

5

# Maryland MCAP

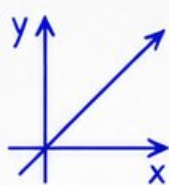
GRADE

7

MATH

## PRACTICE TESTS

Standards Aligned  
**Problem Solving**  
For Comprehensive  
Assessment Programs



$$y = mx + b$$

$$\frac{2}{3} + \frac{1}{6} = \frac{5}{6}$$



$$V = \pi r^2 h$$



**5** PRINTED  
TESTS



**2** ONLINE  
TESTS

USE THESE TWO  
ADDITIONAL ONLINE  
PRACTICE TESTS  
FOR EXTRA REVIEW AFTER  
THE PRINTED TESTS  
IN THIS BOOK.



Build  
Confidence



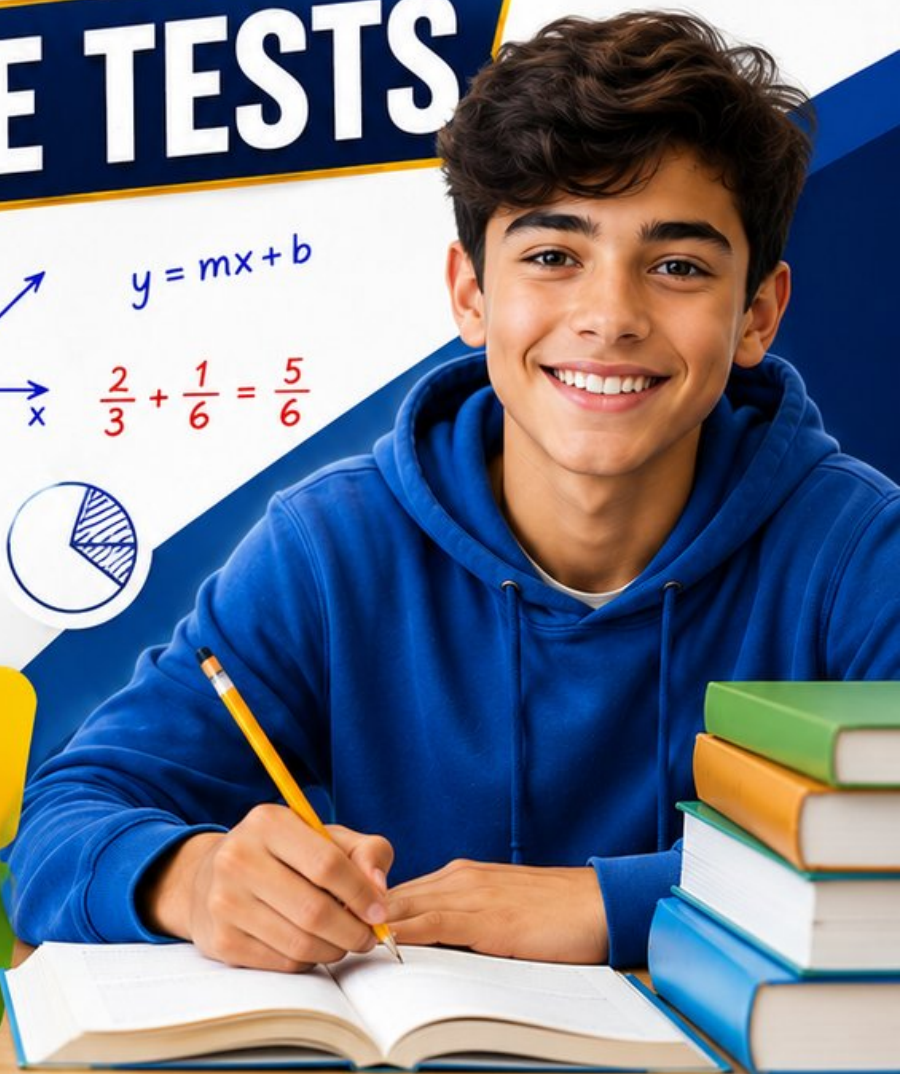
Strengthen  
Math Skills



Detailed Answers  
& Explanations



Improve Test  
Performance



# 5 Maryland MCAP Grade 7 Math Practice Tests

*Standards-Aligned Test Prep with Review, Keys, and Explanations*



Five 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!

Five focused rounds for sharper MCAP math thinking

This book gives you five 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 five-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?

Five MCAP tests, 200 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 3–5    | 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.

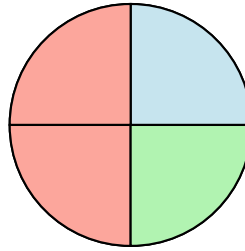


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& answers

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1)

A spinner has four equal sections: one blue, two red, and one green. What is the probability of spinning red?

