

6

MARYLAND MCAP

GRADE

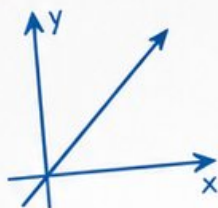
7

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



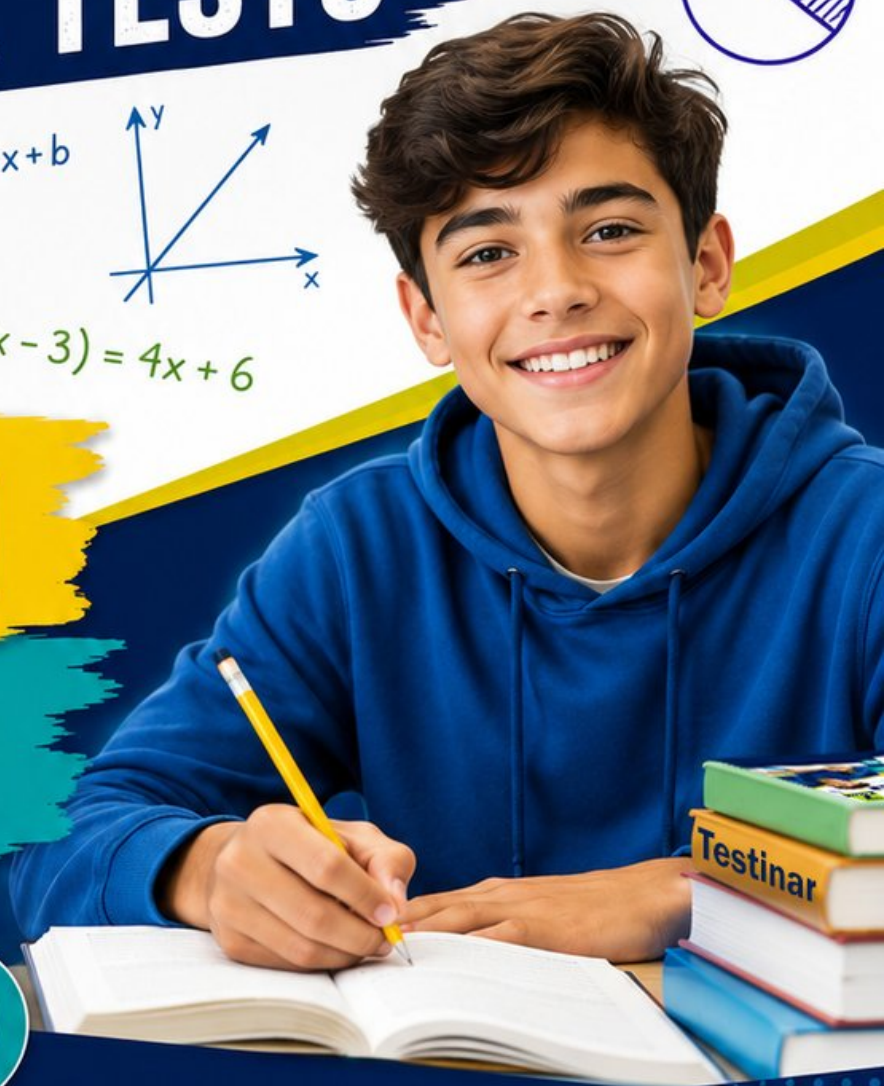
Strengthen
Math Skills



Detailed Answers
& Explanations



Improve Test
Performance



6 Maryland MCAP Grade 7 Math Practice Tests

Standards-Aligned Practice with Review, Answer Keys, and Explanations



Six complete 40-question Grade 7 MCAP 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, Maryland Grade 7 Problem Solver!

Six focused rounds for sharper MCAP math thinking

This book gives you six full Grade 7 MCAP 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 Maryland 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.

Maryland 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 MCAP 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.

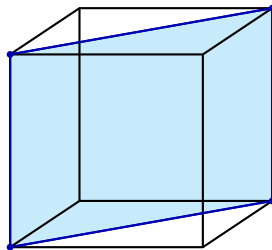


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& answers

Table of Contents

★ Practice Test 1	_____	14
★ Practice Test 2	_____	28
★ Practice Test 3	_____	41
★ Practice Test 4	_____	55
★ Practice Test 5	_____	70
★ Practice Test 6	_____	84
Practice Test Answer Keys	_____	99
Practice Test Answers and Explanations	_____	103

rectangular cross-section



1)

A plane cuts diagonally through the cube as shown. What is the shape of the resulting cross-section?

