

4

North Dakota

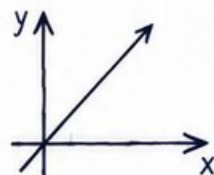
NDSA

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



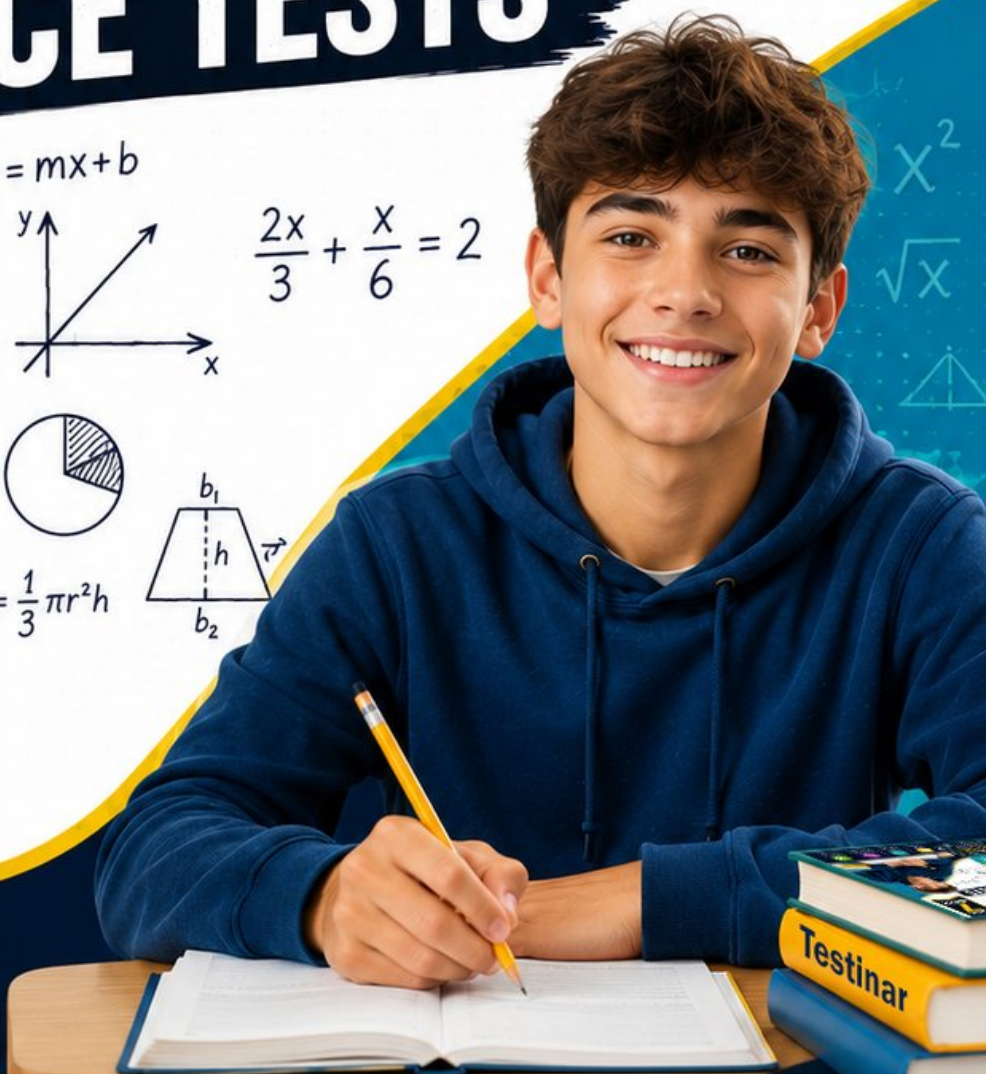
Strengthen
Math Skills



Detailed Answers
& Explanations

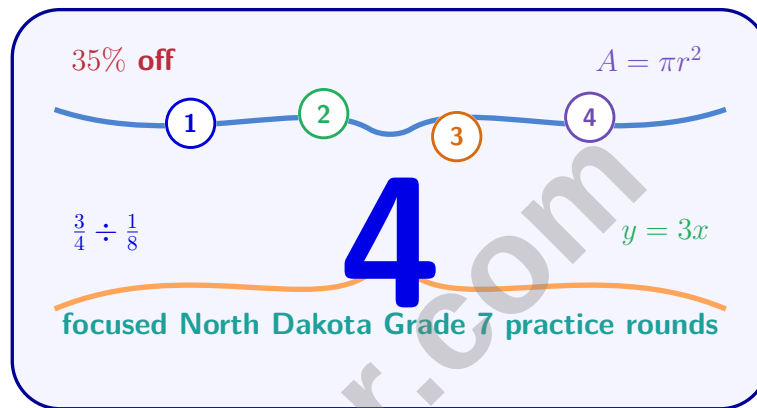


Improve Test
Performance



4 North Dakota NDSA Grade 7 Math Practice Tests

Standards-Aligned North Dakota Review with Guided Explanations



Four complete 40-question Grade 7 NDSA 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 Dakota Grade 7 Problem Solver!

Four focused rounds for sharper NDSA math thinking

This book gives you four full Grade 7 NDSA 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 Dakota 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 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 Dakota 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 NDSA 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.



Scan me!
For more practice
& answers

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- 1) A spinner with sections 1, 2, 3, 4, 5 is spun, and a coin is flipped. How many outcomes have an odd number and Heads?
- ☐ A. 2 ☐ C. 5
☐ B. 3 ☐ D. 10
- 2) A cylindrical tank has a total surface area of 703.36 m^2 and a radius of 8 m. What is the height? Use $\pi \approx 3.14$.
- ☐ A. 6 m ☐ C. 10 m
☐ B. 8 m ☐ D. 12 m
- 3) Two gyms track daily member visits. Gym X: visits = 45, 45, 46, 45, 44 (mean 45). Gym Y: visits = 30, 50, 40, 50, 35 (mean 41). Which gym has a lower MAD?
- ☐ A. Gym X (more consistent attendance) ☐ C. Both have equal MAD
☐ B. Gym Y (higher peak days) ☐ D. Cannot determine MAD from the means
