

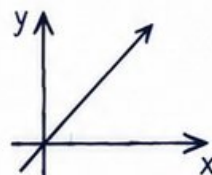
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Maryland
MCAPGRADE
7
MATH

PRACTICE TESTS

Standards Aligned
Problem Solving
For Comprehensive
Assessment Programs

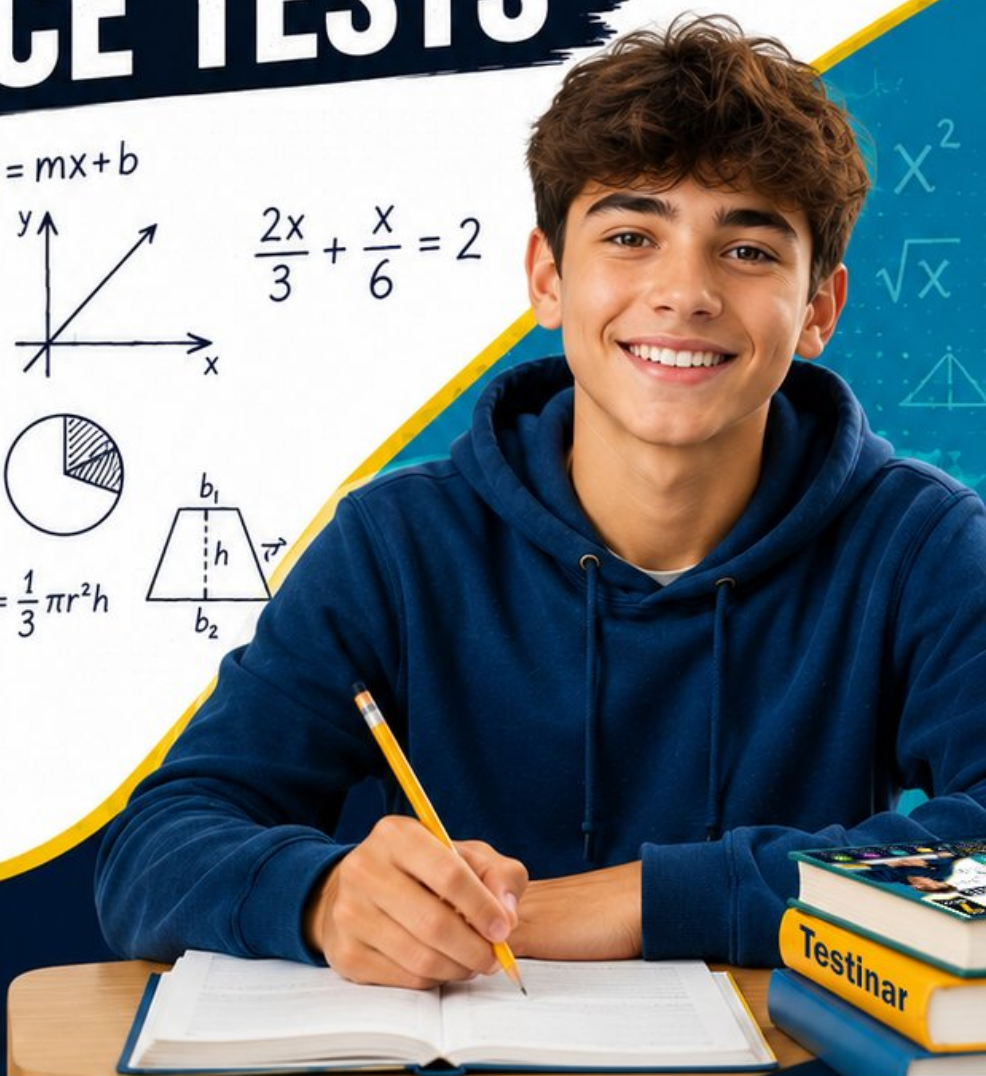
$$y = mx + b$$



$$\frac{2x}{3} + \frac{x}{6} = 2$$



$$V = \frac{1}{3} \pi r^2 h$$

4 PRINTED
TESTS2 ONLINE
TESTSUSE THESE TWO
ADDITIONAL ONLINE
PRACTICE TESTSFOR EXTRA REVIEW AFTER
THE PRINTED TESTS
IN THIS BOOK.Build
ConfidenceStrengthen
Math SkillsDetailed Answers
& ExplanationsImprove Test
Performance

4 Maryland MCAP Grade 7 Math Practice Tests

Clear Grade 7 Practice for Maryland with Keys and Review



Four 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!

Four focused rounds for sharper MCAP math thinking

This book gives you four 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 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.