- ☐ A.  $\frac{1}{4}$   
☐ B.  $\frac{1}{2}$

- ☐ C.  $\frac{2}{3}$   
☐ D.  $\frac{3}{4}$

2) A weather forecast predicts a 35% chance of snow. Write this probability as a decimal.

3) Simplify:  $3 - (-3)$

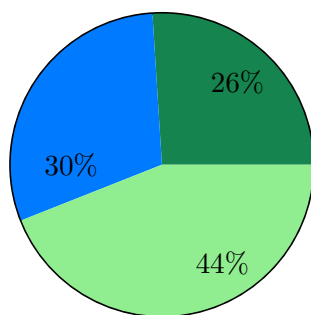
- ☐ A. 0  
☐ B. 3

- ☐ C. -6  
☐ D. 6



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4)

The circle graph shows time spent on daily activities. Coral is work (26%), sky blue is sleep (30%), and light green is personal time (44%). If a person has 24 hours in a day, how many hours are spent on personal time?

- ☐ A. 6.24 hours                      ☐ C. 10.56 hours  
☐ B. 7.2 hours                      ☐ D. 12 hours

5) What percent of 60 is 48?

- ☐ A. 60%                      ☐ C. 80%  
☐ B. 75%                      ☐ D. 90%

6) Evaluate  $-13 + (-7)$ .

- ☐ A. -20                      ☐ C. 6  
☐ B. -6                      ☐ D. 20

7) A student claims: "The relationship is proportional because the  $y$ -values keep increasing." Is this correct?

- ☐ A. Yes, increasing  $y$  is the definition      ☐ C. Yes, but only if  $x$  also increases  
☐ B. Cannot determine without seeing the data      ☐ D. No; must have constant ratio  $y/x$



8) A proportional relationship has the equation  $y = kx$ . If the point  $(9, 12)$  lies on the line, what is the value of  $k$ ?

☐ A.  $k = \frac{3}{4}$

☐ B.  $k = \frac{9}{12}$

☐ C.  $k = 3$

☐ D.  $k = \frac{4}{3}$

9) Convert 0.00042 to scientific notation.

☐ A.  $4.2 \times 10^{-4}$

☐ B.  $4.2 \times 10^{-5}$

☐ C.  $4.2 \times 10^{-3}$

☐ D.  $42 \times 10^{-4}$

10) A train travels  $3\frac{1}{2}$  miles in  $\frac{1}{4}$  hour. What is the train's speed in miles per hour?

☐ A.  $\frac{7}{8}$  mph

☐ B.  $\frac{1}{14}$  mph

☐ C. 7 mph

☐ D. 14 mph



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& answers

- 1) A game has a  $\frac{1}{3}$  chance of winning and a  $\frac{2}{3}$  chance of losing. What is the probability of winning as a decimal (rounded to the nearest hundredth)?

- ☐ A. 0.33                      ☐ C. 0.5  
☐ B. 0.67                      ☐ D. 0.2

2)

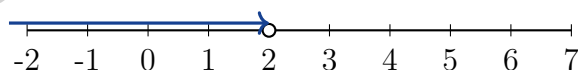
| Sample   | Left-Handed | Total |
|----------|-------------|-------|
| Sample A | 12          | 80    |
| Sample B | 15          | 75    |
| Sample C | 18          | 120   |

Which sample shows the highest proportion of left-handed individuals?

- ☐ A. Sample A                      ☐ C. Sample C  
☐ B. Sample B                      ☐ D. All have equal proportions
- 3) Compare two stores selling the same item. Store X applies a 60% markup to a cost of \$80. Store Y applies a 50% markup to a cost of \$85. Which store has the lower selling price?

- ☐ A. Store X; \$128                      ☐ C. Both charge \$130  
☐ B. Store Y; \$135                      ☐ D. Store Y; \$127.50

- 4) What inequality is represented on this number line?



- ☐ A.  $x > 2$                       ☐ C.  $x < 2$   
☐ B.  $x \geq 2$                       ☐ D.  $x \leq 2$



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- 5) Simplify  $12x - 8x + 5y - 2y - x$ , then evaluate when  $x = 1$  and  $y = 2$ .

- 6) A cube has edge length 3 cm. What is its surface area?

- ☐ A.  $9 \text{ cm}^2$  ☐ C.  $27 \text{ cm}^2$   
☐ B.  $18 \text{ cm}^2$  ☐ D.  $54 \text{ cm}^2$

- 7) A compound event is defined as follows: “Flip a coin twice and record the results.” If “success” is getting exactly one heads, how many successful outcomes are there in the sample space?

