

10 Arkansas ATLAS

GRADE
8
MATH

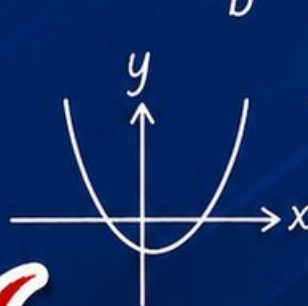
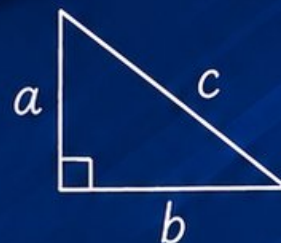
PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

10 PRINTED
TESTS 

2 ONLINE
TESTS 

- ✓ Build Confidence
- ✓ Master Key Math Skills
- ✓ Answer Explanations for Every Question
- ✓ Test-Taking Strategies That Work



$$3x - 7 = 2(x + 5)$$
$$x = 17$$

$$y = mx + b$$

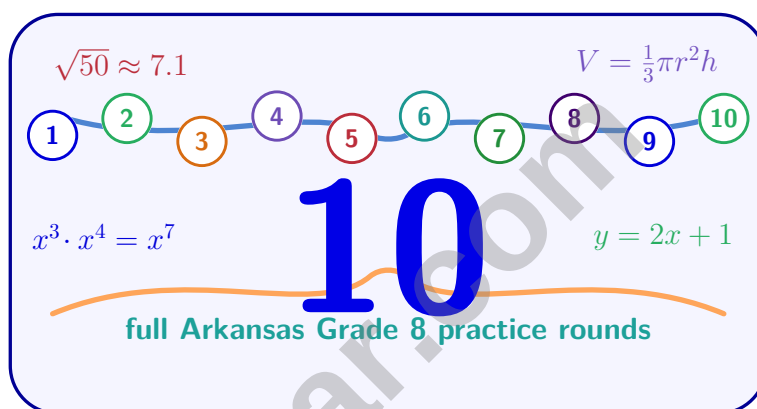


USE THESE TWO
**ADDITIONAL ONLINE
PRACTICE TESTS**

FOR EXTRA REVIEW AFTER
THE PRINTED TESTS
IN THIS BOOK.

10 Arkansas ATLAS Grade 8 Math Practice Tests

Arkansas Grade 8 ATLAS Practice for steady skill-building through proportional thinking, real numbers, expressions, measurement, and data



Ten complete 40-question Grade 8 ATLAS practice rounds with linear relationships, scientific notation, real numbers, equations, functions, geometry, data analysis, probability, answer keys, and clear explanations for every item.

Jay Daie and Reza Nazari



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Welcome, Arkansas Grade 8 Problem Solver!

Ten focused rounds for sharper Arkansas ATLAS math thinking

This book gives you ten full Grade 8 ATLAS math practice tests. Each round is built to help you notice structure, compare quantities, use linear reasoning, handle real numbers, and explain your thinking with care.

Grade 8 standards focus: This page supports **Congruent Figures** (8.GM.6): Understand that a two-dimensional figure is congruent to another if the second can be obtained by a sequence of rotations, reflections, and translations. The same routine helps with **Turning Repeating Decimals into Fractions** (8.SP.2): Convert a decimal expansion which repeats eventually into a rational number.

Your Arkansas 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 8 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.

Grade 8 standards focus: Keep the routine connected to **Angles in Triangles and Parallel Lines** (8.FN.7): Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about angles created when parallel lines are cut by a transversal, and the.... You will also meet **Understanding Scientific Notation** (8.NCC.3): Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities.

Arkansas 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 Arkansas ATLAS tests, 400 questions, and a complete review path

Part	What You Will Practice
Tests 1–3	Linear relationships, integer exponents, scientific notation, real-number reasoning, and careful reading.
Tests 4–6	Expressions, equations, inequalities, transformations, geometry, and multi-step problem solving.
Tests 7–9	Data analysis, probability, mixed review, stamina, and choosing efficient strategies.
Test 10	A final Arkansas 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 8 success means recognizing which idea is being tested even when the next question changes format.

