

4

Minnesota

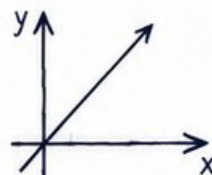
MCA III

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



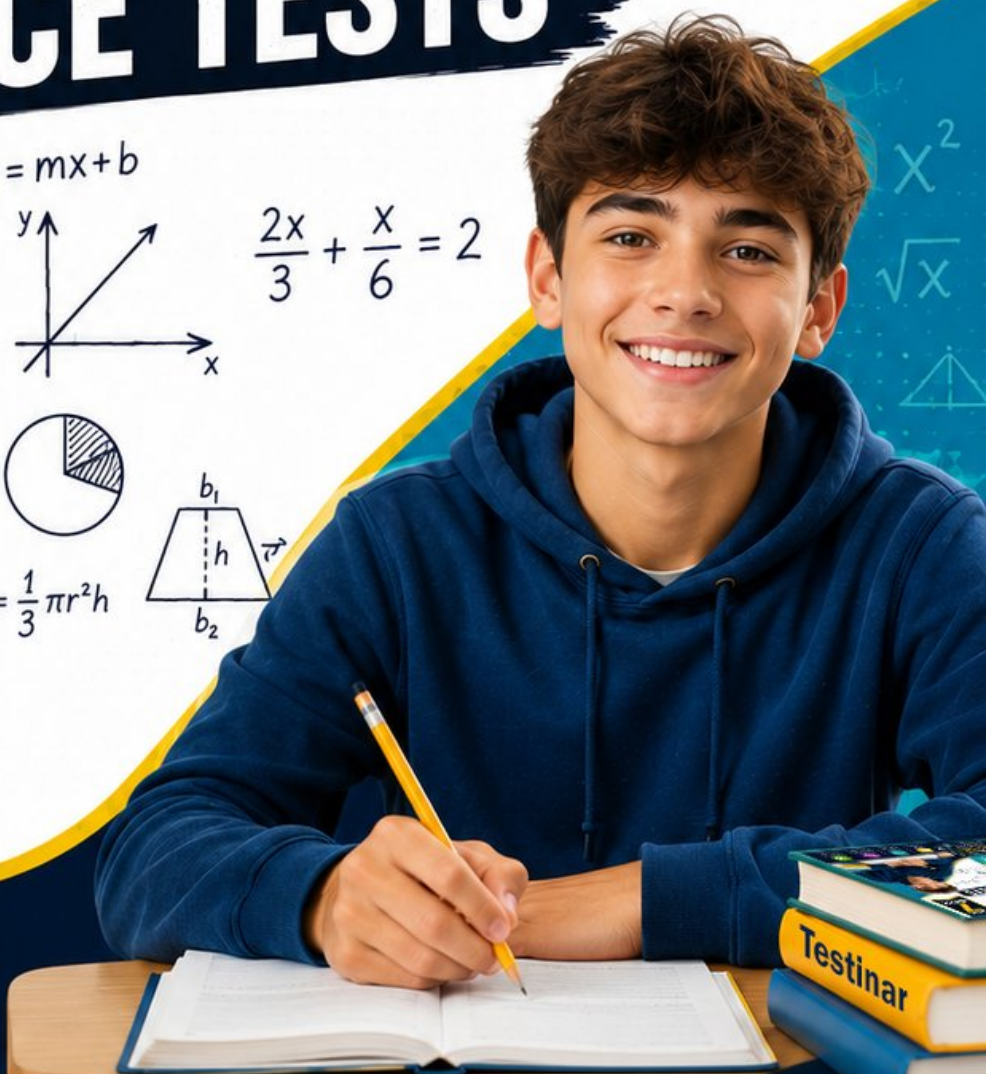
Strengthen
Math Skills



Detailed Answers
& Explanations

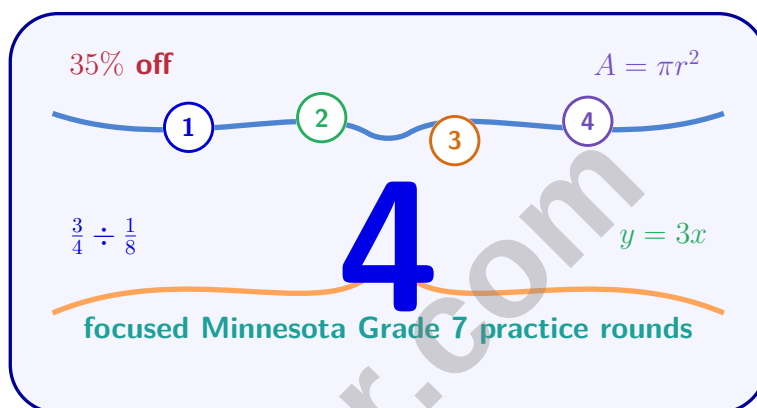


Improve Test
Performance



4 Minnesota MCA III Grade 7 Math Practice Tests

Focused Standards Practice for MCA III Confidence



Four complete 40-question Grade 7 MCA III 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, Minnesota Grade 7 Problem Solver!

Four focused rounds for sharper MCA III math thinking

This book gives you four full Grade 7 MCA III 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 Minnesota 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.

Minnesota 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 MCA III 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.



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& answers

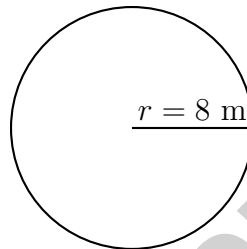
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- 1) The equation $v = \frac{2}{7}w$ represents a proportional relationship. Which table matches this equation?

w	7	14	28
v	2	4	8

- ☐ A. No, the ratios are not constant ☐ C. No, the constant is 2
☐ B. No, the constant is $\frac{1}{4}$ ☐ D. Yes, this table matches $v = \frac{2}{7}w$



2)

Based on the diagram, what is the circumference? Use $\pi \approx \frac{22}{7}$.

- ☐ A. $\frac{176}{7}$ m ☐ C. $\frac{88}{7}$ m
☐ B. $\frac{352}{7}$ m ☐ D. $\frac{704}{7}$ m
- 3) Two populations of trees have median heights of 25 feet. Forest A has a MAD of 1.5 feet. Forest B has a MAD of 3.8 feet. What can a biologist conclude?
- ☐ A. Forest A trees are all taller than Forest B trees ☐ C. Forest B has more genetic diversity