- 4) A line graph shows the cost of a movie ticket over 10 years (2014–2024): \$8, \$8.50, \$9, \$9.50, \$10, \$10.25, \$10.50, \$11, \$11.50, \$12. Which year shows the smallest increase from the previous year?
- ☐ A. 2015 (increase of \$0.50) ☐ C. 2019 (increase of \$0.25)
☐ B. 2018 (increase of \$0.50) ☐ D. 2020 (increase of \$0.50)
- 5) A bag has 8 balls: 3 yellow and 5 orange. What is the probability of drawing a yellow ball on a single draw?
- ☐ A. $\frac{3}{8}$ ☐ C. $\frac{3}{5}$
☐ B. $\frac{5}{8}$ ☐ D. $\frac{2}{7}$



- 6) 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)

- 7) A jar contains 12 marbles: 5 green, 4 orange, and 3 purple. Two marbles are drawn without replacement. What is the probability that both are the same color?

- ☐ A. $\frac{5}{12} \cdot \frac{4}{12} + \frac{4}{12} \cdot \frac{3}{12} + \frac{3}{12} \cdot \frac{2}{12}$
- ☐ B. $\frac{5}{12} \cdot \frac{5}{11} + \frac{4}{12} \cdot \frac{4}{11} + \frac{3}{12} \cdot \frac{3}{11}$
- ☐ C. $\frac{20}{144} + \frac{12}{144} + \frac{9}{144}$
- ☐ D. $\frac{38}{132}$

- 8) A charity conducted a phone survey calling 500 households. 340 people answered and agreed to participate. Based on this experimental data, what is the probability that a randomly called household will answer and agree?

- ☐ A. $\frac{340}{500}$
- ☐ B. $\frac{17}{50}$
- ☐ C. 0.32
- ☐ D. $\frac{160}{500}$

- 9) An irregular hexagon can be split into three rectangles: (4 m × 2 m), (3 m × 2 m), and (2 m × 2 m). What is the total area?

- ☐ A. 18 m²
- ☐ B. 20 m²
- ☐ C. 22 m²
- ☐ D. 24 m²



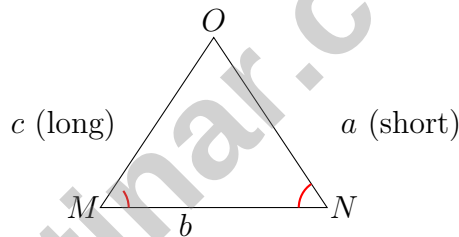
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10) Given raw data: 51, 54, 58, 61, 64, 68, 71, 75. In a stem-and-leaf plot, what is the correct representation?