Grade 8 standards focus: Use these habits while practicing **Finding Distance with the Pythagorean Theorem** (8.GM.5): Apply the Pythagorean Theorem to find the distance between two points in a coordinate system. A second useful connection is **Solving Linear Equations in One Variable** (8.ALG.1): Solve linear equations in one variable, including equations with one solution, infinitely many solutions, or no solutions.



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For more practice
& answers

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- 1) Using the model $y = 2x - 3$, suppose the actual data point is $(5, 7)$, but the model predicts $y = 7$ at $x = 5$. What is the residual (error)?
- ☐ A. 0 ☐ C. -2
☐ B. 2 ☐ D. 7
- 2) A rectangular prism has length 10 cm, width 6 cm, and height 4 cm. The lateral surface area (sides only, not top/bottom) is 128 cm^2 . What is the total surface area?
- ☐ A. 128 cm^2 ☐ C. 248 cm^2
☐ B. 188 cm^2 ☐ D. 308 cm^2
- 3) A student found that a cone and a cylinder with the same radius r and height h have volumes differing by 600 cm^3 . If $V_{\text{cyl}} = 900 \text{ cm}^3$, what is V_{cone} ?
- ☐ A. 100 cm^3 ☐ C. 600 cm^3
☐ B. 300 cm^3 ☐ D. 1500 cm^3
- 4) To simplify $\frac{(w^4)^3}{w^6}$, which law should be applied first?
- ☐ A. Quotient rule ☐ C. Product rule
☐ B. Zero exponent rule ☐ D. Power of a power rule
- 5) A student writes: "Solve $-5(x - 1) < 10$: Divide by -5 to get $x - 1 < -2$, then $x < -1$." What is the error?
- ☐ A. Added instead of subtracting ☐ C. Did not distribute correctly
☐ B. No error ☐ D. Did not flip the inequality



6) Factor $x^2 - x - 20$.

☐ A. $(x - 5)(x + 4)$

☐ C. $(x - 10)(x + 2)$

☐ B. $(x + 5)(x - 4)$

☐ D. $(x - 20)(x + 1)$

7) Interest earned: Account X : $I(m) = 0.8m$ (monthly interest in dollars). Account Y at month 0: \$0, month 12: \$10. Which earns more annually (12 months)?

☐ A. Account X

☐ C. Both earn equal

☐ B. Account Y

☐ D. Cannot be determined

8) Which statement about $y = \frac{3}{4}x + 2$ is TRUE?

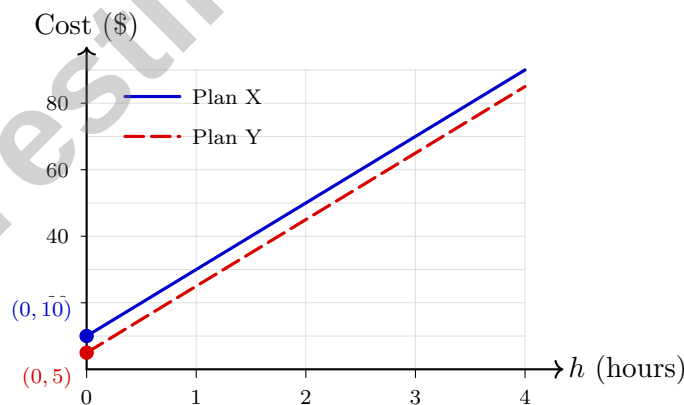
☐ A. It is nonlinear because the slope is a fraction

☐ C. It is nonlinear because the y -intercept is positive

☐ B. It is linear and can be written in the form $y = mx + b$

☐ D. It is linear only if m is a whole number

9) Plan X : $C_X = 20h + 10$. Plan Y : $C_Y = 20h + 5$. Both have the same hourly rate of \$20. Which plan is cheaper initially?



☐ A. Plan X is cheaper initially.

☐ D. Cannot be determined from the equations.