☐ B. Forest A's tree heights are more uniform ☐ D. Both forests are identical



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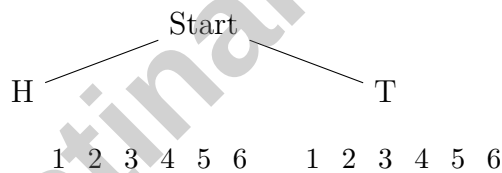
- 4) Two classes have test-score distributions displayed as histograms with identical means (both 75). Class A has most scores clustered near 75 (narrow, bell-shaped); Class B has scores spread across the range (flat). What does this comparison reveal?

- ☐ A. Class A has higher variability than Class B
- ☐ B. Class B has lower variability than Class A
- ☐ C. Class A's shape shows less variability despite the same mean
- ☐ D. The mean tells you everything about variability

- 5) A box contains cards numbered 5 through 14. A card is drawn at random. What is the probability of drawing a card with a number divisible by 3?

- ☐ A. $\frac{1}{5}$
- ☐ B. $\frac{3}{10}$
- ☐ C. $\frac{2}{5}$
- ☐ D. $\frac{1}{3}$

- 6) A fair six-sided die is rolled and a coin is flipped. Which of the following is the correct way to count the sample space?



- ☐ A. $6 + 2 = 8$ outcomes
- ☐ B. $6 \times 2 = 12$ outcomes
- ☐ C. $6 - 2 = 4$ outcomes
- ☐ D. $\frac{6}{2} = 3$ outcomes
- 7) Two box plots compare the number of hours worked per week by employees at two stores. Store 1: $Q1 = 30$, Median = 35, $Q3 = 40$. Store 2: $Q1 = 25$, Median = 35, $Q3 = 45$. Which statement correctly compares the two stores?
- ☐ A. Store 2 has a larger spread in the upper half
- ☐ B. Store 1 employees work more hours
- ☐ C. Both stores have the same work hour distribution
- ☐ D. Store 1 has more variability overall



8) Two events A and B are independent. $P(A) = \frac{1}{2}$ and $P(B) = \frac{1}{3}$. What is $P(A \text{ or } B)$?

