

6

NORTH CAROLINA

EOG

GRADE

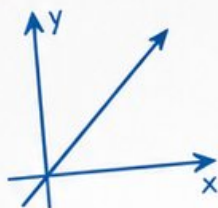
7

MATH

PRACTICE TESTS

Standards Aligned
Problem Solving For
Comprehensive
Assessment Programs

$$y = mx + b$$



$$2(x - 3) = 4x + 6$$



6 PRINTED TESTS



2 ONLINE TESTS



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



Build
Confidence



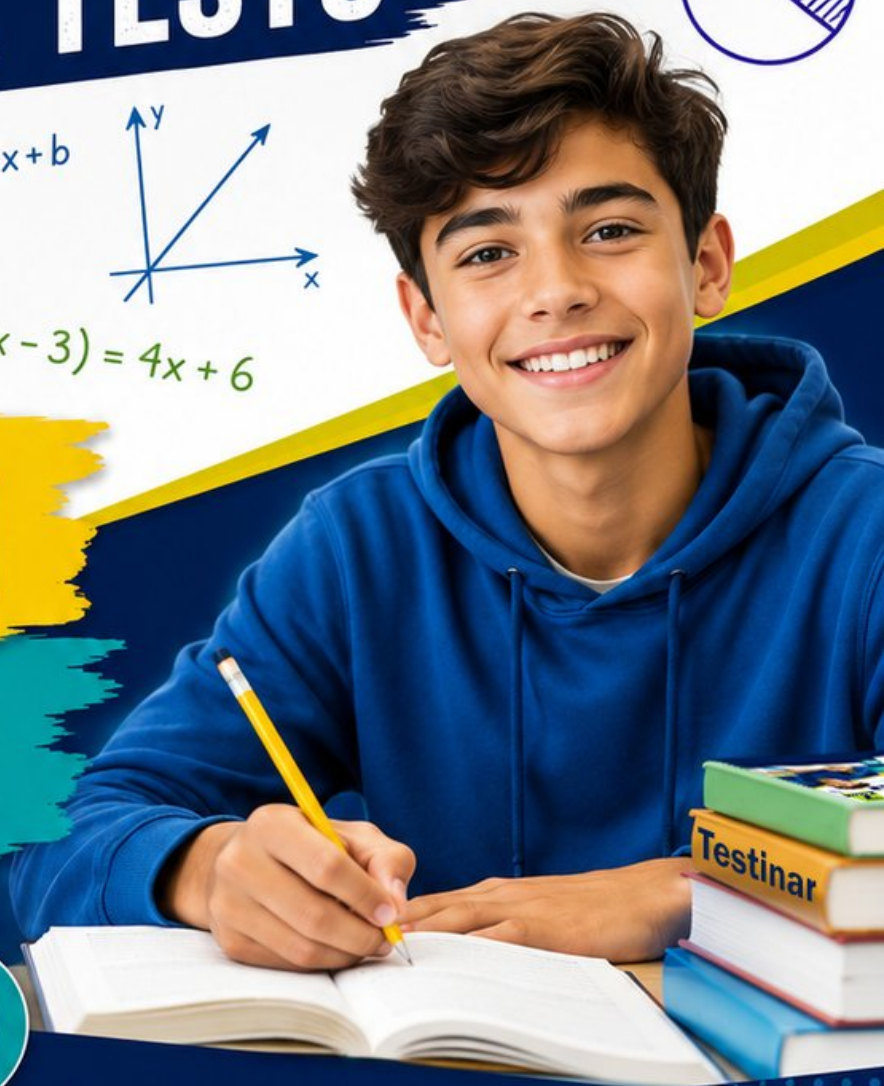
Strengthen
Math Skills



Detailed Answers
& Explanations



Improve Test
Performance



6 North Carolina EOG Grade 7 Math Practice Tests

EOG-Aligned Practice with Review and Answer Keys



Six 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!

Six focused rounds for sharper EOG math thinking

This book gives you six 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 six-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?

Six EOG tests, 240 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.
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

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- 1) A nutritionist estimated 2200 calories per day but the actual need was 2000 calories. What is the percent error?

☐ A. 10% ☐ C. 200%
☐ B. 11% ☐ D. 90.9%

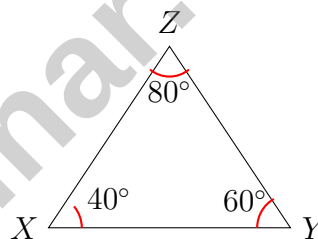
- 2) A school has 280 students. If 35% are in 7th grade, how many 7th graders are there?

☐ A. 70 ☐ C. 98
☐ B. 78 ☐ D. 105

- 3) A savings account has a balance of $-\$15$ (overdraft). After depositing $\$50$, what is the new balance? Write and solve an equation.

