

9

North Carolina

EOG

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**



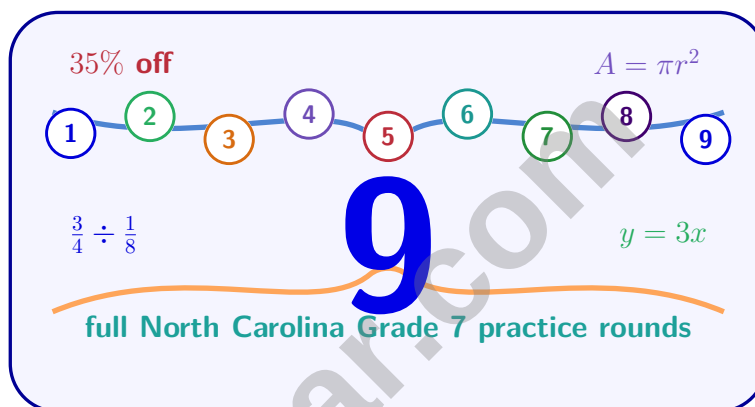
**SHARPEN
THINKING**



BE TEST-READY
Improve Performance

9 North Carolina EOG Grade 7 Math Practice Tests

Standards-Aligned North Carolina Practice for Proportional Reasoning, Expressions, Geometry, Statistics, and Probability



Nine 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!

Nine focused rounds for sharper EOG math thinking

This book gives you nine 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.

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.

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?

Nine EOG 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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& answers

Table of Contents

★ Practice Test 1	_____	13
★ Practice Test 2	_____	29
★ Practice Test 3	_____	44
★ Practice Test 4	_____	59
★ Practice Test 5	_____	74
★ Practice Test 6	_____	88
★ Practice Test 7	_____	103
★ Practice Test 8	_____	117
★ Practice Test 9	_____	131
Practice Test Answer Keys	_____	145
Practice Test Answers and Explanations	_____	151

- 1) A line plot shows the number of goals scored by 15 soccer players this season:

Goals | 2 2 3 3 3 4 4 4 4 5 5 6 6 7 9

Which statement best describes the data?

- ☐ A. The data shows a uniform distribution with all scores equally common
☐ B. Most players scored between 3 and 5 goals, with one outlier at 9
☐ C. All players scored at least 2 goals, with the median at 4
☐ D. The mode is 4 goals, appearing 4 times
- 2) If $\frac{7}{x} = \frac{35}{100}$, what is x ?

- 3) A student is analyzing a histogram showing GPA distribution for two graduating classes. Class of 2023: concentrated at 3.2–3.8. Class of 2024: concentrated at 3.0–3.6. Which statement is a valid comparison?

- ☐ A. Class 2023 has a higher typical GPA than Class 2024
☐ B. Class 2024 performed better overall
☐ C. Both classes have identical GPAs
☐ D. GPA cannot be compared between classes
- 4) 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. $\frac{2}{5}$
☐ B. $\frac{8}{25}$
☐ C. $\frac{16}{25}$
☐ D. $\frac{1}{25}$

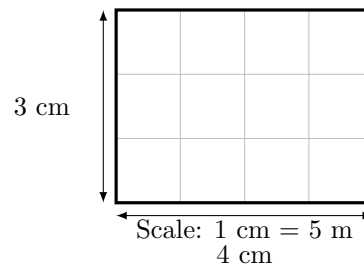


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- 5) A basketball player attempted 75 free throws and made 54 of them. What is the experimental probability that the player makes the next free throw?
- ☐ A. 0.54 ☐ C. 0.67
☐ B. 0.60 ☐ D. 0.72
- 6) An employee incorrectly calculated a 15% tip on a \$80 bill as \$15 instead of the correct amount. What is the error?
- ☐ A. The calculation is correct ☐ C. \$15.00 too high
☐ B. \$3.00 too low ☐ D. \$3.00 too high
- 7) When converting data into a stem-and-leaf plot, a student mistakenly interprets stem 11 with leaf 2 as 1.12 instead of 112. This is an example of which type of error?
- ☐ A. Reading error ☐ C. Conceptual error
☐ B. Computational error ☐ D. Rounding error
- 8) In a circle with radius r , a chord has length r . What can you conclude about this chord?
- ☐ A. It must be a diameter ☐ C. It equals the radius
☐ B. It is shorter than the diameter ☐ D. It is impossible



Room Floor Plan (scale model)



9)

According to the scale, what are the actual dimensions of this rectangular room?

