7 Maryland MCAP

Grade 7 Math Practice Tests

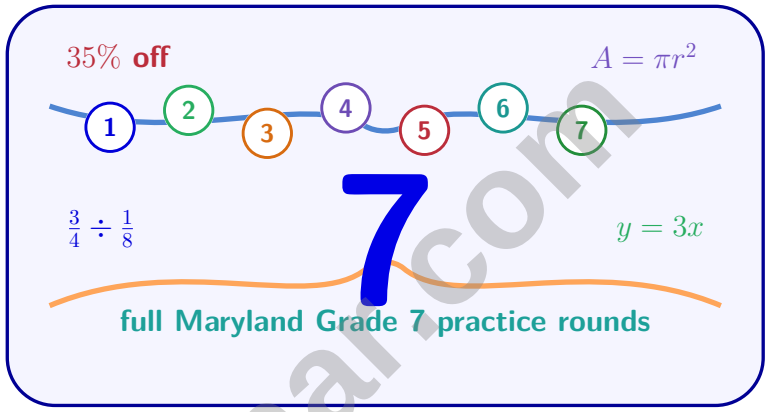
ONLINE

7 PRINTED TESTS + 2 ONLINE TESTS

Standards Aligned Problem Solving For Comprehensive Assessment Programs

8 Maryland MCAP Grade 7 Math Practice Tests

State-test practice for Maryland Grade 7 proportional reasoning, finance math, equations, geometry, populations, and probability



Eight 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!

Eight focused rounds for sharper MCAP math thinking

This book gives you seven 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.

How to Use This Book

An eight-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?

Eight MCAP tests, 280 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.
Tests 7–8	Statistics, probability, mixed review, stamina, and choosing efficient strategies.
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.

Table of Contents

1) The stem-and-leaf plot below shows test scores.

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

What is the maximum score?

☐ A. 76
☐ B. 77
☐ C. 79
☐ D. 86

2) Is $\sqrt{0}$ defined? If so, what is it?

☐ A. undefined
☐ B. 0
☐ C. 1
☐ D. indeterminate

3) Is $7 \times (-2)$ equal to $(-2) \times 7$?

☐ A. Yes, both equal -14
☐ B. Yes, both equal 14
☐ C. No, one is -14 and the other is 14
☐ D. No, one is -5 and the other is 5

4) The table shows distance and time. What is the constant of proportionality in miles per hour?

Time (h)	Distance (mi)
2	120
3	180
5	300

5) A server at a restaurant receives a total of \$18 in tips on a \$120 bill. What percentage tip did the customer leave?

☐ A. 12%
☐ B. 20%
☐ C. 18%
☐ D. 15%

6) A savings account grows from \$600 to \$684 in one year with annual compound interest. What is the interest rate?

☐ A. 10%
☐ B. 12%
☐ C. 14%
☐ D. 15%

7) Two triangles each have angles measuring 50°, 60°, and 70°. Are the triangles congruent?

☐ A. Yes, always congruent
☐ B. No, never congruent
☐ C. Only if one side length is the same
☐ D. Cannot be determined without side lengths

8) A proportional relationship is shown by a line through the origin and $(4, 6)$. What is the constant of proportionality?

9) Simplify: $\frac{1}{3}a + \frac{2}{3}a + b$

☐ A. $a + b$
☐ B. $\frac{3}{6}a + b$
☐ C. $\frac{1}{2}a + b$
☐ D. $a + 3b$

10) Factor: $9m + 12$

- ☐ A. $3(3m + 4)$
- ☐ B. $9(m + 12)$
- ☐ C. $3m(3 + 4)$
- ☐ D. $12(0.75m + 1)$

11) Marcus had $\$ - 12$ (overdraft) in his account. He deposited \$45. What is his new balance?

- ☐ A. $\$ - 57$
- ☐ B. $\$ - 33$
- ☐ C. \$33
- ☐ D. \$57

12) Solve and identify the key step: $-5x \geq 20$

Original: $-5x \geq 20$

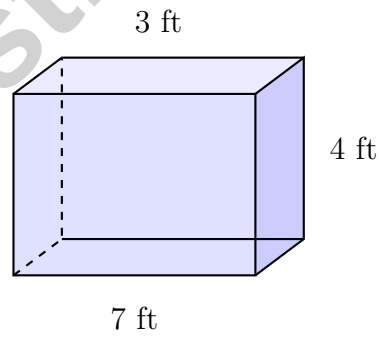
Divide both sides by -5.