☐ A. $\frac{2}{5}$

☐ B. $\frac{2}{3}$

☐ C. $\frac{5}{6}$

☐ D. $\frac{1}{6}$

9) A student tossed a coin 100 times. The coin landed tails 58 times and heads 42 times. What is the difference between the experimental and theoretical probabilities of getting heads?

☐ A. 0.42

☐ B. 0.10

☐ C. 0.08

☐ D. 0.16

10) A scientist measures plant stem diameters (mm) and displays them in a stem-and-leaf plot:

Stem	Leaves
1	4, 7
2	1, 5, 8
3	2, 4, 6, 9

The lower quartile (Q1) falls between which two values?

☐ A. 17 and 21

☐ B. 21 and 25

☐ C. 25 and 28

☐ D. 28 and 32

11) 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



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1) A scale drawing of a playground uses a scale of 1 inch = 20 feet. If the actual playground is 80 feet long, how long is the drawing?

- ☐ A. 2 inches ☐ C. 4 inches
☐ B. 3 inches ☐ D. 5 inches

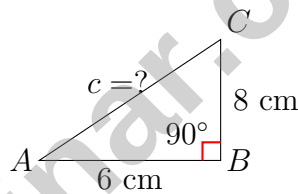
2) Which statement is true?

- ☐ A. $(-6) \times 3 > 0$ ☐ C. $5 \times (-2) = (-2) \times 5$
☐ B. $(-4) \times (-4) < 0$ ☐ D. $(-1) \times 7 < (-1) \times 6$

3) If 1 US dollar equals 0.85 euros, how many euros would you receive for \$100?

- ☐ A. 90 euros ☐ C. 80 euros
☐ B. 75 euros ☐ D. 85 euros

4)



Two sides of a triangle are 6 cm and 8 cm. The angle between them is 90° . What is the hypotenuse?

- ☐ A. 10 cm ☐ C. 2 cm
☐ B. 14 cm ☐ D. $\sqrt{28}$ cm

5) Temperature drops 20 degrees from 10 degrees. Express the drop (change) as a signed number.

- ☐ A. 20 (ignores the direction of change) ☐ D. -20 (correct; drop is negative change)
☐ B. 30 (adds instead of subtracts)
☐ C. -10 (starting temperature)



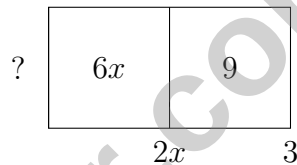
6) A spinner with 4 equal sections (Red, Blue, Green, Yellow) is spun twice to simulate a compound event. If “success” is defined as “the first spin is Red and the second spin is Blue,” how many outcomes in the sample space represent a success?

☐ A. 1☐ C. 4☐ B. 2☐ D. 8

7) What is the coefficient of y in the simplified form of $-8y + 12y - 3y$?

☐ A. -8 ☐ C. 1☐ B. y ☐ D. 12

8) Which shows the correct area-model factorization for $6x + 9$?

☐ A. Height is 3; GCF is 3☐ C. Height is 6; GCF is 6☐ B. Height is 2; GCF is 2☐ D. Height is 9; GCF is 9

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1) Expand: $5(3y - 2)$

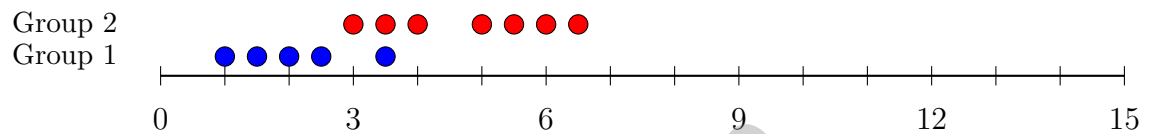
☐ A. $15y - 2$

☐ C. $15y - 10$

☐ B. $8y - 7$

☐ D. $3y - 10$

2) The dot plots below show the number of text messages sent by two groups of students during a school day.

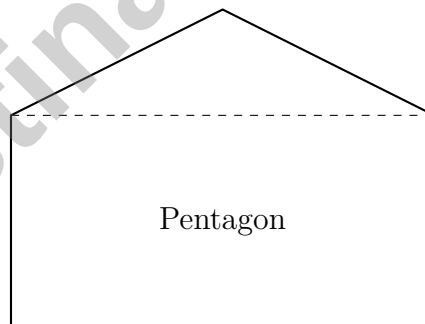


Which group has a higher center (median)?