☐ A. 10 m $\times$ 20 m☐ C. 12 m $\times$ 15 m☐ B. 4 m $\times$ 3 m☐ D. 20 m $\times$ 15 m

10) A store marks down a \$85 item by 12%. What is the sale price?

☐ A. \$80.00☐ C. \$76.40☐ B. \$75.20☐ D. \$74.80

11) A store offers a 25% discount on a shirt originally priced at \$32. What is the sale price?

☐ A. \$8☐ C. \$28☐ B. \$40☐ D. \$24

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- 1) Jamal buys notebooks at \$3 each. The table below shows his total cost for different numbers of notebooks. Does the table show a proportional relationship?

Notebooks	2	4	6	8
Cost (\$)	6	12	18	24

- ☐ A. Yes, ratio is 1 : 3 ☐ C. Cannot determine
☐ B. No, the ratio changes ☐ D. Yes, ratio is 3 : 1
- 2) A pool fills at a rate of $\frac{5}{6}$ gallon in $\frac{1}{3}$ minute. How many gallons per minute is this?
- ☐ A. $\frac{5}{18}$ gal/min ☐ C. $\frac{18}{5}$ gal/min
☐ B. $\frac{1}{2}$ gal/min ☐ D. $\frac{5}{2}$ gal/min
- 3) A proportional relationship is given by the equation $y = 2.4x$. Which point does NOT lie on the line?
- ☐ A. (1, 2.4) ☐ C. (10, 24)
☐ B. (5, 12) ☐ D. (2, 5)
- 4) A farmer has a field with area $24ab + 36b$ square meters. Which factorization represents the dimensions?
- ☐ A. $12b(2a + 3)$ ☐ C. $24(ab + 1.5b)$
☐ B. $6b(4a + 6)$ ☐ D. $4(6ab + 9b)$
- 5) A square pyramid has a base with side length 12 cm and slant height 10 cm. What is the surface area?
- ☐ A. 144 cm^2 ☐ C. 384 cm^2
☐ B. 240 cm^2 ☐ D. 480 cm^2



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6) A simulation models the probability of a customer making a purchase as $\frac{2}{5}$. Which of the following spinners would be most appropriate for this simulation?

- ☐ A. A spinner with 3 equal sections, 1 shaded
- ☐ B. A spinner with 5 equal sections, 2 shaded
- ☐ C. A spinner with 10 equal sections, 4 shaded
- ☐ D. A spinner with 5 equal sections, 3 shaded

7) Which expression represents “the product of a and b , increased by 10”?

- ☐ A. $a + b + 10$
- ☐ B. $ab + 10$
- ☐ C. $(a + b)(10)$
- ☐ D. $10ab$

8) A quality-control manager randomly selects 100 items from a production line of 5000 items. The 5000 items is the _____.

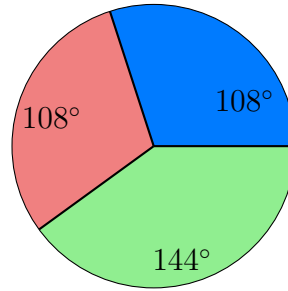
- ☐ A. sample
- ☐ B. parameter
- ☐ C. population
- ☐ D. statistic

9) If $x \div (-2) = 6$, find x .

10) A video game costs \$60. A player also purchases in-game currency at \$9.99 per bundle. If the total spent is \$99.96, which equation represents b , the number of currency bundles?