- ☐ A. 1 ☐ C. 3  
☐ B. 2 ☐ D. 4

- 8) Solve:  $2(x + 3) = 14$

- ☐ A.  $x = 2$  ☐ C.  $x = 4$   
☐ B.  $x = 3$  ☐ D.  $x = 7$

- 9) Solve:  $5x - 2 \geq 18$

- ☐ A.  $x \geq 4$  ☐ C.  $x \geq 20$   
☐ B.  $x \leq 4$  ☐ D.  $x > 4$



1) A CD has diameter 12 cm. Using  $\pi \approx 3.14$ , what is its circumference?

☐ A. 37.68 cm

☐ C. 75.36 cm

☐ B. 18.84 cm

☐ D. 452.16 cm

2) Find  $x$ :  $\frac{x}{2} + 3 = 7$

☐ A.  $x = 4$

☐ C.  $x = 8$

☐ B.  $x = 6$

☐ D.  $x = 10$

3) Solve:  $0.5x + 2 < 7$

☐ A.  $x < 10$

☐ C.  $x < 18$

☐ B.  $x > 10$

☐ D.  $x < 4.5$

4) A manufacturing plant produces widgets at a constant rate. In 8 hours, 240 widgets are produced. How many widgets are produced per hour?

☐ A. 20 widgets per hour

☐ C. 240 widgets per hour

☐ B. 1920 widgets per hour

☐ D. 30 widgets per hour

5) A family wants to save \$3,000 for a vacation. If they save \$250 per month, how long will it take?

☐ A. 10 months

☐ C. 14 months

☐ B. 16 months

☐ D. 12 months

6) A recipe requires  $\frac{2}{3}$  cup of sugar. If you make half the recipe, then add  $\frac{1}{4}$  cup extra, how much sugar do you use?

☐ A.  $\frac{3}{7}$  cup

☐ C.  $1\frac{1}{12}$  cups

☐ B.  $\frac{7}{12}$  cup

☐ D.  $\frac{5}{12}$  cup



7) Use the sign-rule chart below to answer: Is  $(-15) \div 3$  positive or negative?

| Dividend sign | Divisor sign | Quotient sign |
|---------------|--------------|---------------|
| +             | +            | +             |
| +             | -            | -             |
| -             | +            | -             |
| -             | -            | +             |

☐ A. Positive;  $(-15) \div 3 = 5$

☐ C. Positive;  $(-15) \div 3 = -5$

☐ B. Negative;  $(-15) \div 3 = -5$

☐ D. Zero; quotient is undefined

8) Convert  $\frac{5}{8}$  to a decimal.

☐ A. 0.58

☐ C. 0.635

☐ B. 0.625

☐ D. 0.65

9) Simplify:  $(9o - 5) - (4o - 7)$

☐ A.  $5o + 2$

☐ C.  $13o - 12$

☐ B.  $5o - 12$

☐ D.  $5o - 2$

10) Which expression is NOT equal to  $y^6$ ?