☐ A. $\$25$ ☐ C. $\$50$
☐ B. $\$35$ ☐ D. $\$65$

4)



In triangle XYZ , the angles are marked. How many distinct triangles can be drawn with these angles?

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



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- 5) Two similar rectangles have a scale factor of 2.5. The smaller rectangle has a perimeter of 16 inches. What is the perimeter of the larger rectangle?

- 6) A fitness center wants to know about its members' exercise habits. It surveys members only during evening hours when most people are at the gym. What is this sampling bias called?

- ☐ A. Stratified bias ☐ C. Measurement bias
☐ B. Selection bias ☐ D. Convenience sampling

- 7) Two coffee shops' daily revenue (in hundreds of dollars):

Shop	Mean	MAD
Morning Brew	12	0.8
Late Night Joe	12	2.1

What is the most reliable conclusion?

- ☐ A. Morning Brew is consistently around \$1200 daily ☐ C. Both shops are identical
☐ B. Late Night Joe makes more money ☐ D. Late Night Joe is more reliable
- 8) A bag contains 12 candies: 5 cherry, 4 lemon, and 3 lime. If a candy is drawn at random, what is the probability it is lemon or lime?
- ☐ A. $\frac{4}{12}$ ☐ C. $\frac{1}{2}$
☐ B. $\frac{7}{12}$ ☐ D. $\frac{3}{4}$



- 9) Two spinners are spun. The first spinner has sections labeled 1, 2, and 3. The second spinner has sections labeled A and B. How many outcomes are in the sample space?
- ☐ A. 5 ☐ C. 8
☐ B. 6 ☐ D. 9
- 10) A scatter plot shows the relationship between the price of a bicycle (x-axis, in dollars) and the number sold per month (y-axis). The points show a downward trend. What does this suggest?
- ☐ A. Expensive bikes never sell ☐ C. Price and sales are unrelated
☐ B. Lower-priced bikes tend to sell more ☐ D. The store should lower all prices
- 11) Two dot plots show the number of push-ups completed in a fitness test by two grades. Grade 6: 12, 14, 15, 15, 16, 16, 16, 17, 18. Grade 7: 8, 10, 16, 18, 20, 22. As a coach building group improvement, which grade has the most room for collective advancement?
- ☐ A. Grade 6 (concentrated performance leaves room for collective improvement) ☐ B. Grade 7 (already achieving higher maximum of 22)
☐ C. Both grades have equal potential
☐ D. Grade 6 (higher median of 16)
- 12) A bag contains letters spelling PROBABILITY. If one letter is drawn at random, what is the probability of drawing a B OR a Y?
- ☐ A. $\frac{2}{11}$ ☐ C. $\frac{4}{11}$
☐ B. $\frac{3}{11}$ ☐ D. $\frac{1}{11}$



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1) Evaluate: $(-4)^0$

☐ A. 0

☐ B. 1

☐ C. -4

☐ D. Undefined

2) A car's value is \$15 000 after a 40% depreciation. What was the original value?

☐ A. \$9 000

☐ B. \$21 000

☐ C. \$25 000

☐ D. \$37 500

3) A spinner with 5 equal sections is used to simulate an event. After 100 spins, the results show that one section appears 12 times, another appears 18 times, another appears 22 times, another appears 26 times, and the last appears 22 times. Which section's result deviates most from its theoretical probability?

☐ A. The section appearing 12 times

☐ B. The section appearing 18 times

☐ C. The section appearing 22 times

☐ D. The section appearing 26 times

4) A weather forecast predicts a 35% chance of snow. Write this probability as a decimal.

5) If the probability of rain on Monday is $\frac{1}{4}$ and the probability of rain on Tuesday is $\frac{1}{3}$, and these events are independent, what is the probability of NO rain on both days?

☐ A. $\frac{1}{6}$

☐ B. $\frac{1}{12}$

☐ C. $\frac{1}{7}$

☐ D. $\frac{1}{2}$



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6) A thermometer estimate of 98.4 degrees has a 2% percent error. What is the actual temperature (rounded to nearest tenth)?

☐ A. 96.4 degrees

☐ C. 98.6 degrees

☐ B. 100.4 degrees

☐ D. 100 degrees

7) Expand and simplify: $3(x + 2) + 2(x - 1)$

☐ A. $5x + 4$

☐ C. $5x + 1$

☐ B. $5x + 6$

☐ D. $6x + 4$

8) Which expression equals -7 ?

☐ A. $-2 - 5$

☐ C. $-9 + 1$

☐ B. $-1 - 5$

☐ D. $3 - (-4)$

9) A jar contains 8 red marbles and 12 blue marbles. A marble is drawn at random. What is the probability of drawing a red marble? Express your answer as a simplified fraction.