- ☐ A. $60b + 9.99 = 99.96$
- ☐ B. $9.99 + 60b = 99.96$
- ☐ C. $60(b + 9.99) = 99.96$
- ☐ D. $9.99b + 60 = 99.96$





1)

This spinner has sectors of 108° , 108° , and 144° . Which is the correct probability for the largest sector?

- ☐ A. $\frac{2}{5}$
☐ B. $\frac{1}{3}$

- ☐ C. $\frac{3}{5}$
☐ D. $\frac{2}{3}$

2) A blueprint of a house has a scale where $\frac{1}{2}$ inch represents 4 feet. If a hallway in the blueprint is 1 inch long, how many feet long is the actual hallway?

- ☐ A. 2 feet
☐ B. 4 feet

- ☐ C. 8 feet
☐ D. 16 feet

3) A rectangular field on a map is 9 cm by 12 cm at a scale of 1 cm : 0.75 km. If the scale is changed to 1 cm : 1.5 km, what will be the new length?

- ☐ A. 6 cm
☐ B. 12 cm

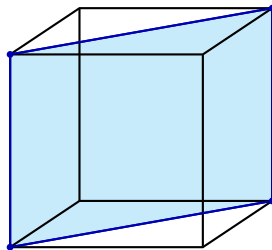
- ☐ C. 18 cm
☐ D. 24 cm

4) If a square has a perimeter of 40 cm, what is its area?



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rectangular cross-section



5)

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

6) If angle x and angle y are complementary, and $x = 37^\circ$, what is y ?

☐ A. 53°
☐ C. 37°
☐ B. 43°
☐ D. 143°

7) Simplify $6p^2 + 2p - 3p^2 - 5p + 4p^2$, then evaluate when $p = 2$.

8) If point $U(7, 0)$ is reflected over the y -axis, what is the image U' ?

☐ A. $(0, 7)$
☐ C. $(7, 0)$
☐ B. $(-7, 0)$
☐ D. $(0, -7)$


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.



