

7 North Carolina EOG

Grade 7 Math Practice Tests



7 PRINTED TESTS + 2 ONLINE TESTS



**Standards Aligned Problem Solving
For Comprehensive Assessment Programs**



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.

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Welcome, North Carolina Grade 7 Problem Solver!

Eight focused rounds for sharper EOG math thinking

This book gives you seven 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

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, 280 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.



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1) What is the GCF of $6xy$ and $9y$?

☐ A. $3y$

☐ C. $9y$

☐ B. $6y$

☐ D. $3xy$

2) A bank account has a debt of \$4 per item owed. If 5 items are removed from debt, the account change is represented as $(-4) \times (-5)$. What is the result?

☐ A. -20 dollars

☐ C. 20 dollars

☐ B. -9 dollars

☐ D. 9 dollars

3) A mortgage broker charges a 1% origination fee on a loan of \$300,000. What is the origination fee?

☐ A. \$1,000

☐ C. \$30,000

☐ B. \$300,000

☐ D. \$3,000

4) The table below shows a savings account with \$400 earning 5% annual compound interest:

Year	Interest Earned	Balance
0	—	\$400
1	\$20	\$420
2	?	?
3	\$23.10	\$506.25

What is the balance at the end of year 2?

☐ A. \$440

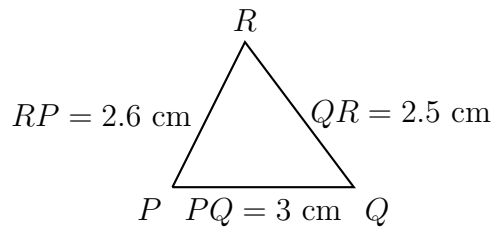
☐ C. \$442

☐ B. \$450

☐ D. \$441



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5)

For triangle PQR with sides $PQ = 3$, $QR = 2.5$, $RP = 2.6$ cm, is the triangle acute, right, or obtuse? Check: $3^2 \stackrel{?}{<} 2.5^2 + 2.6^2$

☐ A. Acute: $9 < 13.01$
☐ C. Obtuse: $9 > 13.01$
☐ B. Right: $9 = 13.01$
☐ D. Cannot be determined

6) What is the opposite of 0?

☐ A. -1
☐ C. 0
☐ B. 1
☐ D. Undefined
7) Are the expressions $12a - 5a + 3a$ and $10a$ equivalent?
☐ A. Yes, because $12 - 5 + 3 = 10$.

☐ C. Yes, both are equal to $10a$.

☐ B. No, because the coefficients are different.

☐ D. No, because $12a - 5a + 3a$ cannot be simplified.

8) A simulation of drawing cards with replacement produces 60 trials. If outcome A appears 15 times and outcome B appears 45 times, what is the experimental error compared to the theoretical probability if outcome A has theoretical probability 0.20?

☐ A. 0.05

☐ C. 0.15

☐ B. 0.10

☐ D. 0.25


9) Evaluate $\frac{2(a+b)}{4}$ when $a = 5$ and $b = 3$.

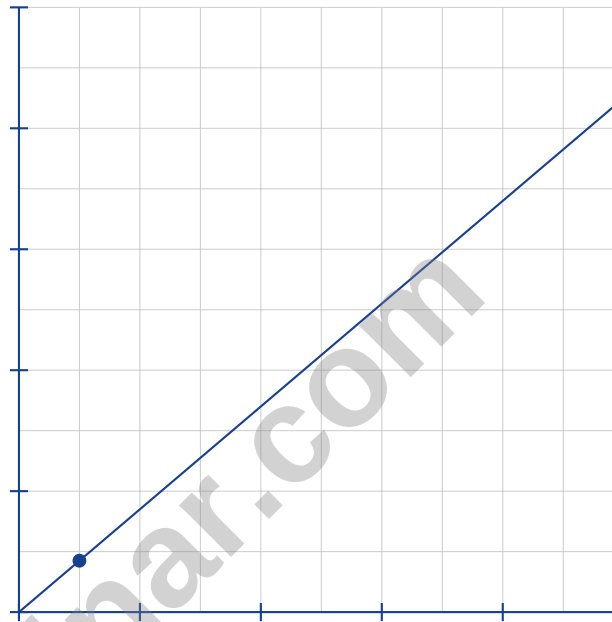
☐ A. 4

☐ C. 8

☐ B. 2

☐ D. $\frac{1}{4}$

Total cost (\$)