☐ B. Plan Y is cheaper initially.

☐ C. Both cost the same initially.



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- 10) Point $(1, 4)$ is reflected across the x -axis, then the image is reflected across the y -axis. What is the final image?

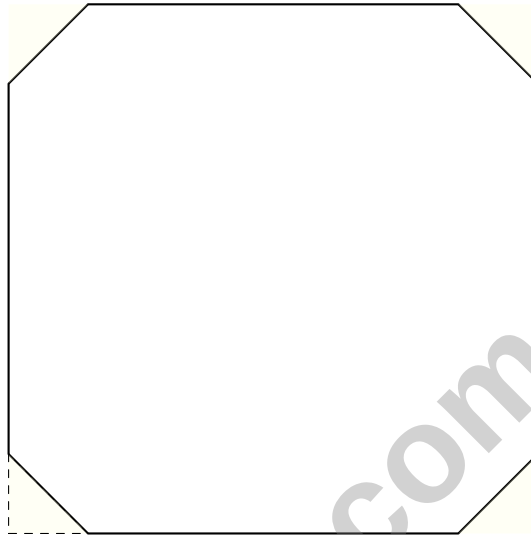
☐ A. $(1, 4)$ ☐ C. $(-1, 4)$ ☐ B. $(-1, -4)$ ☐ D. $(1, -4)$

- 11) A principal of \$3,000 is invested at 5% compound interest annually. What is the amount after 2 years (rounded to nearest cent)?

- 12) The angles of a triangle are in the ratio $3 : 4 : 5$. What is the measure of the smallest angle?

☐ A. 30° ☐ C. 45° ☐ B. 40° ☐ D. 60° 

- 1) An art installation is a regular octagon formed by cutting isosceles right triangles from each corner of a 20 m by 20 m square (each cut triangle has legs 3 m). What is the area of the octagon?



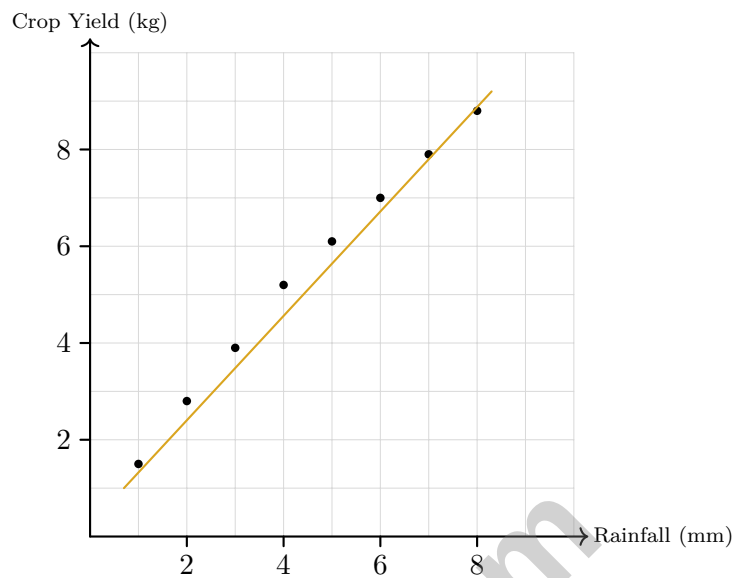
☐ A. 282 m^2

☐ B. 382 m^2

☐ C. 342 m^2

☐ D. 400 m^2





2)

In a study of rainfall and crop yield, the trend line shows a positive relationship. How much would yield increase for every 1 mm increase in rainfall?

- ☐ A. Between 1 and 2 kg ☐ C. Between 2 and 3 kg
☐ B. Less than 1 kg ☐ D. More than 3 kg

3) A photograph is 10 inches wide. A thumbnail is 0.5 inches wide. What is the scale factor from the photograph to the thumbnail?

- ☐ A. 20 ☐ C. 0.5
☐ B. 0.05 ☐ D. 2

4) The sum of two people's ages is 35. In 5 years, the older person will be twice the age of the younger person. If the younger person is currently y years old, find y .