FLIP the inequality: $\geq$ becomes $\leq$

Result: $x \leq -4$

- ☐ A. $x \leq -4$
- ☐ B. $x \geq -4$
- ☐ C. $x < 4$
- ☐ D. $x = -4$

13)



This isometric view shows a rectangular prism with dimensions 7 ft × 4 ft × 3 ft. Calculate the surface area.

- ☐ A. 98 ft^2
- ☐ B. 122 ft^2
- ☐ C. 166 ft^2
- ☐ D. 336 ft^2

1) A company has 1000 employees. To find the average salary, it surveys 100 randomly selected employees. The average salary from these 100 employees is called a:

☐ A. parameter
☐ B. population mean
☐ C. sample statistic
☐ D. bias measure

2) A video game costs \$50. With a 12% sales tax, the total cost is 50×1.12. What does 1.12 represent?

☐ A. The percent of tax
☐ B. The percent of the original price paid (including tax)
☐ C. The discount
☐ D. The final price

3) A stem-and-leaf plot shows the ages of workers at two companies. Company X has data: 22, 24, 25, 26, 29; Company Y has data: 18, 19, 22, 45, 48. Which statement is best supported?

☐ A. Company X has a higher median and less spread
☐ B. Company Y has younger workers overall
☐ C. Both companies have the same age distribution
☐ D. Company X workers are older than Company Y workers

4) A bakery display is shaped like a trapezoid on top of a rectangle. The rectangle is 5 inches wide and 4 inches tall. The trapezoid has parallel sides of 5 inches and 3 inches with height 2 inches. What is the total area?

☐ A. 12 in^2
☐ B. 28 in^2
☐ C. 32 in^2
☐ D. 36 in^2

5) Convert 2 cubic meters to cubic centimeters. (Hint: 1 m = 100 cm)

☐ A. 2×10^6 cm^3
☐ B. 2×10^8 cm^3
☐ C. 2×10^{12} cm^3
☐ D. 2×10^9 cm^3

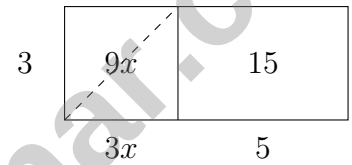
6) A sector of a circle is best described as:

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

7) Simplify: $9c + 2d - c + 5d - 4c$

☐ A. $4c + 7d$
☐ B. $18cd$
☐ C. $-4c + 7d$
☐ D. $14c + 7d$

8)



The area model above represents the factorization of $9x + 15$. What is the common factor shown as the height?

☐ A. 3
☐ B. 5
☐ C. 9
☐ D. 15

9) Solve: $\frac{-x}{3} \leq 4$

☐ A. $x \leq -12$
☐ B. $x \geq -12$
☐ C. $x < 4$
☐ D. $x > -12$

1) A teenager has \$500 in savings and wants to invest it at 6% annual interest. What will be the total balance after 1 year?

☐ A. \$506
☐ B. \$600
☐ C. \$560
☐ D. \$530

2) A photo costs \$0.50 each. If you buy n photos for a total cost of T dollars, which equation is correct?

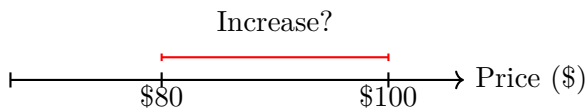
☐ A. $n = 0.50T$
☐ B. $T = n + 0.50$
☐ C. $T = \frac{0.50}{n}$
☐ D. $T = 0.50n$

3) Solve for x: $\frac{x}{2} - 1 = 4$

4) A student solved $\frac{p}{100} = \frac{24}{120}$ and wrote $p = 20$. Which equation should they set up instead?

☐ A. $\frac{24}{120} = \frac{100}{p}$
☐ B. $p = \frac{24}{120}$
☐ C. $\frac{120}{24} = \frac{p}{100}$
☐ D. $\frac{24}{120} = \frac{p}{100}$

5)



A double number line shows a price increase from \$80 to \$100. What is the percent increase?