10) Two similar rectangles are shown in a scale model. The small rectangle on the plan measures $2 \text{ cm} \times 1.5 \text{ cm}$. The actual rectangle is $16 \text{ m} \times 12 \text{ m}$. What is the linear scale factor?

☐ A. $1 : 24$

☐ C. $800 : 1$

☐ B. $1 : 1000$

☐ D. $1 : 800$



- 1) Which solution strategy is correct for $4x + 6 = 30$?
- ☐ A. Subtract 6, then divide by 4 ☐ C. Multiply by 4, then add 6
☐ B. Divide by 4, then subtract 6 ☐ D. Add 6, then divide by 4
- 2) A rectangular courtyard measures 18 meters by 24 meters. A scale drawing is made where 1 cm represents 3 meters. What is the width of the drawing?
- ☐ A. 3 cm ☐ C. 8 cm
☐ B. 6 cm ☐ D. 12 cm
- 3) Two complementary angles have measures in the ratio 2 : 3. What is the measure of the larger angle?
- ☐ A. 54° ☐ C. 45°
☐ B. 36° ☐ D. 30°
- 4) A circle has diameter 20 ft. What is its circumference to the nearest tenth? Use $\pi \approx 3.14$.
- ☐ A. 31.4 ft ☐ C. 125.6 ft
☐ B. 62.8 ft ☐ D. 314 ft
- 5) A cylindrical container has a height of 7 cm. If the surface area is 376.8 cm^2 , what is the radius? Use $\pi \approx 3.14$.
- ☐ A. 2.5 cm ☐ C. 4 cm
☐ B. 3 cm ☐ D. 5 cm



6) Between which two consecutive integers does $\sqrt{175}$ lie?

☐ A. between 11 and 12

☐ C. between 13 and 14

☐ B. between 12 and 13

☐ D. between 14 and 15

7) Use the distributive property to simplify $3(x + 5) - 2x$.

☐ A. $3x + 15 - 2x = x + 15$

☐ C. $3x + 5 - 2x$

☐ B. $x + 5$

☐ D. $3x + 15$

8) Two box plots compare the price (in dollars) of gasoline over a year at two locations. Location 1: Min = \$2.10, Median = \$2.50, Max = \$2.90. Location 2: Min = \$2.00, Median = \$2.50, Max = \$3.20. A traveler wants stable prices. Which location has more volatile prices?

☐ A. Location 1 (smaller range: \$0.80)

☐ D. Location 1 (higher median means stability)

☐ B. Location 2 (larger range: \$1.20)

☐ C. Both have identical volatility

9) Two triangles both have side lengths 5, 5, and 7. How many corresponding side lengths match?

10) Two spinners are spun. Spinner A has 5 equal sections, and Spinner B has 3 equal sections. If each outcome on Spinner A has probability $\frac{1}{5}$ and each outcome on Spinner B has probability $\frac{1}{3}$, what is $P(\text{specific outcome on A AND specific outcome on B})$?