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?

Four MCAP 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) A cylindrical container has a radius of 6 cm. If the height is tripled, what is the new volume compared to the original? Use $\pi \approx 3.14$.

- ☐ A. The new volume equals the original ☐ C. The new volume is 9 times the original
- ☐ B. The new volume is 3 times the original ☐ D. The new volume is 27 times the original

2) A toy car's wheel has radius 2 cm. After 10 complete rotations, how far has the car traveled? Use $\pi \approx 3.14$.

- ☐ A. 12.56 cm ☐ C. 125.6 cm
- ☐ B. 25.12 cm ☐ D. 251.2 cm

3) What is $-\frac{3}{4} \times (-\frac{8}{9})$?

4) Which measure describes how spread out data is?

- ☐ A. Mean ☐ C. Range
- ☐ B. Median ☐ D. Mode

5) A jar contains 10 marbles: 3 red, 2 blue, and 5 green. What is the probability of drawing a marble that is not blue?

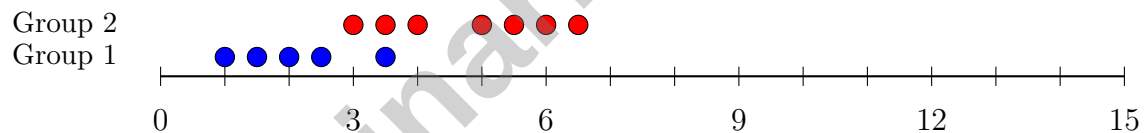
- ☐ A. $\frac{3}{10}$ ☐ C. $\frac{1}{5}$
- ☐ B. $\frac{4}{5}$ ☐ D. $\frac{3}{5}$



- 6) Which of the following represents the complete sample space for flipping a coin and choosing a number from $\{1, 2, 3\}$?

$\{H1, H2, H3, T1, T2, T3\}$

- ☐ A. 3 outcomes ☐ C. 5 outcomes
☐ B. 4 outcomes ☐ D. 6 outcomes
- 7) A spinner has 5 equal sections numbered 1 through 5. You spin twice. What is the probability of NOT spinning a 1 on either spin?
- ☐ A. $\frac{2}{5}$ ☐ C. $\frac{16}{25}$
☐ B. $\frac{8}{25}$ ☐ D. $\frac{1}{25}$
- 8) 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
- 9) A marble is drawn from a bag, its color is recorded, and it is returned. After 800 draws, a blue marble was drawn 216 times. If the experiment is repeated with 1200 draws, approximately how many times would you expect to draw a blue marble?

- ☐ A. 324 ☐ C. 432
☐ B. 216 ☐ D. 648



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10) A stem-and-leaf plot has stems 5, 6, 7 with leaves:

- Stem 5: 1, 4, 7
- Stem 6: 0, 3, 8
- Stem 7: 2, 6, 9

What is the range of the data?

- ☐ A. 24 ☐ C. 26
☐ B. 25 ☐ D. 27

11) A piece of cardboard is a square ($15\text{ cm} \times 15\text{ cm}$) with a rectangular notch ($4\text{ cm} \times 3\text{ cm}$) cut from one corner and a circular hole (radius 2 cm) drilled in the center. What remains? (Use $\pi \approx 3.14$.)

- ☐ A. 200.44 cm^2 ☐ C. 213 cm^2
☐ B. 212.56 cm^2 ☐ D. 225 cm^2

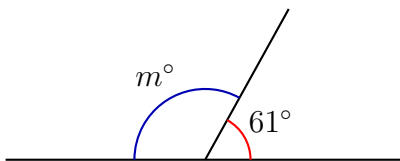
12) A triangular prism container is filled with water. The triangular base has legs 8 cm and 6 cm . If the container is 15 cm deep, what is the volume of water it can hold?

- ☐ A. 120 cm^3 ☐ C. 360 cm^3
☐ B. 240 cm^3 ☐ D. 720 cm^3

13) What is the side length of a square with area 169 square units?



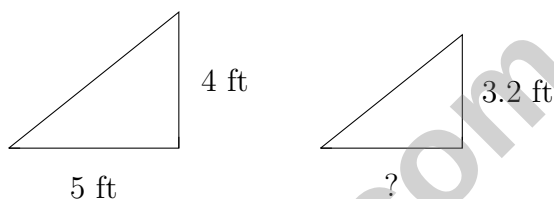
1)



A ray extends upward from a point on a horizontal line, forming a linear pair with angles 61° and m . Find m .