- ☐ A. Stem 5: 1, 4, 8; Stem 6: 1, 4, 8; Stem 7: 1, 5
☐ B. Stem 5: 1, 4, 5, 8; Stem 6: 1, 4; Stem 7: 1, 5
☐ C. Stem 5: 1, 4, 8; Stem 6: 1, 4; Stem 7: 1, 5, 8
☐ D. Stem 5: 51, 54, 58; Stem 6: 61, 64; Stem 7: 71, 75

11) A rectangular prism has dimensions 2 feet, 3 feet, and 4 feet. A second rectangular prism has dimensions 4 feet, 6 feet, and 8 feet. How many times larger is the volume of the second prism than the first?

- ☐ A. 2 times
☐ B. 4 times
☐ C. 8 times
☐ D. 16 times



12)

A triangle has sides labeled a (short), b (medium), and c (long). The angle opposite the shortest side is:

- ☐ A. Always 60°
☐ B. The largest angle
☐ C. The smallest angle
☐ D. Exactly 90°



1) A cylinder has a radius of 2.5 m and a volume of 78.5 m^3 . What is the height? Use $\pi \approx 3.14$.

☐ A. 2 m

☐ C. 6 m

☐ B. 4 m

☐ D. 8 m

2) A construction worker needs to find the side of a square concrete pad with area 289 square feet. What is the side length?

☐ A. 15 feet

☐ C. 17 feet

☐ B. 16 feet

☐ D. 18 feet

3) A phone plan costs \$50 per month. With a promotional 5% reduction, the cost becomes $50 - 0.05(50)$. Rewrite this in the form $50(?)$.

☐ A. $50(0.95)$

☐ C. $50(1.05)$

☐ B. $50(0.05)$

☐ D. $50(1 - 0.05)$

4) What is $(-1) \times 2 \times (-3) \times 4$?

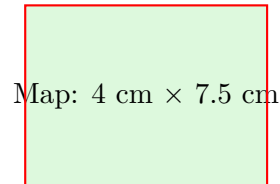
☐ A. -24

☐ C. 10

☐ B. -10

☐ D. 24

5) A rectangular park on a map measures 4 cm by 7.5 cm. If the scale is 1 cm = 20 m, what is the actual perimeter of the park?



Scale: 1 cm = 20 m

☐ A. 260 m

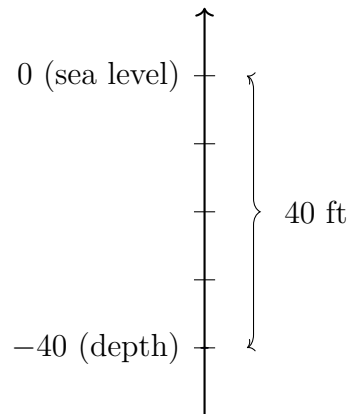
☐ C. 520 m

☐ B. 360 m

☐ D. 460 m



- 6) A scuba diver descends 40 feet below sea level. Which integer represents this depth?



- ☐ A. 40 (ignores direction/below sea level)
- ☐ B. -80 (double the depth)
- ☐ C. 0 (at sea level, not below)
- ☐ D. -40 (correct; below is negative)
- 7) A cube has surface area 216 cm^2 . What is the edge length?
- ☐ A. 4 cm
- ☐ B. 6 cm
- ☐ C. 36 cm
- ☐ D. 1296 cm



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- 1) A spinner is divided into 5 equal sections labeled A, B, C, D, E . What is the probability of not landing on A ?

☐ A. $\frac{1}{5}$
☐ B. $\frac{2}{5}$

☐ C. $\frac{4}{5}$
☐ D. $\frac{3}{5}$

- 2) A composite figure is formed by a square ($8\text{ m} \times 8\text{ m}$) with a right triangle (legs 8 m and 3 m) attached to one side. What is the total area?

☐ A. 64 m^2
☐ B. 76 m^2

☐ C. 88 m^2
☐ D. 100 m^2

- 3) A stem-and-leaf plot is created from test scores. Stem 8 has leaves 1, 2, 4, 5, 6, 7, 9. Stem 9 has leaves 0, 1, 3. Which score appears most frequently in the dataset?