Number of items

10)

From this proportional relationship graph, identify the unit-rate point and find the cost per item.



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1) A printing company charges \$25 for the first 100 copies and \$0.10 for each additional copy. Which equation represents the total cost C for x copies beyond 100?

☐ A. $C = 0.10x + 25$

☐ C. $C = 0.10 + 25x$

☐ B. $C = 25x + 0.10$

☐ D. $C = 25(x + 0.10)$

2) A meal costs \$40. The tax and tip together add 25%. What is the total?

☐ A. $40(1.25) = \$50$

☐ C. $40 + 25 = \$65$

☐ B. $40(0.25) = \$10$

☐ D. $40 \div 1.25 = \$32$

3) A box plot compares the test scores of two tutoring methods. Traditional Method: Median = 75, Range = 25. New Method: Median = 78, Range = 35. Which method is better?

☐ A. New Method (higher median, but less consistent)☐ C. Both methods produce identical results☐ B. Traditional Method (consistent with reasonable performance)☐ D. New Method is clearly superior

4) Evaluate: $\frac{5}{12} + \frac{1}{3}$. Express your answer as a fraction in simplest form.

5) A storage shed floor plan shows a large rectangle (14 ft $\times$ 10 ft) with two triangular sections attached to the shorter sides (each triangle has base 10 ft and height 4 ft). What is the total floor area?

☐ A. 100 ft²

☐ C. 180 ft²

☐ B. 140 ft²

☐ D. 220 ft²



- 6) Convert 2 cubic meters to cubic centimeters. (Hint: 1 m = 100 cm)
- ☐ A. $2 \times 10^6 \text{ cm}^3$ ☐ C. $2 \times 10^{12} \text{ cm}^3$
☐ B. $2 \times 10^8 \text{ cm}^3$ ☐ D. $2 \times 10^9 \text{ cm}^3$
- 7) A circle has a diameter of 14 cm. What is its radius?
- ☐ A. 7 cm ☐ C. 21 cm
☐ B. 14 cm ☐ D. 28 cm
- 8) Simplify: $7a + 4b - 2a + 3b - b$
- ☐ A. $5a + 6b$ ☐ C. $9a + 6b$
☐ B. $5a + 5b$ ☐ D. $5a + 7b$
- 9) Factor: $-14p + 35q$
- ☐ A. $-7(2p - 5q)$ ☐ C. $7(2p + 5q)$
☐ B. $7(-2p + 5q)$ ☐ D. $-7(2p + 5q)$
- 10) Which simulation tool best models the probability of selecting a red marble or a blue marble from a bag with equal numbers of red and blue marbles?
- ☐ A. Rolling a standard die once ☐ D. Drawing two cards from a deck without replacing the first
☐ B. Flipping a coin
☐ C. Spinning a spinner with 10 equal sections
- 11) Evaluate $2(a - 3) + 5$ when $a = 5$.
- ☐ A. 11 ☐ C. 6
☐ B. 8 ☐ D. 9



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- 1) A survey of 150 students asked which sport they play. The results:

Sport	Soccer	Basketball	Tennis
Students	48	57	45

Based on this data, what is the experimental probability that a randomly selected student plays basketball?

- ☐ A. $\frac{57}{105}$
☐ C. $\frac{57}{150}$
☐ B. $\frac{48}{150}$
☐ D. $\frac{45}{150}$
- 2) A science lab measures temperature change over time. The table below shows the data. Is this a proportional relationship, and if so, what is the constant of proportionality?

