math thinking

This book gives you four 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

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.

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?

Four EOG 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.

Table of Contents

1) A store charges \$4 per pound for apples. Which equation gives the total cost c (dollars) for p pounds?

☐ A. $c = p + 4$
☐ B. $c = \frac{4}{p}$
☐ C. $p = 4c$
☐ D. $c = 4p$

2) An angle is 26° less than its supplement. What is the measure of the larger angle?

☐ A. 77°
☐ B. 103°
☐ C. 154°
☐ D. 206°

3) A hula hoop has circumference 188.4 cm. Using $\pi \approx 3.14$, what is its radius?

☐ A. 90 cm
☐ B. 60 cm
☐ C. 15 cm
☐ D. 30 cm

4) A cylindrical battery has a radius of 0.9 cm and a height of 4.5 cm. What is its volume? Use $\pi \approx 3.14$.

☐ A. 11.475 cm^3
☐ B. 12.69 cm^3
☐ C. 14.553 cm^3
☐ D. 15.84 cm^3

5) A scatter plot shows the relationship between hours studied (x-axis) and test score (y-axis) for 15 students. The points show a clear upward trend from (1, 60) to (5, 95). What does this scatter plot suggest?

☐ A. Studying more hours guarantees a higher score
☐ B. There is a positive association between study time and test scores
☐ C. All students who study 5 hours will score 95
☐ D. Study time has no effect on test performance

6) A business has a loss of \$55 (represented as -55). To break even, what signed number must be added to the loss?

7) A bag has 8 balls: 3 yellow and 5 orange. What is the probability of drawing a yellow ball on a single draw?

☐ A. $\frac{3}{8}$
☐ B. $\frac{5}{8}$
☐ C. $\frac{3}{5}$
☐ D. $\frac{2}{7}$

8) Two dot plots show the number of iced beverages sold daily at two coffee shops. Shop X: 40, 42, 42, 44, 44, 44, 46, 48 beverages. Shop Y: 20, 30, 40, 50, 60, 70 beverages. Which shop's daily sales are easier for inventory planning?

☐ A. Shop X (clusters tightly; easier to predict daily demand)
☐ B. Shop Y (wider range allows flexibility)
☐ C. Both shops are identical for planning
☐ D. Shop Y (higher maximum sales)

9) In a school, 30% of students play soccer and 25% play basketball. If 5% play both, what is the probability a student plays soccer OR basketball?

☐ A. 0.55
☐ B. 0.50
☐ C. 0.40
☐ D. 0.35

10) An error analysis: A student calculated the experimental probability of an event as $\frac{\text{total trials}}{\text{favorable outcomes}}$ instead of $\frac{\text{favorable outcomes}}{\text{total trials}}$. If an event occurred 32 times in 200 trials, what error did the student make?

☐ A. Found 0.16 instead of 0.32.
☐ B. Found 6.25 instead of 0.16.
☐ C. Found 0.32 instead of 0.16.
☐ D. Made no error.

11) What is $-\frac{3}{4} \times (-\frac{8}{9})$?

12) Estimate $\sqrt{130}$ to the nearest whole number.

13) A scientist measures plant stem diameters (mm) and displays them in a stem-and-leaf plot:

Stem	Leaves
1	4, 7
2	1, 5, 8
3	2, 4, 6, 9

The lower quartile (Q1) falls between which two values?

☐ A. 17 and 21
☐ B. 21 and 25
☐ C. 25 and 28
☐ D. 28 and 32

1) A bag contains 2 dimes, 3 nickels, and 5 pennies. A coin is picked at random. What is the probability of not picking a penny?

☐ A. $\frac{3}{10}$
☐ B. $\frac{5}{10}$
☐ C. $\frac{7}{10}$
☐ D. $\frac{1}{5}$

2) A teenager receives $200 per month. Their budget allocates 40% to savings, 35% to entertainment, 20% to clothing, and the rest to charitable donations. How much money do they allocate to charitable donations each month?

3) 

Which is the best estimate for $\sqrt{10}$?

☐ A. 3.0
☐ B. 3.2
☐ C. 3.5
☐ D. 4.0

4) Which expression is equivalent to $1.08m$?

☐ A. $m + 0.08m$
☐ B. $m - 0.08m$
☐ C. $1.08 + m$
☐ D. $0.92m$

5) What is $\frac{1}{3} \times \frac{1}{2}$?

☐ A. $\frac{1}{6}$
☐ B. $\frac{1}{5}$
☐ C. $\frac{2}{6}$
☐ D. $\frac{2}{3}$

6) A fruit stand sells apples and oranges in the ratio $12 : 8$. In simplest form, what is the ratio?

