

10

North Carolina EOG

GRADE
7
MATH

PRACTICE TESTS

Standards Aligned Problem
Solving For Comprehensive
Assessment Programs



10 PRINTED TESTS

Realistic practice to build
confidence and mastery



2 ONLINE TESTS

Extra practice for
continued success



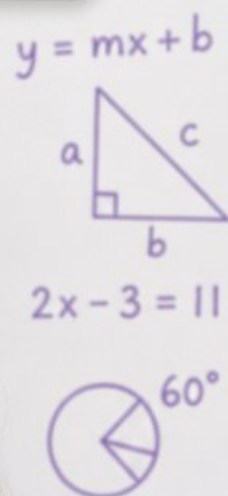
DETAILED ANSWER EXPLANATIONS

Learn with step-by-step
solutions



FOCUSED & EFFECTIVE

Target key math skills
with purposeful practice



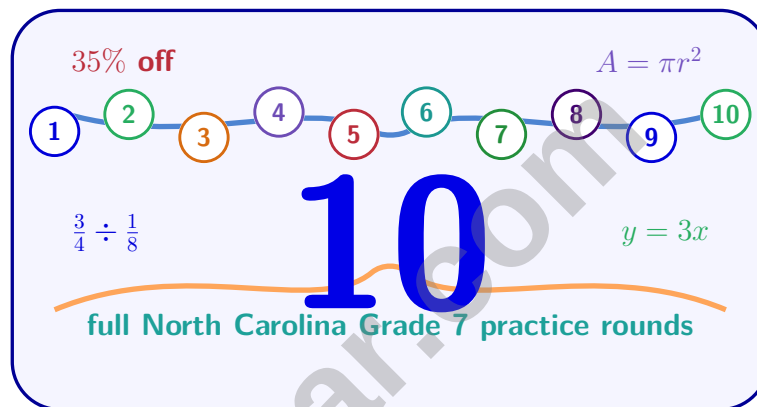
10 PRINTED TESTS
+2 ONLINE TESTS

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

PRACTICE ★ REVIEW ★ SUCCEED

10 North Carolina EOG Grade 7 Math Practice Tests

North Carolina Grade 7 EOG Practice for coast-and-mountain practice in ratios, percents, equations, geometry, data, and probability



Ten 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!

Ten focused rounds for sharper North Carolina EOG math thinking

This book gives you ten 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 ten-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?

Ten North Carolina EOG tests, 400 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.
Test 10	A final North Carolina round to show growth across the whole book.
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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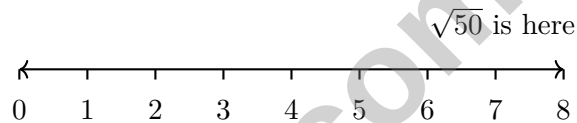
- 1) A triangle has sides of 3.2 cm and 5.1 cm. Which range gives all possible values for the third side?

☐ A. $1.9 < c < 8.3$ cm ☐ C. $3.2 < c < 5.1$ cm
☐ B. $1.9 \leq c \leq 8.3$ cm ☐ D. $0 < c < 8.3$ cm

- 2) Solve: $x - (-4) < 8$

☐ A. $x < 4$ ☐ C. $x > 4$
☐ B. $x < 12$ ☐ D. $x < 8$

- 3) Between which two consecutive integers does $\sqrt{50}$ lie?



☐ A. between 3 and 4 ☐ C. between 6 and 7
☐ B. between 5 and 6 ☐ D. between 7 and 8

- 4) A bag contains marbles of different colors. If there are 28 marbles and $P(\text{white}) = \frac{1}{4}$, which of these correctly describes the setup?

☐ A. 4 white marbles and 24 others. ☐ C. 1 white marble and 27 others.
☐ B. 7 white marbles and 21 others. ☐ D. 14 white marbles and 14 others.

- 5) A spinner is divided into 3 equal sections (Red, Blue, Yellow), and a fair coin is flipped. How many total outcomes are possible?