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1) Solve: $4x - 9 \leq 3x + 1$

☐ A. $x \leq 10$

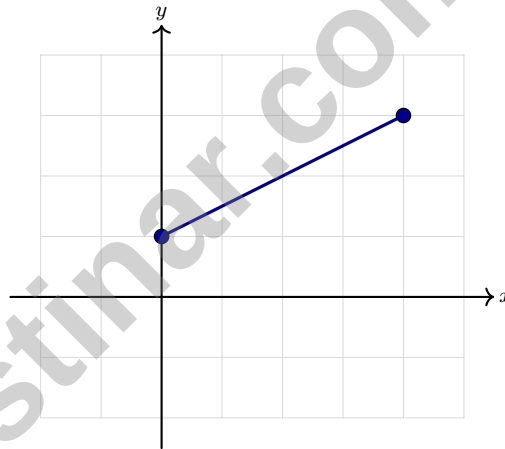
☐ C. $x \leq -10$

☐ B. $x \geq 10$

☐ D. $x \geq -10$

2) Function through $(1, 2)$ and $(4, 14)$. y -intercept?

3) What is the domain of the graphed function?



☐ A. $\{0, 1, 2, 3, 4\}$

☐ C. $\{1, 3\}$

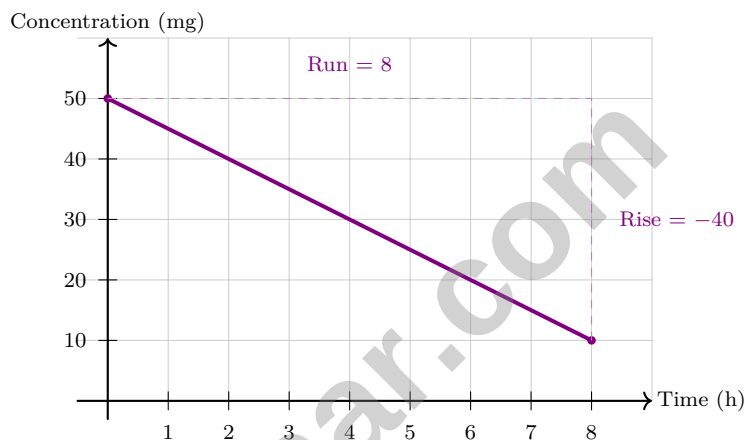
☐ B. $[0, 4]$

☐ D. All real numbers



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& answers

- 4) A garden uses 3 gallons of water per crimson plant. After planting 12 crimson plants, how many gallons are needed?
- ☐ A. 24 gallons ☐ C. 36 gallons
- ☐ B. 30 gallons ☐ D. 40 gallons
- 5) A graph shows medication concentration (mg) in the bloodstream versus time (hours). The line passes through (0, 50) and (8, 10).



What is the slope?

- ☐ A. -5 mg/h ☐ C. 5 mg/h
- ☐ B. $-\frac{1}{2}$ mg/h ☐ D. $\frac{1}{2}$ mg/h
- 6) Train A travels at 60 mph. Train B travels at 75 mph. If Train B leaves 1 hour later but they meet after Train A has traveled for 5 hours, which equation is correct?
- ☐ A. $60 \cdot 5 = 75 \cdot 4$ ☐ C. $60 \cdot 4 = 75 \cdot 5$
- ☐ B. $60 \cdot 5 + 75 \cdot 4 = \text{total distance}$ ☐ D. $60 \cdot 5 = 75 \cdot 5$



Arkansas ATLAS Grade 8 Practice Test Answer Keys**How to use this section with a Grade 8 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 Arkansas ATLAS practice test.