☐ A. $\frac{2}{8}$

☐ C. $\frac{1}{8}$

☐ B. $\frac{1}{15}$

☐ D. $\frac{1}{5} + \frac{1}{3} = \frac{8}{15}$



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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 A is correct.** (7.RP.3) Percent error = $\frac{|2200-2000|}{2000} \times 100\% = \frac{200}{2000} \times 100\% = 10\%$.
- 2) **Choice C is correct.** (7.RP.3) Set up the proportion $\frac{35}{100} = \frac{x}{280}$. Cross-multiply: $35 \times 280 = 100x$, giving $x = 98$.
- 3) **Choice B is correct.** (7.EE.3-7.EE.4) Equation: $-15 + d = b$ where $d = 50$ (deposit). Or: $-15 + 50 = 35$. Check: Starting with $-\$15$ debt, adding $\$50$ leaves $\$35$ surplus. Reasonable.
- 4) **Choice C is correct.** (7.G.1-7.G.5) Knowing only the three angles determines the shape (similarity), not the size. Infinitely many triangles with angles $40^\circ, 60^\circ, 80^\circ$ exist at different scales.
- 5) **The correct answer is 40.** (7.G.1-7.G.5) Perimeter scales linearly by the scale factor. Larger perimeter = $16 \times 2.5 = 40$ inches.
- 6) **Choice D is correct.** (7.SP.1-7.SP.4) Sampling only during evening hours is convenient for the surveyor but misses members who visit at other times, introducing convenience bias.
- 7) **Choice A is correct.** (7.SP.1-7.SP.4) Both have the same mean ($\$1200$), but Morning Brew has a smaller MAD (0.8 vs. 2.1), indicating more consistent daily revenue.
- 8) **Choice B is correct.** (7.SP.5-7.SP.8) Lemon or lime = $4 + 3 = 7$. $P(\text{lemon or lime}) = \frac{7}{12}$.
- 9) **Choice B is correct.** (7.SP.5-7.SP.8) First spinner: 3 outcomes; second spinner: 2 outcomes. Total: $3 \times 2 = 6$ outcomes.
- 10) **Choice B is correct.** (7.SP.1-7.SP.4) A downward trend means that as price increases, sales tend to decrease. This is a negative association, not a guarantee or causal statement.
- 11) **Choice A is correct.** (7.SP.3) Grade 6 clusters at 14–17 push-ups, showing all students perform at similar levels with room to improve together. Grade 7 spreads from 8–22, with some students already excelling (22) while others lag (8). A uniform group (Grade 6) has more opportunity for collective advancement.
- 12) **Choice A is correct.** (7.SP.5-7.SP.8) PROBABILITY has 11 letters. B appears once and Y appears once. $P(B \text{ or } Y) = \frac{1}{11} + \frac{1}{11} = \frac{2}{11}$.
- 13) **Choice B is correct.** (7.SP.6) Experimental probability of both heads and rolling a 5: $\frac{18}{240} = \frac{3}{40} = 0.075$. The theoretical probability would be $\frac{1}{2} \times \frac{1}{6} = \frac{1}{12} \approx 0.083$, close to but not exactly the experimental result.
- 14) **Choice A is correct.** (7.SP.5-7.SP.8) An event and its complement sum to 1. Here, $\frac{2}{3} + \frac{1}{3} = \frac{3}{3} = 1$, so both probabilities are correct.
- 15) **Choice A is correct.** (7.EE.1-7.EE.2) Distribute $\frac{1}{5}$: $\frac{1}{5}(10r) + \frac{1}{5}(5) = 2r + 1$.
- 16) **Choice D is correct.** (7.NS.1-7.NS.3) $9 - (-4) = 9 + 4 = 13$.
- 17) **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.
- 18) **Choice D is correct.** (7.RP.3) Discount is $60 - 45 = 15$. Percent: $\frac{15}{60} = \frac{1}{4} = 25\%$.
- 19) **Choice C is correct.** (7.RP.3) $180 = 5000 \times 0.036 \times t \Rightarrow 180 = 180t \Rightarrow t = 1$ year. Convert to months: $1 \times 12 = 12$ months.
- 20) **Choice C is correct.** (7.NS.1b) Starting at -2 and jumping right to 6 means moving right by 8 units (from -2 to 0 is 2 , then 0 to 6 is 6 , total $2 + 6 = 8$). So $-2 + 8 = 6$.
- 21) **The correct answer is 16.** (7.G.4-7.G.6) Circumference = $\pi d = 3.14 \times 0.6 = 1.884 \text{ m}$. Rotations = $30 \div 1.884 \approx 16$.
- 22) **The correct answer is B,C.** (7.G.1-7.G.5) B and C are equivalent and correct: two angles are equal (50° each), so by the Isosceles Triangle Theorem, the sides opposite those angles must be equal. A is wrong (equilateral requires all angles 60°). D is wrong (two angles are the same).
- 23) **The correct answer is 1386.** (7.G.4-7.G.6) $A = \frac{22}{7} \times 21^2 = \frac{22}{7} \times 441 = 22 \times 63 = 1386 \text{ cm}^2$.
- 24) **Choice C is correct.** (7.EE.1) Combine: $\frac{1}{2}a + \frac{1}{4}a = \frac{2}{4}a + \frac{1}{4}a = \frac{3}{4}a$.
- 25) **Choice C is correct.** (7.SP.1-7.SP.4) 31% of $400 = 0.31 \times 400 = 124$ pies.
- 26) **Choice A is correct.** (7.EE.1-7.EE.2) Substitute: $-2(-3) + 5 = 6 + 5 = 11$.
- 27) **Choice A is correct.** (7.EE.1-7.EE.2) The rectangle has length $3x + 5$ and area $9x + 15$. Height must be 3 , which is the GCF.



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Hi, Persistent Problem Solver!

◇ Some Grade 7 questions ask you to hold several ideas in your mind at once. That can feel hard, and that is exactly why practice matters. ◇

★ **Remember this:** You showed persistence by continuing through the set. That habit is powerful because difficult problems often open after one more good attempt. You practiced across 6 full Grade 7 practice tests, and that repeated effort matters. ★

Persistence Tools

- **Try a Smaller Case:** Use an easier number to see the pattern.
- **Draw It:** Make the situation visible.
- **Restate It:** Say the question in your own words.
- **Check One Step:** Fix the first unclear place.

Grade 7 test-day tip: When stuck, do not restart everything. Find the first step you trust, then rebuild from there.

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

Jay Daie

Your Persistence Coach

PRACTICE TODAY. SUCCEED TOMORROW!

This book includes **6** 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:

6 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!



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