☐ A. 3 ☐ C. 6
☐ B. 5 ☐ D. 9



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- 6) A number from 1 to 20 is selected at random. What is the probability of selecting a multiple of 3 OR a multiple of 5?
- ☐ A. $\frac{6}{20}$ ☐ C. $\frac{8}{20}$
☐ B. $\frac{9}{20}$ ☐ D. $\frac{10}{20}$
- 7) A quality control test found that out of 750 items produced, 12 were defective. What is the experimental probability that an item is defective?
- ☐ A. $\frac{12}{750}$ ☐ C. 0.12
☐ B. $\frac{3}{125}$ ☐ D. $\frac{1}{12}$
- 8) A back-to-back stem-and-leaf plot shows January and July temperatures. If stem 7 appears for both months with January leaves 1, 4, 8 and July leaves 3, 5, 7, 9, which month has greater variation within stem 7?
- ☐ A. January (greater spread) ☐ C. Both have equal spread
☐ B. July (greater spread) ☐ D. Cannot determine from stem alone
- 9) A recipe calls for 2.5 cups of milk. A cook estimated 2.2 cups. What is the percent error?
- ☐ A. 14% ☐ C. 10.5%
☐ B. 3% ☐ D. 12%
- 10) Expand: $-3(2a - 5)$
- ☐ A. $-6a - 15$ ☐ C. $6a - 15$
☐ B. $-6a + 15$ ☐ D. $-6a - 5$



- 11) A circle has a radius of 11 cm. Calculate its diameter.

- 12) What is $-5 - (-9)$?

- ☐ A. -14 ☐ C. -4
☐ B. 14 ☐ D. 4

- 13) A model airplane has a scale of $1 : 72$. If a real airplane is 72 meters long, how long is the model?

- ☐ A. 1 cm ☐ C. 1 meter
☐ B. 72 cm ☐ D. 100 cm

- 14) A restaurant bill is \$50. If you tip 18%, what is the tip amount?

- ☐ A. \$5 ☐ C. \$9
☐ B. \$6 ☐ D. \$12

- 15) A pizza costs \$16 before tax. With a 7% sales tax, what is the total cost?

- ☐ A. \$16.07 ☐ C. \$14.88
☐ B. \$23 ☐ D. \$17.12

- 16) How much principal is needed to earn \$1000 in simple interest at 8% annually over 5 years?

- ☐ A. \$2000 ☐ C. \$3000
☐ B. \$3500 ☐ D. \$2500



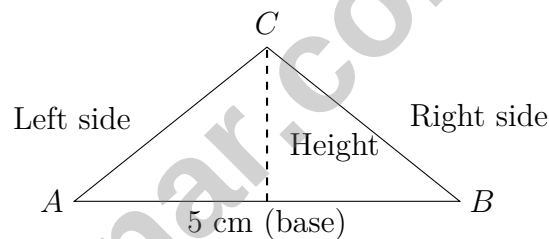
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- 1) A submarine descends 240 meters in 8 hours at a constant rate. What is the descent per hour?
- ☐ A. 30 meters per hour ☐ C. 240 meters per hour
☐ B. -30 meters per hour (descent) ☐ D. 8 meters per hour
- 2) Two box plots compare the monthly rainfall in two regions. Region P: Min 1 inch, Q1 3, Median 5, Q3 7, Max 9 inches. Region Q: Min 0 inches, Q1 2, Median 4, Q3 9, Max 12 inches. Which region has more variable weather?
- ☐ A. Region P (all measures are higher) ☐ C. Both regions have identical
☐ B. Region Q (larger range and spread) patterns
☐ D. Region P is more variable
- 3) In a stem-and-leaf plot, the stem represents the tens digit and leaves represent the ones digit. If a value is 67, what stem and leaf should be written?
- ☐ A. Stem 6, Leaf 7 ☐ C. Stem 60, Leaf 7
☐ B. Stem 7, Leaf 6 ☐ D. Stem 67, Leaf 1
- 4) A savings goal is \$1,200 for a laptop. If someone saves \$40 per month, how many months will it take to reach the goal?



- 5) The temperature was -3°C at dawn. By noon, it had risen 18°C . What was the noon temperature?

- 6) A rectangular prism has dimensions $3\text{ cm} \times 4\text{ cm} \times 6\text{ cm}$. Another prism has half the dimensions of the first. What is the volume of the smaller prism?

☐ A. 9 cm^3 ☐ C. 36 cm^3 ☐ B. 18 cm^3 ☐ D. 72 cm^3 

7)

The triangle has a base of 5 cm and the two other sides are equal. What type of triangle is this?

☐ A. Equilateral☐ C. Scalene☐ B. Isosceles☐ D. Right

- 8) Simplify: $3xy + 5xy - 2xy$

☐ A. $6xy$ ☐ C. $8xy$ ☐ B. $10xy$ ☐ D. 0

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1) Which inequality represents “the sum of a number and 6 is at least 15”?

☐ A. $n + 6 < 15$

☐ B. $n + 6 > 15$

☐ C. $n + 6 \geq 15$

☐ D. $n + 6 \leq 15$

2) Which equals $(2i + 4) + (6i - 1)$?