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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice D is correct.** (7.SP.1-7.SP.4) Counting occurrences: 2 (twice), 3 (three times), 4 (four times), 5 (twice), 6 (twice), 7 (once), 9 (once). The value 4 appears most frequently, making it the mode.
- 2) **The correct answer is 20.** (7.RP.1-7.RP.3) Cross multiply: $7 \times 100 = 35 \times x$. So $700 = 35x$, giving $x = 20$.
- 3) **Choice A is correct.** (7.SP.3) Histogram centers show typical values. Class 2023 (3.2–3.8) is shifted right of Class 2024 (3.0–3.6), indicating higher typical GPA despite overlap.
- 4) **Choice C is correct.** (7.SP.5-7.SP.8) $P(\text{not } 1) = \frac{4}{5}$ on each spin. Both spins: $\frac{4}{5} \cdot \frac{4}{5} = \frac{16}{25}$.
- 5) **Choice D is correct.** (7.SP.6) Experimental probability = $\frac{54}{75} = 0.72$. This relative frequency represents the player's observed success rate and predicts future performance.
- 6) **Choice D is correct.** (7.RP.3) Correct tip = $0.15 \times 80 = \$12$. Error = $15 - 12 = \$3.00$ (too high).
- 7) **Choice C is correct.** (7.SP.1-7.SP.4) The student misunderstands how stems and leaves combine, not reading or computational. This is a conceptual misunderstanding.
- 8) **Choice B is correct.** (7.G.4-7.G.6) A chord of length r is shorter than the diameter $d = 2r$. Such a chord exists and is a valid chord in the circle.
- 9) **Choice D is correct.** (7.RP.1-7.RP.3) Using the scale 1 cm = 5 m: width is $4 \times 5 = 20$ m; height is $3 \times 5 = 15$ m.
- 10) **Choice D is correct.** (7.RP.3) The discount is 12% of \$85 = $0.12 \times 85 = 10.20$ dollars. Sale price: $85 - 10.20 = 74.80$ dollars.
- 11) **Choice D is correct.** (7.RP.3) Discount amount = $0.25 \times 32 = \$8$. Sale price = $32 - 8 = \$24$.
- 12) **Choice C is correct.** (7.NS.1b) Model descent as $800 + (-950) = -150$. The negative result means 150 feet below ground level.
- 13) **Choice D is correct.** (7.RP.1-7.RP.3) Multiply the monthly rate by the number of months. The equation is $C = 12m$.
- 14) **Choice A is correct.** (7.EE.1-7.EE.2) Distribute the negative: $15h - 10 - 8h + 4 = (15h - 8h) + (-10 + 4) = 7h - 6$. Distractors: B is from not distributing the negative to -4 ; C is from adding coefficients; D is from canceling terms incorrectly.
- 15) **Choice B is correct.** (7.EE.3-7.EE.4) Add 5: $2x = 12$. Divide by 2: $x = 6$.
- 16) **Choice C is correct.** (7.G.1-7.G.5) Scale factor is 10. Actual dimensions: 50 cm $\times$ 30 cm. Area: $50 \times 30 = 1500 \text{ cm}^2$.
- 17) **Choice C is correct.** (7.G.4-7.G.6) $37.68 = \frac{120^\circ}{360^\circ} \times 3.14 \times r^2 \Rightarrow 37.68 = \frac{1}{3} \times 3.14 \times r^2 \Rightarrow 113.04 = 3.14 \times r^2 \Rightarrow r^2 = 36 \Rightarrow r = 6 \text{ cm}$.
- 18) **Choice D is correct.** (7.RP.1-7.RP.3) Unit rate = $\frac{3/4}{1/6} = \frac{3}{4} \times 6 = \frac{18}{4} = \frac{9}{2} = 4.5 \text{ mph}$.
- 19) **Choice D is correct.** (7.RP.1-7.RP.3) Proportional equations pass through origin: substitute $x = 0$, get $y = 0$. Only $y = -5x$ gives $(0, 0)$.
- 20) **The correct answer is A,D.** (7.G.4-7.G.6) A is correct because $V = Bh$, so $h = V/B$. D is correct because volume is measured in cubic units. B is false because $2 \times 3 \times 5 = 30 \text{ m}^3$, not 10 m^3 . C is false because the base shape affects the base area.
- 21) **Choice C is correct.** (7.RP.3) Set up the proportion: $\frac{1}{4} = \frac{p}{100}$. Cross-multiply: $p = 25$, so $\frac{1}{4} = 0.25 = 25\%$.
- 22) **Choice A is correct.** (7.NS.1-7.NS.3) $0.8 - 1.2 = -0.4$.
- 23) **The correct answer is 900.** (7.SP.1-7.SP.4) $\frac{45}{180} = \frac{x}{3600}$. Reduce: $\frac{1}{4} = \frac{x}{3600} \Rightarrow x = 900$.
- 24) **Choice B is correct.** (7.NS.2) $3 \times 0.5 = 1.5$. Positive times positive is positive.
- 25) **The correct answer is 0.** (7.G.1-7.G.5) Compute $81 + 144 - 225 = 0$. This confirms the side lengths satisfy the Pythagorean relationship, forming a right triangle.
- 26) **Choice B is correct.** (7.NS.1-7.NS.3) Area of a square = $s^2 = 11^2 = 121 \text{ cm}^2$.
- 27) **Choice A is correct.** (7.EE.1-7.EE.2) Distribute: $4x + 8 - (x - 5) = 4x + 8 - x + 5$. Combine: $(4x - x) + (8 + 5) = 3x + 13$.
- 28) **The correct answer is 8.33%.** (7.RP.3) Percent error = $\frac{|55000 - 60000|}{60000} \times 100\% = \frac{5000}{60000} \times 100\% \approx 8.33\%$.
- 29) **Choice C is correct.** (7.SP.5-7.SP.8) $0.4 + 0.35 + 0.25 = 1.0$ and each probability is in $[0, 1]$, so this is valid.



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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!

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



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