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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice A is correct.** **(8.SP.6)** Residual = actual – predicted = $7 - 7 = 0$. The model predicts perfectly for this point.
- 2) **Choice C is correct.** **(8.GM.1)** Lateral area = $2(10)(4) + 2(6)(4) = 80 + 48 = 128 \text{ cm}^2$ ✓. Area of two bases = $2(10)(6) = 120 \text{ cm}^2$. Total = $128 + 120 = 248 \text{ cm}^2$.
- 3) **Choice B is correct.** **(8.GM.1)** $V_{\text{cone}} = \frac{1}{3}V_{\text{cyl}} = \frac{1}{3} \times 900 = 300 \text{ cm}^3$. Difference: $900 - 300 = 600 \text{ cm}^3$. ✓
- 4) **Choice D is correct.** **(8.NCC.3)** Simplify the numerator first: $(w^4)^3 = w^{12}$ (power of a power), then apply quotient rule.
- 5) **Choice D is correct.** **(8.ALG.1)** Dividing by -5 requires flipping $<$ to $>$. The correct step is $x - 1 > -2$, so the correct solution is $x > -1$, not $x < -1$.
- 6) **Choice A is correct.** **(8.ALG.1)** Find two numbers that multiply to -20 and add to -1 : -5 and 4 . Check: $-5 \cdot 4 = -20$ and $-5 + 4 = -1$.
- 7) **Choice B is correct.** **(8.FN.4)** $I_X(12) = 0.8(12) = 9.60$ dollars. Slope of Y : $(10 - 0)/12 \approx 0.833$ per month, so $I_Y(12) = 10$ dollars. Since $10 > 9.60$, Account Y earns more.
- 8) **Choice B is correct.** **(8.FN.3)** $y = \frac{3}{4}x + 2$ perfectly matches the linear form $y = mx + b$ with $m = \frac{3}{4}$ and $b = 2$. Fractional slopes do not make a function nonlinear.
- 9) **Choice B is correct.** **(8.FN.4)** At $h = 0$: $C_X = 10$ and $C_Y = 5$. Plan Y 's initial cost (y -intercept = 5) is less than Plan X 's (y -intercept = 10).
- 10) **Choice B is correct.** **(8.GM.10)** Reflect across x -axis: $(1, 4) \rightarrow (1, -4)$. Then reflect across y -axis: $(1, -4) \rightarrow (-1, -4)$.
- 11) **The correct answer is \$3,307.50.** **(8.GM.1)** $A = 3000(1.05)^2 = 3000 \times 1.1025 = \$3,307.50$.
- 12) **Choice C is correct.** **(8.FN.7)** Let angles be $3x$, $4x$, and $5x$. Sum: $3x + 4x + 5x = 180 \Rightarrow 12x = 180 \Rightarrow x = 15^\circ$. Smallest angle: $3x = 45^\circ$.
- 13) **Choice A is correct.** **(8.GM.5)** $d = \sqrt{(2 - (-4))^2 + (7 - (-1))^2} = \sqrt{6^2 + 8^2} = \sqrt{36 + 64} = \sqrt{100} = 10$.
- 14) **Choice B is correct.** **(8.GM.1)** $V = \frac{1}{3} \times (8 \times 8) \times 6 = \frac{1}{3} \times 64 \times 6 = 128 \text{ cm}^3$.
- 15) **Choice D is correct.** **(8.GM.1)** For a 12-sided polygon: $(12 - 2) \times 180 = 10 \times 180 = 1800^\circ$.
- 16) **The correct answer is 22.** **(8.NCC.7)** $22 \times 22 = 484$, so $\sqrt{484} = 22$.
- 17) **The correct answer is 4.8×10^4 .** **(8.NCC.6)** Same exponents: $(8.5 - 3.7) \times 10^4 = 4.8 \times 10^4$.
- 18) **Choice D is correct.** **(8.SP.1)** Wide spread with no clear trend (neither upward nor downward) indicates weak or no correlation. The two variables do not show a consistent relationship.
- 19) **The correct answer is A,C.** **(8.SP.5)** A is correct: $P(\text{heads}) = \frac{1}{2}$. C is correct: $P(\text{heads and 4}) = \frac{1}{2} \times \frac{1}{6} = \frac{1}{12}$. B is wrong: $P(4) = \frac{1}{6}$. D is wrong: total outcomes = 12. E is wrong: $P(\text{not heads}) = \frac{1}{2}$.
- 20) **Choice B is correct.** **(8.GM.5)** MAD measures average distance from the mean. Deviations: $|0 - 2| = 2$, $|1 - 2| = 1$ (twice), $|2 - 2| = 0$, $|6 - 2| = 4$. Sum = 8. MAD = $8/5 = 1.6$, showing typical spread.
- 21) **Choice D is correct.** **(8.FN.1)** Slope = $\frac{2}{9} \approx 0.222 \approx 0.22$. This is a very shallow line.
- 22) **Choice A is correct.** **(8.ALG.3)** Substitute $x = 2$ into $4x - 3y = 5$: $8 - 3y = 5$, so $-3y = -3$ and $y = 1$. The solution is $(2, 1)$.
- 23) **Choice B is correct.** **(8.FN.3)** The range is the set of all distinct y -values: $4, 1, 0, 1, 4$. As a set: $\{0, 1, 4\}$.
- 24) **Choice B is correct.** **(8.FN.9)** The highest point on the graph is at $x = 2$, where $f(2) = 2.5$. This is the maximum of the piecewise function shown.
- 25) **Choice B is correct.** **(8.GM.6)** Equal perimeters do NOT guarantee congruence. Rectangle 1 is 18×12 cm, while Rectangle 2 is 20×10 cm. Congruence requires equal corresponding sides, not just equal perimeters.
- 26) **Choice B is correct.** **(8.GM.3, 8.GM.4)** From $(\sqrt{32})^2 + (\sqrt{4})^2 = c^2$, we get $32 + 4 = c^2$, so $c = \sqrt{36} = 6$.
- 27) **Choice D is correct.** **(8.GM.4)** If the angles are $4k$ and $11k$, then $4k + 11k = 180$, so $15k = 180$ and $k = 12$. The smaller angle is $4k = 48^\circ$.
- 28) **Choice C is correct.** **(8.GM.6)** Large triangle = $\frac{1}{2} \times 16 \times 10 = 80 \text{ ft}^2$. Small triangle = $\frac{1}{2} \times 8 \times 5 = 20 \text{ ft}^2$. Remaining = $80 - 20 = 60 \text{ ft}^2$.