☐ A. $8i + 3$

☐ B. $8i - 3$

☐ C. $4i + 3$

☐ D. $8i + 5$

3) A carpenter charges \$180 for 6 hours of work. What is the hourly rate?

4) In a sample of 140 workers, 35 work the night shift. The company employs 4200 people. How many workers are expected to work the night shift?

5) Simplify: $12p^{11} \div 4p^6$

☐ A. $3p^5$

☐ B. $3p^{17}$

☐ C. $8p^5$

☐ D. $3p^{66}$



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- 6) A streaming service costs \$12.99 per month plus a one-time setup fee of \$19.99. Which expression shows the total cost C for n months?

☐ A. $C = 19.99 + 12.99n$ ☐ C. $C = 19.99(n + 12.99)$
☐ B. $C = 19.99n + 12.99$ ☐ D. $C = 12.99n + 12.99$

- 7) Triangle ABC has sides 13 cm, 5 cm, and 12 cm. Compute $13^2 - (5^2 + 12^2)$.

- 8) Which of the following is the correct first step to solve $4x - 3 = 13$?

☐ A. Subtract 4 from both sides ☐ C. Divide both sides by 4
☐ B. Add 3 to both sides ☐ D. Multiply both sides by 4

- 9) Solve for x : $9(x + 2) = 63$

☐ A. $x = 3$ ☐ C. $x = 7$
☐ B. $x = 5$ ☐ D. $x = 9$

- 10) Solve: $-2x + 6 = 18$ and check that a negative answer is reasonable.

☐ A. $x = -6$ ☐ C. $x = 4$
☐ B. $x = -4$ ☐ D. $x = 6$

- 11) A map uses a scale of 1 inch : 50 miles. Two cities are 3 inches apart on the map. What is the actual distance between the cities?