☐ A. Rectangle

☐ C. Parallelogram

☐ B. Square

☐ D. Isosceles trapezoid

2) What is 0.45 as a percent?

☐ A. 4.5%

☐ C. 0.45%

☐ B. 450%

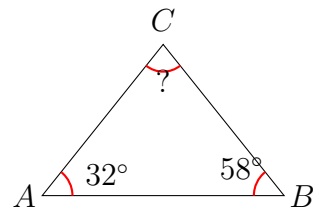
☐ D. 45%

3) A printing company charges \$25 for the first 100 copies and \$0.10 for each additional copy. Which equation represents the total cost C for x copies beyond 100?

☐ A. $C = 0.10x + 25$
☐ C. $C = 0.10 + 25x$
☐ B. $C = 25x + 0.10$
☐ D. $C = 25(x + 0.10)$

4) Two vertical angles each measure $(6z - 3)^\circ$. If the adjacent angle measures 44° , find the value of z .





5)

In triangle ABC , angle A is 32° and angle B is 58° . How many distinct triangles with these angle measures can be drawn?

- ☐ A. 0
 ☐ C. Exactly 2
☐ B. 1
 ☐ D. Infinitely many
- 6) A simulation estimates the probability of an event to be 0.40 based on 250 trials. In another simulation with the same event and 1000 trials, the estimated probability is 0.38. Which statement is true?
- ☐ A. The first simulation is more accurate
☐ B. The second simulation is more reliable because it uses more trials
☐ C. Both simulations must have made errors
☐ D. The true probability is exactly 0.39
- 7) A television network wants to know what percentage of households in the United States watch sports. It surveys viewers who call into its sports hotline. Why is this a biased sample?
- ☐ A. It only includes people who already watch sports and made the effort to call
☐ B. It uses random sampling
☐ C. It has no bias because hotline numbers are public
☐ D. The sample size is too small



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- 8) A back-to-back stem-and-leaf plot compares writing scores of two 7th-grade classes. Class 1 (left): Stem 7: Leaves 2, 5, 8, 9 | Stem 8: Leaves 1, 4, 7. Class 2 (right): Stem 7: Leaves 3, 4 | Stem 8: Leaves 0, 2, 5, 6, 8. Which statement is true?
- ☐ A. Class 1 has more students with scores in the 70s ☐ C. Both classes have the same number of students
- ☐ B. Class 2 has more students with scores in the 80s ☐ D. Class 1 has the highest single score
- 9) A spinner labeled 1–8 is spun. A student claims $P(\text{rolling an odd number}) = \frac{4}{8}$, then says this equals $\frac{1}{2}$. Is the second step correct?
- ☐ A. No; $\frac{4}{8}$ cannot be simplified. ☐ D. No; the count is wrong; it should be $\frac{5}{8}$.
- ☐ B. Yes; $\frac{4}{8} = \frac{1}{2}$.
- ☐ C. No; $\frac{4}{8} = \frac{2}{4}$.
- 10) Which pair of statistics best compares the centers of two distributions?
- ☐ A. Range and IQR ☐ C. MAD and range
- ☐ B. Mean and median ☐ D. Minimum and maximum
- 11) 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
- 12) A point (a, b) is rotated 180° about the origin, resulting in $(6, -3)$. Write (a, b) .
-



1) Solve: $3 - \frac{x}{2} \geq 9$

☐ A. $x \leq -12$

☐ B. $x \geq -12$

☐ C. $x > 12$

☐ D. $x < -6$

Before After



2)

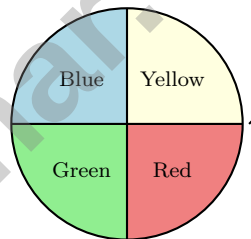
A before-and-after bar diagram shows a quantity increasing from \$100 to \$160. What is the percent increase?

☐ A. 40%

☐ B. 62.5%

☐ C. 37.5%

☐ D. 60%



3)

The spinner above has 4 equal sections. If it is spun 80 times and the results are recorded, approximately how many times would you expect to see the blue section?