Hi, Strategy Solver!

◇ Grade 8 math rewards students who think before they calculate. You practiced choosing strategies, not just hunting for answers. This full-length book gave you ten complete Grade 8 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. ◇

★ **Remember this:** That matters because stronger math students do not use one method for every question. They notice the structure and choose the tool that fits. ★

Strategy Moves

- **Estimate:** Know the neighborhood of the answer.
- **Simplify:** Rewrite numbers in friendlier forms.
- **Model:** Draw what the words describe.
- **Verify:** Put the answer back into the problem.

Grade 8 test-day tip: Pause for ten seconds before hard questions. A short plan can save several minutes.

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

Jay Daie

Your Strategy Guide

PRACTICE TODAY. SUCCEED TOMORROW!

This book includes **10** full-length Math practice tests and **2** online tests to help Grade 8 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 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.



Master Key Skills

Develop strong math skills and problem solving abilities.



Improve Understanding

Learn with clear explanations and step-by-step solutions.



Test Strategies

Learn proven strategies to approach every question with confidence.



Boost Performance

Apply your knowledge and achieve your best score!

TOPICS COVERED

- | | |
|---------------------------|----------------------------|
| ✓ The Number System | ✓ Statistics & Probability |
| ✓ Expressions & Equations | ✓ Data Analysis |
| ✓ Inequalities | ✓ Measurement |
| ✓ Functions | ✓ Pythagorean Theorem |
| ✓ Geometry | ✓ Surface Area & Volume |
| ✓ Ratios & Proportions | ✓ 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!



PRACTICE
REGULARLY



STAY
FOCUSED



SOLVE
CONFIDENTLY



SUCCEED
BRIGHTLY