Time (min)	Temp Change (°C)
2	5
4	10
7	17.5

- ☐ A. Yes, $k = 7$
☐ C. No, the values don't form a constant ratio
☐ B. Yes, $k = 5$
☐ D. Yes, $k = 2.5$
- 3) A clothing store has a rack with 50 items. The sign says "60% off summer collection." How many items are in the summer collection?
- ☐ A. 20 items
 ☐ C. 40 items
☐ B. 60 items
 ☐ D. 30 items
- 4) A savings account offers 2% annual interest on a balance of \$500. How much interest will be earned in one year?
- ☐ A. \$5
 ☐ C. \$15
☐ B. \$25
 ☐ D. \$10



- 5) A student's test score improved from 72 to 90. What is the percent increase in the score?
- ☐ A. 18% ☐ C. 25%
- ☐ B. 20% ☐ D. 80%
- 6) A cube has edge length 7 ft. What is the surface area?
- ☐ A. 49 ft² ☐ C. 196 ft²
- ☐ B. 98 ft² ☐ D. 294 ft²
- 7) A school cafeteria manager wants to know which vegetables students prefer. She surveys only students who buy lunch on a given day. What population is she actually *not* surveying?
- ☐ A. Students who eat no vegetables ☐ C. Students who buy lunch every day
- ☐ B. Students who bring lunch from home ☐ D. All students in the school
- 8) A scale drawing has a scale of 1 cm : 2 m. If an actual room is 8 m wide, how wide is it in the drawing?
- ☐ A. 2 cm ☐ C. 6 cm
- ☐ B. 4 cm ☐ D. 8 cm



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End-of-Grade Tests 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 End-of-Grade Tests practice test.