☐ A. $6 : 4$
☐ B. $4 : 3$
☐ C. $2 : 3$
☐ D. $3 : 2$

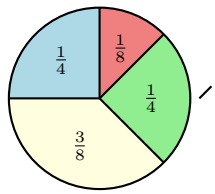
7) An error analysis: A student wrote $|-9| = -9$. What is the correct value, and why is the student wrong?

☐ A. Correct: $|-9| = -9$; student is right
☐ B. Correct: $|-9| = 18$; doubling the number
☐ C. Correct: $|-9| = 0$; distance from zero is zero
☐ D. Correct: $|-9| = 9$; absolute value is always non-negative

8) Identify the expression that is already simplified.

☐ A. $2x + 3x + 4y$
☐ B. $5a + 3a + 2b$
☐ C. $7m + 3n - 2p$
☐ D. $4c + 2c + 5c$

9)



A spinner has sections with the probabilities shown. If the spinner is spun 400 times, approximately how many times should you expect to land on a section with probability $\frac{3}{8}$?

☐ A. 50 times
☐ B. 100 times
☐ C. 150 times
☐ D. 200 times

1) A store marks up the cost c by \$5, then multiplies by 3 for sale price. Which expression shows the final price?

☐ A. $3c + 5$
☐ B. $3c + 15$
☐ C. $3c - 5$
☐ D. $c + 15$

2) A stem-and-leaf plot has stems $5, 6, 7$ with leaves:

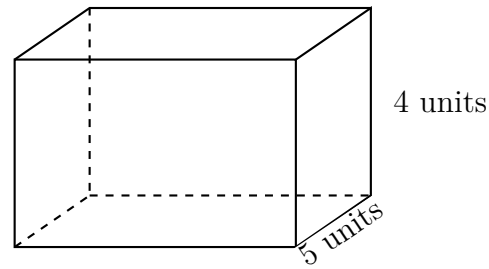
- Stem 5: $1, 4, 7$
- Stem 6: $0, 3, 8$
- Stem 7: $2, 6, 9$

What is the range of the data?

☐ A. 24
☐ B. 25
☐ C. 26
☐ D. 27

3) A rectangular garden is 10 m wide and 8 m tall. A triangular section is removed from the bottom, with the triangle's base being 10 m and height 2 m. What is the remaining area?

☐ A. 70 m^2
☐ B. 80 m^2
☐ C. 90 m^2
☐ D. 100 m^2



4) The rectangular prism shown has dimensions as labeled. What is its volume in cubic units?

☐ A. 15 cubic units
☐ B. 60 cubic units
☐ C. 120 cubic units
☐ D. 240 cubic units

5) A bank account starts with a balance of $250.75. The account loses $12.50 per month for 5 months. What is the final balance?

6) Two sides of a triangle are 6 cm and 14 cm. If the third side is a whole number, how many possible triangles can be drawn?