☐ A. 61° ☐ C. 119° ☐ B. 90° ☐ D. 241°

2)



Two similar right triangles are shown. The left triangle has legs 5 ft (horizontal) and 4 ft (vertical). The right triangle has a vertical leg of 3.2 ft. Find the horizontal leg of the right triangle.

☐ A. 2.56 ft☐ C. 4 ft☐ B. 3.2 ft☐ D. 5 ft

3) A stock investment grows from \$5,000 to \$5,500 in one year. What is the percentage growth?



Perfect Squares

1	4	9
16	25	36
49	64	81
100	121	144

4)

What is $\sqrt{81}$?☐ A. 8☐ C. 10☐ B. 9☐ D. 11

5) A pair of jeans costs \$80. After a 20% discount, express the final price in factored form.

☐ A. $80(1 - 0.2)$ ☐ C. $0.8(80)$ ☐ B. $80(0.2)$ ☐ D. 80×20

6) Which product is the smallest?

☐ A. 5×2 ☐ C. $5 \times (-2)$ ☐ B. $(-5) \times 3$ ☐ D. $(-5) \times (-2)$ 7) Simplify: $-2m - 5m + 3n + n$ ☐ A. $-7m + 4n$ ☐ C. $-7m + 3n$ ☐ B. $-3m + 4n$ ☐ D. $7m + 4n$ 

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- 1) A mechanic estimated a car repair would take 3 hours but it took 4.5 hours. What is the percent error?

☐ A. 33.3% ☐ C. 40%
☐ B. 50% ☐ D. 66.7%

- 2) If $x \div (-2) = 6$, find x .

- 3) 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 ☐ C. Both stores have the same work hour distribution
☐ B. Store 1 employees work more hours ☐ D. Store 1 has more variability overall

- 4) A rectangular garden is 10 m wide and 8 m tall. A triangular section is removed from the bottom, with the triangle's base being 10 m and height 2 m. What is the remaining area?

☐ A. 70 m^2 ☐ C. 90 m^2
☐ B. 80 m^2 ☐ D. 100 m^2



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5) A triangular prism has volume 126 cubic inches. If the triangular base has area 18 in², what is the height of the prism?

☐ A. 7 in

☐ C. 9 in

☐ B. 8 in

☐ D. 144 in

6) Can a triangle be drawn with side lengths 2.5 cm, 3.5 cm, and 6 cm?

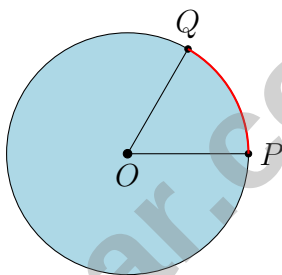
☐ A. Yes

☐ C. No, because $2.5 + 3.5 = 6$

☐ B. No, because $2.5 + 3.5 < 6$

☐ D. Yes, but only one

7) In the circle below, which shaded region represents a sector?



The red shaded region is:

☐ A. A chord

☐ C. An arc

☐ B. A sector

☐ D. A radius



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 B is correct.** (7.G.4-7.G.6) Original: $V_1 = \pi r^2 h$. New: $V_2 = \pi r^2(3h) = 3\pi r^2 h = 3V_1$. Volume is directly proportional to height.
- 2) **Choice C is correct.** (7.G.4-7.G.6) $C = 2\pi r = 2 \times 3.14 \times 2 = 12.56$ cm per rotation. Distance = $10 \times 12.56 = 125.6$ cm.
- 3) **The correct answer is $\frac{2}{3}$.** (7.NS.2) $-\frac{3}{4} \times (-\frac{8}{9}) = \frac{3 \times 8}{4 \times 9} = \frac{24}{36} = \frac{2}{3}$. Negative times negative is positive.
- 4) **Choice C is correct.** (7.SP.1-7.SP.4) Range (max – min) measures how spread out data is. Mean, median, and mode measure center, not spread.
- 5) **Choice B is correct.** (7.SP.5-7.SP.8) Non-blue marbles = $3 + 5 = 8$. $P(\text{not blue}) = \frac{8}{10} = \frac{4}{5}$.
- 6) **Choice D is correct.** (7.SP.5-7.SP.8) The sample space lists all 6 pairs: H1, H2, H3, T1, T2, T3.
- 7) **Choice C is correct.** (7.SP.5-7.SP.8) $P(\text{not } 1) = \frac{4}{5}$ on each spin. Both spins: $\frac{4}{5} \cdot \frac{4}{5} = \frac{16}{25}$.
- 8) **Choice B is correct.** (7.SP.3) Group 2's dots are positioned further to the right (at 3, 3.5, 4, 5, 5.5, 6, 6.5) compared to Group 1 (at 1, 1.5, 2, 2.5, 3.5), so the median of Group 2 is higher.
- 9) **Choice A is correct.** (7.SP.6) Relative frequency of blue: $\frac{216}{800} = 0.27$. Apply this to predict in a larger sample: $0.27 \times 1200 = 324$ expected blue draws.
- 10) **Choice B is correct.** (7.SP.1-7.SP.4) Minimum is 51, maximum is 76. Range = $76 - 51 = 25$.
- 11) **Choice A is correct.** (7.G.4-7.G.6) Square: $15 \times 15 = 225$ cm². Notch: $4 \times 3 = 12$ cm². Hole: $3.14 \times 4 = 12.56$ cm². Remaining: $225 - 12 - 12.56 = 200.44$ cm².
- 12) **Choice C is correct.** (7.G.4-7.G.6) Base area = $\frac{1}{2} \times 8 \times 6 = 24$ cm². Volume = $24 \times 15 = 360$ cm³.
- 13) **The correct answer is 13.** (7.NS.1-7.NS.3) Since the area is 169, the side length is $\sqrt{169} = 13$ units.
- 14) **The correct answer is \$24.** (7.EE.1-7.EE.2) A 50% markup adds 50% to the cost: selling price = $c + 0.5c = 1.5c$. With $c = 16$: $1.5(16) = 24$. The selling price is \$24.
- 15) **Choice A is correct.** (7.G.4-7.G.6) $r = \frac{d}{2} = \frac{13.4}{2} = 6.7$ mm.
- 16) **Choice B is correct.** (7.G.1-7.G.5) Two sides and the included right angle are given: $AC = 4$ cm, $AB = 5$ cm, and angle $A = 90^\circ$ is between them. This is SAS (Side-Angle-Side) congruence.
- 17) **Choice A is correct.** (7.SP.5-7.SP.8) A very small probability (close to 0) means the event is unlikely. 0.05 is the smallest value.
- 18) **Choice C is correct.** (7.SP.1-7.SP.4) $\frac{42}{150} = \frac{x}{500}$. Simplify: $\frac{7}{25} = \frac{x}{500} \Rightarrow x = 140$.
- 19) **The correct answer is A,D.** (7.NS.1-7.NS.3) Statement A is true: the opposite of -5 is 5 (positive). Statement D is true: -5 and 5 are each 5 units from zero. Statement B is false because opposites have the same absolute value. Statement C is false: $5 + (-5) = 0$, not 10.
- 20) **Choice D is correct.** (7.NS.1-7.NS.3) $12 - (-3) = 12 + 3 = 15$.
- 21) **Choice C is correct.** (7.SP.1-7.SP.4) 22% of 240 = $0.22 \times 240 = 52.8$ people.
- 22) **Choice C is correct.** (7.RP.3) $\frac{36}{48} = \frac{3}{4} = 0.75 = 75\%$.
- 23) **Choice D is correct.** (7.RP.1-7.RP.3) At constant rate with no warm-up: pages = $40 \times$ minutes. Proportional with $k = 40$.
- 24) **Choice D is correct.** (7.RP.1-7.RP.3) $y = \frac{3}{5}(25) = \frac{75}{5} = 15$.
- 25) **Choice D is correct.** (7.RP.1-7.RP.3) Unit rate = $\frac{900}{3/4} = 900 \times \frac{4}{3} = 1200$ dollars per house.
- 26) **The correct answer is 12.** (7.G.1-7.G.5) Area ratio 4 : 9 gives linear scale factor $\sqrt{4} : \sqrt{9} = 2 : 3$. Larger base = $8 \times \frac{3}{2} = 12$ cm.
- 27) **Choice D is correct.** (7.RP.1-7.RP.3) From (2, 1.2), $k = 1.2 \div 2 = 0.6$. Verify: (4, 2.4) gives $2.4 \div 4 = 0.6$; (6, 3.6) gives $3.6 \div 6 = 0.6$. Unit rate is 0.6.
- 28) **Choice D is correct.** (7.RP.3) Discount amount: $200 - 150 = 50$. Using the proportion $\frac{50}{200} = \frac{p}{100}$: $p = 25\%$.
- 29) **Choice D is correct.** (7.SP.5-7.SP.8) Total: 360° . Green: $180^\circ \Rightarrow P(\text{green}) = \frac{180}{360} = \frac{1}{2}$. Blue: $\frac{60}{360} = \frac{1}{6}$. Red: $\frac{120}{360} = \frac{1}{3}$ (non-uniform model).



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:

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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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