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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice A is correct.** (7.EE.1-7.EE.2) GCF of 6 and 9 is 3. Both terms contain y . GCF is $3y$.
- 2) **Choice C is correct.** (7.NS.2) $(-4) \times (-5) = 20$ dollars. Negative debt times negative removal (reduction) yields a positive gain. Negative times negative is positive.
- 3) **Choice D is correct.** (7.RP.3) Origination fee = $0.01 \times 300000 = \$3,000$.
- 4) **Choice D is correct.** (7.RP.3) Year 2 balance: $420 \times 1.05 = 441$. Interest earned: $441 - 420 = 21$.
- 5) **Choice A is correct.** (7.G.1-7.G.5) Check: $3^2 = 9$ and $2.5^2 + 2.6^2 = 6.25 + 6.76 = 13.01$. Since $9 < 13.01$, the square of the longest side is less than the sum of squares of the other two sides, so the triangle is acute.
- 6) **Choice C is correct.** (7.NS.1-7.NS.3) Zero is its own opposite. The opposite of 0 is 0, since $0 = -0$.
- 7) **Choice A is correct.** (7.EE.1) Simplify the left side: $(12 - 5 + 3)a = 10a$, which equals the right side. Both expressions are equivalent.
- 8) **Choice A is correct.** (7.SP.5-7.SP.8) Estimated probability for A: $\frac{15}{60} = 0.25$. Theoretical: 0.20. Error = $|0.25 - 0.20| = 0.05$.
- 9) **Choice A is correct.** (7.EE.1-7.EE.2) Substitute: $\frac{2(5+3)}{4} = \frac{2(8)}{4} = \frac{16}{4} = 4$.
- 10) **The correct answer is 0.85.** (7.RP.1-7.RP.3) The marked point is $(1, 0.85)$, which is the unit-rate point. This means the constant of proportionality is $k = 0.85$, so the cost is \$0.85 per item.
- 11) **Choice B is correct.** (7.G.4-7.G.6) $6s^2 = 216 \Rightarrow s^2 = 36 \Rightarrow s = 6$ cm.
- 12) **Choice C is correct.** (7.SP.1-7.SP.4) A 2% response rate suggests only customers with strong opinions responded, introducing voluntary response bias.
- 13) **The correct answer is \$90.** (7.RP.3) If $18 = 0.20 \times b$, then $b = \frac{18}{0.20} = 90$ dollars.
- 14) **Choice B is correct.** (7.NS.1-7.NS.3) $-8 + 3.5 = -4.5^\circ\text{C}$.
- 15) **Choice A is correct.** (7.NS.1-7.NS.3) Move the decimal 4 places right from the first nonzero digit: $0.00042 \rightarrow 4.2$. Exponent is -4 .
- 16) **Choice A is correct.** (7.EE.1-7.EE.2) Apply power rule in numerator: $(i^6)^2 = i^{12}$. Then quotient rule: $\frac{i^{12}}{i^5} = i^{12-5} = i^7$.
- 17) **The correct answer is 0.03.** (7.RP.3) $240 = 2000 \times r \times 4 \Rightarrow 240 = 8000r \Rightarrow r = 0.03$.
- 18) **The correct answer is A,D.** (7.RP.1-7.RP.3) A and D are true. Relationship A ($y = 4x$) is proportional and has y -intercept 0. Relationship B has constant term 2, so it is not proportional and has y -intercept 2.
- 19) **Choice C is correct.** (7.EE.3-7.EE.4) Divide by 3: $x - 2 = 3$. Add 2: $x = 5$.
- 20) **Choice A is correct.** (7.EE.4a) The distributive property gives $3 \cdot x - 3 \cdot 5 = 24$, so $3x - 15 = 24$.
- 21) **Choice A is correct.** (7.EE.4b) "A number" is n ; "is more than" is $>$; "twice itself minus 5" is $2n - 5$. Direct translation: $n > 2n - 5$.
- 22) **Choice B is correct.** (7.G.1-7.G.5) Actual dimensions: 10 m $\times$ 6 m. Perimeter: $2(10 + 6) = 32$ m.
- 23) **Choice A is correct.** (7.G.1-7.G.5) The linear scale factor is $\frac{3}{12} = \frac{1}{4}$. Cross-section side length = $8 \times \frac{1}{4} = 2$ cm.
- 24) **Choice A is correct.** (7.G.1-7.G.5) Using the rule $(x, y) \rightarrow (-y, -x)$ with $(5, -2)$: $(-(-2), -(5)) = (2, -5)$.
- 25) **Choice C is correct.** (7.G.1-7.G.5) The scale factor is $\frac{20}{8} = 2.5$. The shorter side is $6 \times 2.5 = 15$ inches.
- 26) **Choice C is correct.** (7.G.4-7.G.6) Outer circle: $3.14 \times 3^2 = 28.26$ ft². Inner circle (unpainted): $r = 2$, so $3.14 \times 2^2 = 12.56$ ft². Border: $28.26 - 12.56 = 15.7$ ft².
- 27) **Choice A is correct.** (7.SP.1-7.SP.4) Breed A ranges from 45–49 (range = 4), while Breed B ranges 35–55 (range = 20). Smaller range indicates greater consistency.
- 28) **Choice B is correct.** (7.SP.5-7.SP.8) Red sections: C and D (2 out of 4). $P(\text{red}) = \frac{2}{4} = \frac{1}{2}$.
- 29) **Choice B is correct.** (7.SP.5-7.SP.8) Total combinations: $3 \times 2 = 6$. Tasted: 3. Remaining: $6 - 3 = 3$ combinations.
- 30) **Choice B is correct.** (7.NS.1-7.NS.3) $-4.7 + 2.9 = -(4.7 - 2.9) = -1.8$.
- 31) **Choice B is correct.** (7.NS.1-7.NS.3) Using the chart: negative $\div$ positive = negative. So $(-15) \div 3 = -5$.



Hi, Confident Learner!

◇ This broad and demanding book gave you seven strong 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 **7** 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:

7 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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