☐ A. Group 1

☐ D. Cannot be determined from the plot

☐ B. Group 2

☐ C. Both groups have the same median


3)

A pentagon-shaped field can be decomposed into a rectangle (base 8 units, height 4 units) and a triangle (base 8 units, height 2 units). What is the total area?

☐ A. 24 sq units

☐ C. 40 sq units

☐ B. 32 sq units

☐ D. 48 sq units


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- 4) 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?

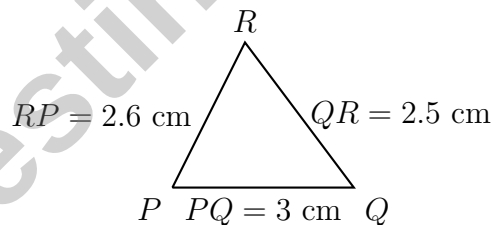
- 5) A triangular prism has a base that is a right triangle with legs 10 inches and 6 inches. If the volume is 360 in^3 , what is the depth of the prism?

- ☐ A. 6 in ☐ C. 15 in
☐ B. 12 in ☐ D. 30 in

- 6) A sector of a circle is best described as:

- ☐ A. A line through the circle ☐ C. A chord and an arc
☐ B. A pie-shaped region bounded by two radii and an arc ☐ D. Half of a circle

7)



For triangle PQR with sides $PQ = 3$, $QR = 2.5$, $RP = 2.6 \text{ cm}$, 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



Minnesota MCA III 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 Minnesota MCA III practice test.