☐ A. 100 miles ☐ C. 200 miles
☐ B. 150 miles ☐ D. 250 miles



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.G.1-7.G.5) Triangle Inequality requires strict inequalities: $|5.1 - 3.2| < c < 5.1 + 3.2$, so $1.9 < c < 8.3$.
- 2) **Choice A is correct.** (7.EE.4b) Rewrite as $x + 4 < 8$. Subtract 4: $x < 4$.
- 3) **Choice D is correct.** (7.NS.1-7.NS.3) $7^2 = 49$ and $8^2 = 64$. Since $49 < 50 < 64$, we know $7 < \sqrt{50} < 8$.
- 4) **Choice B is correct.** (7.SP.5-7.SP.8) $\frac{1}{4} \times 28 = 7$ white marbles.
- 5) **Choice C is correct.** (7.SP.5-7.SP.8) The spinner has 3 outcomes and the coin has 2 outcomes. Using the counting principle: $3 \times 2 = 6$ total outcomes.
- 6) **Choice B is correct.** (7.SP.5-7.SP.8) Multiples of 3: 3, 6, 9, 12, 15, 18 and multiples of 5: 5, 10, 15, 20. Total: 3, 5, 6, 9, 10, 12, 15, 18, 20 = 9 numbers. So $\frac{9}{20}$.
- 7) **Choice A is correct.** (7.SP.6) Experimental probability of defect = $\frac{12}{750}$. This simplifies to $\frac{2}{125} = 0.016$. Option A is the most direct answer from the data.
- 8) **Choice A is correct.** (7.SP.1-7.SP.4) January: leaves 1~8 span $8 - 1 = 7$. July: leaves 3~9 span $9 - 3 = 6$. January has a greater range of leaves, indicating greater variation within stem 7.
- 9) **Choice D is correct.** (7.RP.3) Percent error = $\frac{|2.2 - 2.5|}{2.5} \times 100\% = \frac{0.3}{2.5} \times 100\% = 12\%$.
- 10) **Choice B is correct.** (7.EE.1-7.EE.2) Distribute -3 to both terms: $-3(2a) = -6a$ and $-3(-5) = +15$ (negative times negative is positive). Result: $-6a + 15$.
- 11) **The correct answer is 22.** (7.G.4-7.G.6) Use the formula $d = 2r$: $d = 2 \times 11 = 22$ cm.
- 12) **Choice D is correct.** (7.NS.1-7.NS.3) $-5 - (-9) = -5 + 9 = 4$. Subtracting a larger negative gives a positive result.
- 13) **Choice C is correct.** (7.RP.1-7.RP.3) Divide the real length by the scale factor: $72 \div 72 = 1$ meter.
- 14) **Choice C is correct.** (7.RP.3) The tip is 18% of \$50: $0.18 \times 50 = 9$ dollars.
- 15) **Choice D is correct.** (7.RP.3) Tax = $0.07 \times 16 = \$1.12$. Total = $16 + 1.12 = \$17.12$.
- 16) **Choice D is correct.** (7.RP.3) $1000 = P \times 0.08 \times 5 \Rightarrow 1000 = 0.4P \Rightarrow P = \2500 .
- 17) **Choice D is correct.** (7.NS.1b) Add left to right: $2 + (-6) = -4$, then $-4 + 10 = 6$. Or rearrange: $2 + 10 = 12$, then $12 + (-6) = 6$.
- 18) **Choice C is correct.** (7.EE.1) When combining like terms, we add the coefficients but keep the variables and exponents unchanged. $4xy + 2xy = (4 + 2)xy = 6xy$, not $6x^2y^2$. The error is inflating the exponents.
- 19) **The correct answer is A,C.** (7.SP.3) A is correct: clustering at 100–120 indicates consistency. C is correct: spread from 60–160 indicates greater variability. B is unsupported (total traffic, not visible). D is false (clearly different patterns).
- 20) **Choice A is correct.** (7.EE.1-7.EE.2) GCF of 4 and 8 is 4. Factor: $4x + 8y = 4(x + 2y)$.
- 21) **Choice C is correct.** (7.SP.1-7.SP.4) 30% of 168 = $0.30 \times 168 = 50.4$ hours.
- 22) **The correct answer is 44.** (7.G.4-7.G.6) $C = 2\pi r = 2 \times \frac{22}{7} \times 7 = 2 \times 22 = 44$ cm.
- 23) **The correct answer is 9.** (7.G.4-7.G.6) $SA = 2\pi r^2 + 2\pi rh \Rightarrow 326.56 = 2(3.14)(16) + 2(3.14)(4)(h) \Rightarrow 326.56 = 100.48 + 25.12h \Rightarrow 226.08 = 25.12h \Rightarrow h = 9$ cm.
- 24) **Choice A is correct.** (7.EE.1-7.EE.2) Half of c is $\frac{c}{2}$. Four less than $\frac{c}{2}$ is $\frac{c}{2} - 4$.
- 25) **Choice C is correct.** (7.RP.1-7.RP.3) Unit rate = $4 \div 3 \approx 1.33$ miles per hour (or exactly $\frac{4}{3}$ miles per hour).
- 26) **Choice D is correct.** (7.RP.3) Remaining needed = $\$400 - \$100 = \$300$. Months = $\$300 \div \$30 = 10$ months.
- 27) **Choice A is correct.** (7.NS.1-7.NS.3) $2.5 \times \frac{3}{5} = \frac{2.5 \times 3}{5} = \frac{7.5}{5} = 1.5$ cups.
- 28) **Choice B is correct.** (7.NS.1-7.NS.3) Net change = $250 - 180 + 120 = 190$ feet.
- 29) **Choice A is correct.** (7.EE.1-7.EE.2) Add both walls: $(10x + 8) + (6x - 3) = (10x + 6x) + (8 - 3) = 16x + 5$ feet.
- 30) **Choice B is correct.** (7.EE.1-7.EE.2) First apply power rule: $(h^2)^3 = h^{2 \times 3} = h^6$. Then apply product rule: $h^6 \cdot h^4 = h^{6+4} = h^{10}$.
- 31) **Choice C is correct.** (7.EE.3-7.EE.4) Subtract 7: $2x = 12$. Divide by 2: $x = 6$.



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Hi, Math Hero!

◇ This full-length book gave you ten complete Grade 7 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. You showed up for Grade 7 practice again and again. That is what real growth looks like: steady effort, honest review, and a willingness to try. ◇

★ **Remember this:** A math hero is not someone who never misses a question. A math hero learns from the miss and comes back stronger. ★

Hero Habits

- **Courage:** You try problems that are not automatic.
- **Honesty:** You review what needs work.
- **Patience:** You let skills grow over time.
- **Pride:** You recognize the effort you gave.

Grade 7 test-day tip: Save one solved problem you are proud of. Looking back at progress helps motivation stay strong.

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

Jay Daie

Your Math Hero Guide

PRACTICE TODAY. SUCCEED TOMORROW!

This book includes 10 full-length Math practice tests and 2 extra 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:

10 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
- ✓ Fractions & Decimals
- ✓ Percents
- ✓ Statistics & Probability
- ✓ Data Analysis
- ✓ Measurement & Conversions
- ✓ And More!



2 EXTRA 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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