☐ A. 10 times

☐ B. 15 times

☐ C. 20 times

☐ D. 25 times



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- 4) Three coins are flipped. How many total outcomes are in the sample space?
- ☐ A. 3 ☐ C. 8
☐ B. 6 ☐ D. 12
- 5) A student has a $\frac{2}{3}$ probability of passing math and a $\frac{3}{4}$ probability of passing history. Assuming independence, what is the probability of passing EXACTLY ONE of these two subjects?
- ☐ A. $\frac{1}{2}$ ☐ C. $\frac{7}{12}$
☐ B. $\frac{5}{12}$ ☐ D. $\frac{11}{12}$
- 6) A photographer estimated 180 photos would be taken at an event, but 200 were actually taken. What is the percent error?
- ☐ A. 20% ☐ C. 11.1%
☐ B. 9% ☐ D. 10%
- 7) Expand: $-2(x + 4)$
- ☐ A. $-2x - 8$ ☐ C. $2x - 8$
☐ B. $-2x + 8$ ☐ D. $-2x + 4$
- 8) How would you verify that a simple interest problem is correct? Which step is essential?
- ☐ A. Use the formula $A = P(1 + rt)$ to check that the total amount is correct
☐ B. Divide the interest by the principal to ensure the rate matches the given rate
☐ C. Compare the answer to other students' work
☐ D. Plug the values back into the formula and recalculate



1) Which scale would make the drawing *larger* than the actual object?

☐ A. 1 in : 10 ft

☐ C. 2 in : 1 ft

☐ B. 1 in : 5 ft

☐ D. 1 in : 100 ft

2) Solve: $\frac{1}{2}x + 3 = 8$

☐ A. $x = 5$

☐ C. $x = 10$

☐ B. $x = 8$

☐ D. $x = 16$

3) A rectangular field on a map is 9 cm by 12 cm at a scale of 1 cm : 0.75 km. If the scale is changed to 1 cm : 1.5 km, what will be the new length?

☐ A. 6 cm

☐ C. 18 cm

☐ B. 12 cm

☐ D. 24 cm



6 in

9 in

Rectangle A



8 in

13 in

Rectangle B

4)

A student claims the two rectangles are similar because the difference in length is 4 inches and the difference in width is 2 inches. Which statement is correct?

☐ A. The rectangles are similar; the student's reasoning is correct.

☐ C. The rectangles are similar; the scale factor is $\frac{4}{3}$.

☐ B. The rectangles are not similar; the student used additive reasoning instead of multiplicative.

☐ D. The student is correct about the relationship but made a calculation error.



- 5) A two-way table shows outcomes for tossing a coin and rolling a die showing 1, 2, or 3. What is the total number of outcomes?

	1	2	3
H	H1	H2	H3
T	T1	T2	T3

- ☐ A. 2 outcomes ☐ C. 5 outcomes
☐ B. 3 outcomes ☐ D. 6 outcomes
- 6) Which of the following shows that $0.9p = p - 0.1p$?
- ☐ A. Factoring: $p - 0.1p = p(1 - 0.1) = 0.9p$ ☐ C. Combining fractions: $0.9 + 0.1 = 1$
☐ B. Distribution: $0.1(p - p) = 0$ ☐ D. All operations are equivalent
- 7) Triangle ABC has sides 13 cm, 5 cm, and 12 cm. Compute $13^2 - (5^2 + 12^2)$.

- 8) A spinner is divided into 8 equal sections numbered 1 through 8. What is the probability of spinning an odd number OR a prime number?
- ☐ A. $\frac{4}{8}$ (only odd) ☐ C. $\frac{7}{8}$
☐ B. $\frac{6}{8}$ (missing overlap) ☐ D. $\frac{8}{8}$ (all outcomes)