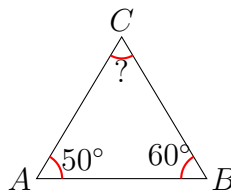
☐ A. 81
☐ B. 89

☐ C. 90
☐ D. No mode (each score appears once)

- 4) A rectangular prism with a square base has a base perimeter of 20 cm and a height of 8 cm . What is the volume? (Hint: find the side length of the square first.)

☐ A. 100 cm^3
☐ B. 160 cm^3

☐ C. 200 cm^3
☐ D. 400 cm^3



5)

Two angles of a triangle are 50° and 60° . What is the third angle?

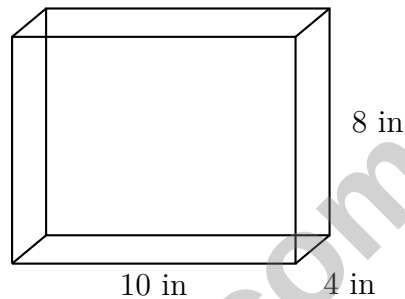
☐ A. 70°
☐ B. 110°

☐ C. 30°
☐ D. 180°



6) A student is asked: “If a circle has a diameter of 10 cm, what is the radius?” The student writes: “The radius is 20 cm.” What is the student’s error?

- ☐ A. The student multiplied by 2 instead of dividing by 2
- ☐ B. The student forgot that radius exists
- ☐ C. The student used the wrong units
- ☐ D. The student added instead of dividing



7)

The rectangular prism shown has dimensions 10 in $\times$ 8 in $\times$ 4 in. Calculate the surface area.

- ☐ A. 320 in²
- ☐ B. 304 in²
- ☐ C. 240 in²
- ☐ D. 160 in²

8) A refrigerator is set to maintain a temperature of -2°C . It drops $\frac{1}{4}^{\circ}\text{C}$ per hour. What will the temperature be after 8 hours?



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North Dakota NDSA 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 Dakota NDSA practice test.