☐ A.  $y^3 \cdot y^3$

☐ C.  $\frac{y^{10}}{y^4}$

☐ B.  $(y^2)^3$

☐ D.  $y^2 \cdot y^3$

11) Solve for  $x$ :  $2(x - 7) = 2x - 14$

☐ A.  $x = 0$  only

☐ C. All real numbers

☐ B.  $x = 7$  only

☐ D. No solution



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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 B is correct.** (7.SP.5-7.SP.8) Red sections: 2 out of 4.  $P(\text{red}) = \frac{2}{4} = \frac{1}{2}$ .
- 2) **The correct answer is 0.35.** (7.SP.5-7.SP.8)  $35\% = \frac{35}{100} = 0.35$ .
- 3) **Choice D is correct.** (7.NS.1-7.NS.3)  $3 - (-3) = 3 + 3 = 6$ .
- 4) **Choice C is correct.** (7.SP.1-7.SP.4) 44% of 24 =  $0.44 \times 24 = 10.56$  hours.
- 5) **Choice C is correct.** (7.RP.3)  $\frac{48}{60} = \frac{4}{5} = 0.80 = 80\%$ .
- 6) **Choice A is correct.** (7.NS.1b) Both numbers are negative. Add their absolute values:  $|-13| + |-7| = 13 + 7 = 20$ . Since both are negative, the sum is  $-20$ .
- 7) **Choice D is correct.** (7.RP.1-7.RP.3) A proportional relationship requires constant ratio  $y/x = k$ , not just increasing  $y$  values.
- 8) **Choice D is correct.** (7.RP.1-7.RP.3) Substitute (9, 12) into  $y = kx$ :  $12 = k(9)$ , so  $k = \frac{12}{9} = \frac{4}{3}$ .
- 9) **Choice A is correct.** (7.NS.1-7.NS.3) Move the decimal 4 places right from the first nonzero digit:  $0.00042 \rightarrow 4.2$ . Exponent is  $-4$ .
- 10) **Choice D is correct.** (7.RP.1-7.RP.3) Convert  $3\frac{1}{2} = \frac{7}{2}$ . Unit rate =  $\frac{7/2}{1/4} = \frac{7}{2} \times 4 = 14$  mph.
- 11) **Choice D is correct.** (7.RP.1-7.RP.3) The unit-rate point is (1, 0.6), indicating \$0.60 per gallon.
- 12) **Choice D is correct.** (7.RP.3) Using the proportion  $\frac{60}{100} = \frac{x}{50}$ , cross-multiply:  $x = 30$  items.
- 13) **The correct answer is 1350.** (7.RP.1-7.RP.3) New dimensions:  $20 \times 1.5 = 30$  inches and  $30 \times 1.5 = 45$  inches. New area =  $30 \times 45 = 1350$  sq in.
- 14) **Choice D is correct.** (7.RP.3) Deficit =  $\$2,100 - \$1,800 = \$300$ .
- 15) **Choice C is correct.** (7.NS.1-7.NS.3) Subtracting a negative is adding the opposite:  $-4 - (-6) = -4 + 6 = 2$ .
- 16) **Choice A is correct.** (7.NS.1-7.NS.3) A loss of \$45 is represented as  $-45$ . Dividing:  $(-45) \div 5 = -9$  means each owes \$9 (or is owed \$-9).
- 17) **Choice B is correct.** (7.NS.2d) Divide  $1 \div 4 = 0.25$ . This terminating decimal results because  $4 = 2^2$ .
- 18) **Choice C is correct.** (7.NS.1-7.NS.3) Current temp (at mercury level) is  $-1^\circ\text{C}$ . Drop of  $2^\circ\text{C}$ :  $-1 - 2 = -3^\circ\text{C}$ .
- 19) **Choice A is correct.** (7.NS.1-7.NS.3) Total sugar for 2 batches =  $2 \times \frac{2}{3} = \frac{4}{3}$  cups. Sugar used for second dessert =  $\frac{1}{2} \times \frac{4}{3} = \frac{2}{3}$  cups. Remaining =  $\frac{4}{3} - \frac{2}{3} = \frac{2}{3}$  cups.
- 20) **Choice A is correct.** (7.G.1-7.G.5) Scale factor =  $\frac{19.5}{13} = 1.5$ . Corresponding leg =  $5 \times 1.5 = 7.5$  cm.
- 21) **Choice A is correct.** (7.SP.5-7.SP.8)  $P(A) = \frac{1}{2} = 0.5$  is the largest probability.  $B = 0.25$ ,  $C = D = 0.125$ .
- 22) **The correct answer is A, C.** (7.SP.1-7.SP.4) Sample 1:  $\frac{48}{200} = 0.24$ ; Sample 2:  $\frac{36}{150} = 0.24$ ; Sample 3:  $\frac{60}{250} = 0.24$ . All are equal, so A is correct. These proportions can be used to estimate the full population (C). B is false (all equal), D is misleading, and E contradicts the actual data.
- 23) **Choice B is correct.** (7.NS.1-7.NS.3)  $5^2 = 25$  and  $6^2 = 36$ . Since 32 is much closer to 36 than to 25,  $\sqrt{32}$  is closer to 6 (approximately 5.66).
- 24) **Choice D is correct.** (7.EE.1-7.EE.2) Both are equivalent:  $7(2a + 3b) = 7(2a) + 7(3b)$ . However, the first is the standard factored form (GCF factored once). The second form shows distribution but should be simplified.
- 25) **Choice B is correct.** (7.NS.2)  $-\frac{1}{2} \times 10 = \frac{-10}{2} = -5$ . Negative times positive is negative.
- 26) **Choice A is correct.** (7.SP.3) Histogram centers show typical usage. Teenagers average 5–7 hours vs. adults at 2–4 hours. The difference is approximately 3–4 hours more for teenagers on average.
- 27) **Choice D is correct.** (7.RP.3) Total lesson cost =  $35 \times 8 = \$280$ . Tip =  $0.15 \times 280 = \$42$ . Total paid =  $280 + 42 = \$322$ .
- 28) **The correct answer is \$51.** (7.RP.3) Discount amount =  $0.32 \times 75 = \$24$ . Sale price =  $75 - 24 = \$51$ .
- 29) **Choice C is correct.** (7.RP.3) Weekly income:  $16 \times 40 = \$640$ .
- 30) **Choice B is correct.** (7.G.4-7.G.6) Rectangle:  $25 \times 16 = 400$  in<sup>2</sup>. Two triangles:  $2 \times \frac{1}{2} \times 5 \times 4 = 20$  in<sup>2</sup>. Remaining:  $400 - 20 = 380$  in<sup>2</sup>.



## 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 5 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](mailto:jay@testinar.com).

**Jay Daie**

Your Persistence Coach

# PRACTICE TODAY. SUCCEED TOMORROW!

This book includes **5** 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:

**5** 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!

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- ✓ 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.



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