☐ A. 9
☐ B. 11
☐ C. 13
☐ D. Infinitely many

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 D is correct.** 7.RP.1-7.RP.3 Cost is price times quantity. The constant $k = 4$ dollars per pound, so $c = 4p$.
2) **Choice B is correct.** 7.G.1-7.G.5 Let the smaller angle be x. Then $x + (x + 26) = 180°$, so $2x = 154°$ and $x = 77°$. Larger angle: $77 + 26 = 103°$.
3) **Choice D is correct.** 7.G.4-7.G.6 $C = 2\pi r \Rightarrow 188.4 = 2 \times 3.14 \times r \Rightarrow r = 188.4 \div 6.28 = 30$ cm.
4) **Choice A is correct.** 7.G.4-7.G.6 $V = \pi r^2 h = 3.14 \times (0.9)^2 \times 4.5 = 3.14 \times 0.81 \times 4.5 = 2.5434 \times 4.5 = 11.45$ cm^3.
5) **Choice B is correct.** 7.SP.1-7.SP.4 A positive trend means variables tend to increase together, but it does not guarantee outcomes or mean all data points fall exactly on a line.
6) **The correct answer is** 55 **.** 7.NS.1-7.NS.3 To cancel out the loss of -55, you add its opposite, which is $+55$. Then $-55 + 55 = 0$ (break even).
7) **Choice A is correct.** 7.SP.5-7.SP.8 Yellow balls: 3 out of 8 total. $P(\text{yellow}) = \frac{3}{8}$.
8) **Choice A is correct.** 7.SP.3 Inventory planning requires predictability. Shop X clusters at 42–46 beverages (range 8), making stocking predictable. Shop Y spans 20–70 beverages (range 50), creating inventory uncertainty.
9) **Choice B is correct.** 7.SP.5-7.SP.8 Using $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$: $0.30 + 0.25 - 0.05 = 0.50$.
10) **Choice B is correct.** 7.SP.6 Correct probability: $\frac{32}{200} = 0.16$. Student's error: $\frac{200}{32} = 6.25$. The student inverted the fraction.
11) **The correct answer is** $\frac{2}{3}$ **.** 7.NS.2 $-\frac{3}{4} \times (-\frac{8}{9}) = \frac{3\times8}{4\times9} = \frac{24}{36} = \frac{2}{3}$. Negative times negative is positive.
12) **The correct answer is** 11 **.** 7.NS.1-7.NS.3 $11^2 = 121$ and $12^2 = 144$. Since 130 is very close to 121, $\sqrt{130} \approx 11.4$, which rounds to 11.
13) **Choice A is correct.** 7.SP.1-7.SP.4 Nine values: $14, 17, 21, 25, 28, 32, 34, 36, 39$. Lower half: $14, 17, 21, 25$ (4 values). Q1 is median of lower half: $(17 + 21)/2 = 19$, which falls between 17 and 21.
14) **Choice C is correct.** 7.G.4-7.G.6 Decompose into a rectangle and a right triangle. Rectangle: $12 \times 5 = 60$ cm^2. Right triangle: $\frac{1}{2} \times 5 \times 12 = 30$ cm^2. Add: $60 + 30 = 90$ cm^2.
15) **Choice C is correct.** 7.G.4-7.G.6 Side of square $= 20/4 = 5$ cm. Base area $= 5^2 = 25$ cm^2. Volume $= 25 \times 8 = 200$ cm^3.
16) **Choice A is correct.** 7.G.1-7.G.5 By the Triangle Inequality, $5 + 7 = 12$. Since the sum of two sides must be STRICTLY greater than the third, no triangle exists.
17) **Choice B is correct.** 7.G.4-7.G.6 A chord with length equal to the diameter must be the diameter itself, as the diameter is the longest possible chord in a circle.
18) **Choice D is correct.** 7.G.1-7.G.5 The sum of the other two angles is $180° - 100° = 80°$. If both were at least 50°, their sum would exceed 100°. Therefore, at least one must be less than 50°.
19) **Choice A is correct.** 7.SP.5-7.SP.8 Pairs summing to 7: (1,6), (2,5), (3,4), (4,3), (5,2), (6,1) = 6 outcomes. Total outcomes $= 6 \times 6 = 36$. Probability $= \frac{6}{36}$.
20) **The correct answer is B,C.** 7.RP.1-7.RP.3 Option B: cost = 1.50 × pounds (proportional, of form $y = kx$). Option C: distance = speed × time (proportional). Option A is a general trend but not a strict proportional relationship. Option D: height does not scale proportionally with age (growth rates vary).
21) **Choice C is correct.** 7.SP.1-7.SP.4 $\frac{35}{105} = \frac{x}{3150}$. Reduce: $\frac{1}{3} = \frac{x}{3150} \Rightarrow x = 1050$.
22) **Choice D is correct.** 7.RP.1-7.RP.3 A scale of 1 : 10 means each model unit represents 10 actual units. The actual dimensions are $5 \times 10 = 50$ units and $4 \times 10 = 40$ units.
23) **Choice C is correct.** 7.RP.3 If $12 = 0.15 \times h$, then $h = \frac{12}{0.15} = 80$ cm.
24) **Choice B is correct.** 7.SP.1-7.SP.4 20% of $180 = 0.20 \times 180 = 36$ students.
25) **Choice D is correct.** 7.RP.1-7.RP.3 From the line, $\frac{3}{5}$ kg in $\frac{1}{4}$ hr gives $\frac{3/5}{1/4} = \frac{3}{5} \times 4 = \frac{12}{5} = 2.4$ kg/hr.
26) **Choice D is correct.** 7.RP.1-7.RP.3 At constant rate with no warm-up: pages $= 40 \times$ minutes. Proportional with $k = 40$.
27) **Choice D is correct.** 7.RP.1-7.RP.3 Unit rate $= 240 \div 8 = 30$ widgets per hour.

Hi, Number Sense Builder!

◇ Grade 7 numbers do more than sit on a page. They describe rates, changes, comparisons, distances, chances, and patterns. ◇

⋆ **Remember this:** You practiced listening to that story. When the answer makes sense in the situation, your math becomes much stronger. This version gave you 4 opportunities to rehearse test-day habits. ⋆

Number Sense Checks

- **Too Big?:** Compare with an estimate.
- **Too Small?:** Use the context to judge.
- **Right Sign?:** Positive and negative values matter.
- **Right Unit?:** A number needs meaning.

Grade 7 test-day tip: Before choosing an answer, ask whether it fits the story of the problem.

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

Jay Daie

Your Number-Sense 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:

- 4 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!

VISIT TESTINAR.COM/MATH7

FOR MORE PRACTICE TESTS AND LEARNING RESOURCES.

PRACTICE REGULARLY | STAY FOCUSED | SOLVE CONFIDENTLY | SUCCEED BRIGHTLY