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Maryland MCAP 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 Maryland MCAP 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) A plane through opposite edges of a cube forms a rectangular cross-section. One pair of sides equals the edge length; the other pair equals the face diagonal ($a\sqrt{2}$ for edge a).
- 2) **Choice D is correct.** (7.RP.3) To convert a decimal to a percent, multiply by 100: $0.45 \times 100 = 45\%$. Alternatively, $0.45 = \frac{45}{100} = 45\%$.
- 3) **Choice A is correct.** (7.EE.4a) First 100 copies cost \$25 plus \$0.10 per additional copy. Formula: $C = 0.10x + 25$.
- 4) **The correct answer is $\frac{139}{6}$.** (7.G.1-7.G.5) Vertical angles are equal. Adjacent angles are supplementary: $(6z - 3) + 44 = 180$. Simplify: $6z + 41 = 180$. Solve: $6z = 139$, so $z \approx 23.17$.
- 5) **Choice D is correct.** (7.G.1-7.G.5) With only angles known ($32^\circ, 58^\circ, 90^\circ$), the shape is determined but not the size. Any scale of this triangle satisfies the angle conditions.
- 6) **Choice B is correct.** (7.SP.5-7.SP.8) Larger samples provide more stable estimates due to the Law of Large Numbers.
- 7) **Choice A is correct.** (7.SP.1-7.SP.4) This sample only reaches people who (1) already watch sports, and (2) are motivated enough to call in. This excludes the majority of households and creates severe self-selection bias and voluntary response bias.
- 8) **Choice B is correct.** (7.SP.1-7.SP.4) Class 1 has 4 leaves in the 70s and 3 in the 80s. Class 2 has 2 leaves in the 70s and 5 in the 80s. Class 2's 80s interval has 5 students vs. Class 1's 3 students.
- 9) **Choice B is correct.** (7.SP.5-7.SP.8) Odd numbers: 1, 3, 5, 7 (4 out of 8). $\frac{4}{8} = \frac{1}{2}$ is correct.
- 10) **Choice B is correct.** (7.SP.1-7.SP.4) Mean and median are center measures. Range, IQR, and MAD measure variability. Minimum and maximum are boundary values, not measures of center.
- 11) **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.
- 12) **The correct answer is $(-6, 3)$.** (7.G.1-7.G.5) A 180° rotation about the origin uses the rule $(a, b) \rightarrow (-a, -b)$. If the image is $(6, -3)$, then $(-a, -b) = (6, -3)$, so $a = -6$ and $b = 3$. Thus the original point is $(a, b) = (-6, 3)$.
- 13) **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 $\frac{9}{20}$.
- 14) **Choice D is correct.** (7.SP.6) Experimental probability (0.29) is based on observed data and differs from theoretical probability (0.25) because of random variation. Both values are relative frequencies—ratios of favorable outcomes to total trials.
- 15) **Choice B is correct.** (7.SP.1-7.SP.4) Leaves must be arranged in ascending order. The values are 82, 82, 85, 87, so leaves in order are 2, 2, 5, 7.
- 16) **Choice D is correct.** (7.RP.3) Estimate X: $\frac{|55-60|}{60} \times 100\% \approx 8.3\%$. Estimate Y: $\frac{|62-60|}{60} \times 100\% \approx 3.3\%$. Estimate Y has smaller error, making it the better estimate.
- 17) **Choice A is correct.** (7.EE.1-7.EE.2) Distribute $-\frac{1}{2}$: $-\frac{1}{2}(6x) - \frac{1}{2}(-4) = -3x + 2$. Negative times negative is positive.
- 18) **The correct answer is 100.48.** (7.G.4-7.G.6) Full circle: $A = 3.14 \times 8^2 = 3.14 \times 64 = 200.96 \text{ in}^2$. Semicircle: $\frac{200.96}{2} = 100.48 \text{ in}^2$.
- 19) **Choice D is correct.** (7.RP.3) Using $I = Prt$: $75 = 500 \times 0.05 \times t \Rightarrow 75 = 25t \Rightarrow t = 3$.
- 20) **Choice D is correct.** (7.RP.1-7.RP.3) Actual dimensions: $8 \times 2.5 = 20 \text{ m}$; $6 \times 2.5 = 15 \text{ m}$. Area = $20 \times 15 = 300 \text{ m}^2$.
- 21) **Choice B is correct.** (7.NS.1-7.NS.3) When we subtract a negative number, we are undoing a debt or reversing a loss. This is why $6 - (-3) = 6 + 3 = 9$, which is both positive and larger than the original 6. Choice B directly addresses this conceptual reasoning.
- 22) **The correct answer is A,C.** (7.G.1-7.G.5) A: Two triangles with the same three side lengths are congruent by SSS. C: Two triangles with two equal sides and an equal included angle are congruent by SAS. B is incorrect because AAA determines similarity, not congruence (triangles can be different sizes). D is incorrect because two angles and two separate sides (not necessarily properly positioned) do not guarantee congruence.
- 23) **Choice B is correct.** (7.EE.1) Like terms with x : $8x$ and $-5x$ give $(8 - 5)x = 3x$. Like terms with y : $3y$ and $-2y$ give $(3 - 2)y = y$. Answer: $3x + y$.
- 24) **Choice A is correct.** (7.EE.1-7.EE.2) GCF of $18ab$ and $27a$ is $9a$. Factor: $18ab + 27a = 9a(2b + 3)$.



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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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