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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice B is correct.** (7.SP.5-7.SP.8) Odd numbers: $\{1, 3, 5\} = 3$ outcomes. Heads: 1 outcome. Favorable: 1H, 3H, 5H = 3 outcomes.
- 2) **Choice A is correct.** (7.G.4-7.G.6) $SA = 2\pi r^2 + 2\pi rh \Rightarrow 703.36 = 2(3.14)(64) + 2(3.14)(8)(h) \Rightarrow 703.36 = 401.92 + 50.24h \Rightarrow 301.44 = 50.24h \Rightarrow h = 6$ m.
- 3) **Choice A is correct.** (7.SP.1-7.SP.4) Gym X: deviations = 0, 0, 1, 0, 1 (MAD ≈ 0.4). Gym Y: deviations = 11, 9, 1, 9, 6 (MAD ≈ 7.2). Gym X's tight cluster (44–46) vs. Gym Y's spread (30–50) shows Gym X is more consistent.
- 4) **Choice C is correct.** (7.SP.1-7.SP.4) Comparing year-to-year increases: 2015 (+\$0.50), 2016 (+\$0.50), 2017 (+\$0.50), 2018 (+\$0.50), 2019 (+\$0.25), 2020 (+\$0.25), 2021 (+\$0.50), 2022 (+\$0.50), 2023 (+\$0.50), 2024 (+\$0.50). The year 2019 shows the smallest single increase at \$0.25.
- 5) **Choice A is correct.** (7.SP.5-7.SP.8) Yellow balls: 3 out of 8 total. $P(\text{yellow}) = \frac{3}{8}$.
- 6) **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.
- 7) **Choice D is correct.** (7.SP.5-7.SP.8) Both same color: $\frac{5}{12} \cdot \frac{4}{11} + \frac{4}{12} \cdot \frac{3}{11} + \frac{3}{12} \cdot \frac{2}{11} = \frac{20}{132} + \frac{12}{132} + \frac{6}{132} = \frac{38}{132}$.
- 8) **Choice A is correct.** (7.SP.6) Experimental probability = $\frac{340}{500}$. This simplifies to $\frac{17}{25} = 0.68$. Option A gives the most direct form from the observed data.
- 9) **Choice A is correct.** (7.G.4-7.G.6) Rectangle 1: $4 \times 2 = 8$ m². Rectangle 2: $3 \times 2 = 6$ m². Rectangle 3: $2 \times 2 = 4$ m². Total: $8 + 6 + 4 = 18$ m².
- 10) **Choice A is correct.** (7.SP.1-7.SP.4) Data 51, 54, 58, 61, 64, 68, 71, 75 maps: Stem 5: 1, 4, 8; Stem 6: 1, 4, 8; Stem 7: 1, 5. Answer A is correct.
- 11) **Choice C is correct.** (7.G.4-7.G.6) Volume of first prism = $2 \times 3 \times 4 = 24$ ft³. Volume of second = $4 \times 6 \times 8 = 192$ ft³. Ratio = $\frac{192}{24} = 8$.
- 12) **Choice C is correct.** (7.G.1-7.G.5) In any triangle, the smallest angle is always opposite the shortest side, and the largest angle is opposite the longest side.
- 13) **Choice B is correct.** (7.G.4-7.G.6) A sector resembles a slice of pie, formed by two radii and the arc connecting them.
- 14) **Choice A is correct.** (7.SP.5-7.SP.8) A standard die has faces 1–6 only. Rolling a 7 is impossible, not merely unlikely. Probability = 0, not 0.1.
- 15) **Choice B is correct.** (7.G.1-7.G.5) The third angle is $180^\circ - 30^\circ - 50^\circ = 100^\circ$. With two known angles and one known side, we have ASA (Angle–Side–Angle) or AAS (Angle–Angle–Side), both of which determine a unique triangle.
- 16) **Choice D is correct.** (7.SP.1-7.SP.4) The dot plot shows 6 defects out of 20 items. Proportion: $\frac{6}{20} = \frac{x}{200} \Rightarrow \frac{3}{10} = \frac{x}{200} \Rightarrow x = 60$.
- 17) **Choice D is correct.** (7.NS.1-7.NS.3) $-8 - (-2) = -8 + 2 = -6$. Subtracting the negative shifts right by 2 on the number line.
- 18) **The correct answer is A,D.** (7.RP.1-7.RP.3) A and D are unit rates because each gives a price per single unit of weight. Option B is a distance, and option C is a total count.
- 19) **The correct answer is 16.** (7.NS.1-7.NS.3) The change is final minus initial: $8 - (-8) = 8 + 8 = 16$ degrees.
- 20) **Choice C is correct.** (7.RP.3) 75% of 20 is $0.75 \times 20 = 15$ games.
- 21) **Choice D is correct.** (7.RP.3) Discount percent = $\frac{3}{15} \times 100 = 20\%$.
- 22) **Choice C is correct.** (7.SP.1-7.SP.4) 25% of $360^\circ = 0.25 \times 360^\circ = 90^\circ$.
- 23) **The correct answer is 2.** (7.NS.2) $(-2) \times 3 = -6$. Then $(-6) \times (-\frac{1}{3}) = \frac{6}{3} = 2$. Two negatives give positive.
- 24) **Choice D is correct.** (7.RP.1-7.RP.3) Unit rate: $\frac{8/3}{4} = \frac{8}{3} \times \frac{1}{4} = \frac{8}{12} = \frac{2}{3}$ yard per outfit.
- 25) **The correct answer is 13.** (7.NS.1-7.NS.3) Since the area is 169, the side length is $\sqrt{169} = 13$ units.
- 26) **Choice A is correct.** (7.RP.1-7.RP.3) At \$25/day: 1 day costs \$25, 2 days cost \$50, 3 days cost \$75. Option A is correct.



A Note for a Careful Thinker

Hi, Careful Thinker!

◇ This carefully paced book gave you four steady Grade 7 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. This book gave you room to practice the kind of thinking seventh graders need: comparing quantities, analyzing patterns, and organizing information. ◇

★ **Remember this:** The goal was never just to finish pages. The goal was to become the kind of student who knows how to begin, how to adjust, and how to check. ★

Your Careful-Thinking Toolkit

- **Read Twice:** First for the story, second for the math.
- **Label Values:** Give each number a job.
- **Check Signs:** Negatives and inequalities deserve attention.
- **Use Evidence:** Let the work prove the answer.

Grade 7 test-day tip: On test day, underline the question before solving. It keeps your answer aimed at the right target.

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

Jay Daie

Your Math Practice Coach

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!



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