☐ A. 100%
☐ B. 20%
☐ C. 80%
☐ D. 25%

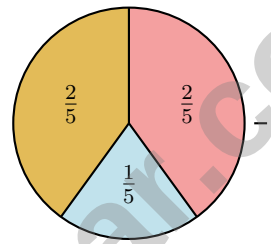
6) A cube has edge length 4 cm. What is the total surface area?

☐ A. 16 cm^2
☐ B. 64 cm^2
☐ C. 96 cm^2
☐ D. 128 cm^2

7) A principal wants to know the average number of hours students study per week at her school. Which is the BEST way to collect a representative sample?

☐ A. Survey only the students in her own homeroom
☐ B. Survey the first 30 students who arrive Monday morning
☐ C. Randomly select 30 students from each grade
☐ D. Survey only students on the honor roll

8)



A spinner has three unequal sections with probabilities $\frac{2}{5}$, $\frac{2}{5}$, and $\frac{1}{5}$. If it is spun 250 times, approximately how many times would you expect to land on a section with probability $\frac{2}{5}$?

☐ A. 50 times
☐ B. 100 times
☐ C. 125 times
☐ D. 200 times

9) What is the shape of the cross-section formed when a cube is sliced parallel to one of its faces?

☐ A. Rectangle (but not square)
☐ B. Rhombus
☐ C. Square
☐ D. Parallelogram (but not square)

Maryland Comprehensive Assessment Program 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 Comprehensive Assessment Program practice test.

Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

1) **Choice A is correct.** 7.SP.1-7.SP.4 The largest stem is 7 with the largest leaf 6, giving 76.
2) **Choice B is correct.** 7.NS.1-7.NS.3 $\sqrt{0}$ is defined and equals 0 because $0 \times 0 = 0$.
3) **Choice A is correct.** 7.NS.2 Multiplication is commutative. $7 \times (-2) = -14$ and $(-2) \times 7 = -14$.
4) **The correct answer is** 60 **.** 7.RP.1-7.RP.3 Each ratio gives the same unit rate: $120 \div 2 = 60$, $180 \div 3 = 60$, and $300 \div 5 = 60$.
5) **Choice D is correct.** 7.RP.3 Tip percentage $= \frac{18}{120} = 0.15 = 15\%$.
6) **Choice C is correct.** 7.RP.3 $600(1 + r) = 684 \Rightarrow 1 + r = 1.14 \Rightarrow r = 0.14 = 14\%$.
7) **Choice D is correct.** 7.G.1-7.G.5 AAA (Angle–Angle–Angle) guarantees similarity, not congruence. The triangles could be different sizes but the same shape. At least one side length is needed to prove congruence.
8) **The correct answer is** 1.5 **.** 7.RP.1-7.RP.3 The unit rate is $6 \div 4 = 1.5$.
9) **Choice A is correct.** 7.EE.1 Combine: $\frac{1}{3}a + \frac{2}{3}a + b = a + b$.
10) **Choice A is correct.** 7.EE.1-7.EE.2 The GCF of 9 and 12 is 3. So $9m + 12 = 3(3m + 4)$. (Option B confuses the constant. Option C factors only the variable. Option D uses a decimal.)
11) **Choice C is correct.** 7.NS.1b The balance is $-12 + 45 = 33$. A deposit adds money, so we add the amount to the current balance (even though it was negative).
12) **Choice A is correct.** 7.EE.4b When dividing by a negative number, always flip the inequality sign. Here: $-5x \geq 20 \Rightarrow x \leq -4$.
13) **Choice B is correct.** 7.G.4-7.G.6 $SA = 2(\ell w + \ell h + wh) = 2(7 \cdot 4 + 7 \cdot 3 + 4 \cdot 3) = 2(28 + 21 + 12) = 2(61) = 122$ ft^2.
14) **Choice C is correct.** 7.SP.5-7.SP.8 Outcomes with exactly two tails: TTH, THT, HTT. That is 3 out of 8 equally likely outcomes.
15) **Choice A is correct.** 7.NS.1-7.NS.3 Descent is -750 feet: $-750 \div 2.5 = -300$ ft/min.
16) **Choice C is correct.** 7.NS.1-7.NS.3 $1.8 \times 10^6 = 1{,}800{,}000$, which is larger than all others.
17) **Choice C is correct.** 7.EE.3-7.EE.4 Subtract 5: $\frac{1}{2}x = 4$. Multiply by 2: $x = 8$.
18) **Choice A is correct.** 7.G.1-7.G.5 Drawing lengths: $20 \div 4 = 5$ cm and $12 \div 4 = 3$ cm.
19) **Choice B is correct.** 7.G.1-7.G.5 A plane can intersect a rectangular prism in a triangle if it passes through three points not on the same face. A common example is a plane through one vertex and two points on opposite edges.
20) **Choice D is correct.** 7.G.1-7.G.5 Complementary angles sum to 90°: $90 - 19 = 71°$.
21) **The correct answer is A,B.** 7.RP.1-7.RP.3 A and B. Each point satisfies $y/x = 3$, so the table is proportional with constant ratio 3 (A) and is modeled by $y = 3x$ (B). C is false: the constant of proportionality is 3, not $\frac{1}{3}$. D is false: $y = 3x - 1$ would give $y = 2$ at $x = 1$, not 3.
22) **The correct answer is** 80.64 **.** 7.RP.1-7.RP.3 Actual dimensions: $3.2 \times 3 = 9.6$ feet and $2.8 \times 3 = 8.4$ feet. Area $= 9.6 \times 8.4 = 80.64$ square feet.
23) **Choice A is correct.** 7.G.1-7.G.5 A translation by $(2, -4)$ adds the vector to each point: $(3, 1) + (2, -4) = (5, -3)$.
24) **Choice B is correct.** 7.G.4-7.G.6 $C = 2\pi r \Rightarrow 62.8 = 2(3.14)r \Rightarrow 62.8 = 6.28r \Rightarrow r = 10$ in.
25) **Choice C is correct.** 7.G.4-7.G.6 $A = \frac{22}{7} \times 14^2 = \frac{22}{7} \times 196 = 22 \times 28 = 616$ m^2.
26) **Choice C is correct.** 7.G.4-7.G.6 Lateral area $= 2\pi rh \approx 2(3.14)(4)(5) = 125.6$ in^2.
27) **Choice A is correct.** 7.SP.1-7.SP.4 The phrase "Didn't you love" is leading language that biases respondents toward agreeing. This loaded wording introduces response bias in the survey question itself.
28) **The correct answer is** 15% **.** 7.RP.3 The discount amount is $60 - 51 = 9$ dollars. Percent discount: $\frac{9}{60} = 0.15 = 15\%$.
29) **Choice B is correct.** 7.SP.1-7.SP.4 If sleep is $33\% = 8$ hours, then the total day is $\frac{8}{0.33} \approx 24$ hours. School is 25% of $24 = 0.25 \times 24 = 6$ hours.
30) **Choice B is correct.** 7.SP.5-7.SP.8 For independent events: $P(6 \text{ AND heads}) = P(6) \times P(\text{heads}) = \frac{1}{6} \times \frac{1}{2} = \frac{1}{12}$.
31) **Choice C is correct.** 7.RP.3 Final price $= \$80 - (15\% \times \$80) = \$80 - \$12 = \$68$.

Hi, Thoughtful Reader!

◇ A strong Grade 7 test taker is also a strong reader. You practiced turning words, tables, graphs, and diagrams into math decisions. ◇

⋆ **Remember this:** That skill grows each time you slow down enough to ask what the problem is really telling you and what it is really asking for. This version gave you 7 opportunities to rehearse test-day habits. ⋆

Reader-to-Solver Skills

- **Circle the Ask:** Make the target visible.
- **Sort Information:** Separate useful facts from extra words.
- **Match Units:** Keep quantities connected.
- **Answer Fully:** Include the value and what it means.

Grade 7 test-day tip: After solving, reread only the final question. Make sure your answer matches it exactly.

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

Jay Daie

Your Reading-and-Math Helper

Practice Today. Succeed Tomorrow!

This book includes 7 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:

- **7** Full-Length Printed Tests
- **2** Online Practice Tests
- Detailed Answer 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

Stronger Math Skills
Build a solid foundation through targeted practice and review.

Better Problem Solving
Develop logical thinking and effective solution strategies.

Deeper Understanding
Reinforce key concepts with clear explanations and meaningful practice.

Test Confidence
Familiarize with test formats and improve accuracy and speed.

Achieve Success
Build confidence and perform your best on test day.

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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