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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice D is correct.** (7.RP.1-7.RP.3) Check: $v = \frac{2}{7}(7) = 2$, $v = \frac{2}{7}(14) = 4$, $v = \frac{2}{7}(28) = 8$. All points match the equation.
- 2) **Choice B is correct.** (7.G.4-7.G.6) $C = 2\pi r = 2 \times \frac{22}{7} \times 8 = \frac{352}{7}$ m.
- 3) **Choice B is correct.** (7.SP.1-7.SP.4) Same median (25 ft) but Forest A's smaller MAD (1.5 vs. 3.8) indicates tree heights in Forest A cluster more tightly around the median, showing greater uniformity.
- 4) **Choice C is correct.** (7.SP.1-7.SP.4) Two distributions can share a mean but differ in spread (variability). Shape reveals this: a narrow cluster indicates low variability; a flat spread indicates high variability.
- 5) **Choice B is correct.** (7.SP.5-7.SP.8) Numbers: 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 (10 total). Divisible by 3: 6, 9, 12 (3 outcomes). $P = \frac{3}{10}$.
- 6) **Choice B is correct.** (7.SP.5-7.SP.8) The counting principle for independent events uses multiplication: die outcomes (6) times coin outcomes (2) equals 12 total outcomes.
- 7) **Choice A is correct.** (7.SP.3) Store 2's upper IQR ($45-35 = 10$) is larger than Store 1's ($40-35 = 5$). Both have the same median (35), but Store 2's upper half is more spread out.
- 8) **Choice C is correct.** (7.SP.5-7.SP.8) For independent events: $P(A \text{ or } B) = P(A) + P(B) - P(A) \cdot P(B) = \frac{1}{2} + \frac{1}{3} - \frac{1}{6} = \frac{5}{6}$.
- 9) **Choice C is correct.** (7.SP.6) Experimental probability of heads: $\frac{42}{100} = 0.42$. Theoretical: 0.5. Difference: $|0.42 - 0.5| = 0.08$.
- 10) **Choice A is correct.** (7.SP.1-7.SP.4) Nine values: 14, 17, 21, 25, 28, 32, 34, 36, 39. Lower half: 14, 17, 21, 25 (4 values). Q1 is median of lower half: $(17 + 21)/2 = 19$, which falls between 17 and 21.
- 11) **Choice B is correct.** (7.G.4-7.G.6) Square: $8 \times 8 = 64 \text{ m}^2$. Triangle: $\frac{1}{2} \times 8 \times 3 = 12 \text{ m}^2$. Total: $64 + 12 = 76 \text{ m}^2$.
- 12) **Choice C is correct.** (7.G.4-7.G.6) Base area = $\frac{1}{2} \times 7 \times 4 = 14 \text{ cm}^2$. Volume = $14 \times 9 = 126 \text{ cm}^3$.
- 13) **Choice B is correct.** (7.G.4-7.G.6) The center is the point inside the circle equidistant from all points on the circle. M is at the center.
- 14) **Choice B is correct.** (7.G.1-7.G.5) Two triangles with the same three side lengths are congruent by SSS, regardless of the order in which the sides are listed. Congruence depends only on matching side lengths.
- 15) **Choice A is correct.** (7.SP.5-7.SP.8) $\frac{1}{3} = 0.\bar{3} \approx 0.33$ when rounded to the nearest hundredth.
- 16) **Choice C is correct.** (7.SP.1-7.SP.4) $\frac{10}{250} = \frac{x}{50000}$. Reduce: $\frac{1}{25} = \frac{x}{50000} \Rightarrow x = 2000$.
- 17) **Choice D is correct.** (7.RP.3) Account A: $1000 \times 0.06 \times 3 = \180 . Account B: $1500 \times 0.02 \times 3 = \90 . Account A earns more interest.
- 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 -3.** (7.NS.1-7.NS.3) The opposite of -3 is 3, and the opposite of 3 is -3.
- 20) **Choice D is correct.** (7.NS.1-7.NS.3) Step 1 error: When subtracting a negative, flip the sign of the subtrahend (the -5 becomes +5), so the rule is $-3 - (-5) = -3 + 5$. Step 2 error follows from Step 1. The correct answer is 2. This tests the most common student error.
- 21) **Choice D is correct.** (7.RP.3) From row 1: markup is $56 - 40 = \$16$ on cost of \$40, a 40% markup. For cost \$50: markup = $0.40 \times 50 = \$20$, so selling price = $50 + 20 = \$70$.
- 22) **Choice C is correct.** (7.SP.1-7.SP.4) 25% of $360^\circ = 0.25 \times 360^\circ = 90^\circ$.
- 23) **Choice D is correct.** (7.RP.1-7.RP.3) From the line, $\frac{3}{5}$ kg in $\frac{1}{4}$ hr gives $\frac{3/5}{1/4} = \frac{3}{5} \times 4 = \frac{12}{5} = 2.4 \text{ kg/hr}$.
- 24) **Choice D is correct.** (7.RP.1-7.RP.3) Graph 1 passes through origin (0, 0) with slope $k = 1$. Graph 2 has y -intercept 3, so not proportional.
- 25) **Choice D is correct.** (7.RP.1-7.RP.3) From $y = 4x$, if $y = 32$, then $32 = 4x$, so $x = 32 \div 4 = 8$ grams.
- 26) **Choice C is correct.** (7.RP.3) Set up the proportion $\frac{x}{100} = \frac{16}{80}$. Cross-multiply: $x = \frac{16 \times 100}{80} = 20$.
- 27) **The correct answer is -30.** (7.NS.2) Change per minute is -7.5 meters. After 4 minutes: $(-7.5) \times 4 = -30$ meters.
- 28) **Choice A is correct.** (7.SP.5-7.SP.8) $P(1 \text{ or } 2) = P(1) + P(2) = 0.1 + 0.3 = 0.4$.



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Hi, Smart Reviewer!

◇ The best learning often happens after the test, when you look back and notice what worked and what needs attention. This carefully paced book gave you four steady Grade 7 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. ◇

★ **Remember this:** You can use these practice tests as a map. The questions you solved quickly show strengths; the questions you missed show where to train next. ★

Review Routine

- **Sort:** Group mistakes by skill.
- **Reread:** Check whether the question was misunderstood.
- **Resolve:** Do the problem again without looking.
- **Record:** Write the lesson in one sentence.

Grade 7 test-day tip: Review in short focused sessions. Ten careful minutes can be more useful than an hour of rushing.

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

Jay Daie

Your Review 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.

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Detailed Answers & Explanations



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Develop key math concepts and problem solving abilities.



Improve Understanding

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



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Boost Performance

Apply your knowledge and achieve your best score!

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- ✓ The Number System
- ✓ Expressions & Equations
- ✓ Geometry
- ✓ Percents & Decimals
- ✓ Statistics & Probability
- ✓ Data Analysis
- ✓ Measurement & Conversions
- ✓ Algebraic Thinking
- ✓ And More!



2 ONLINE TESTS

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