

MISSOURI MAP

GRADE 8 MATH

PRACTICE TESTS

5

PRINTED
TESTS



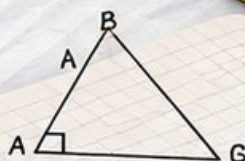
2

 ONLINE
TESTS

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



Use these two additional online practice tests for **extra review** after the printed tests in this book.



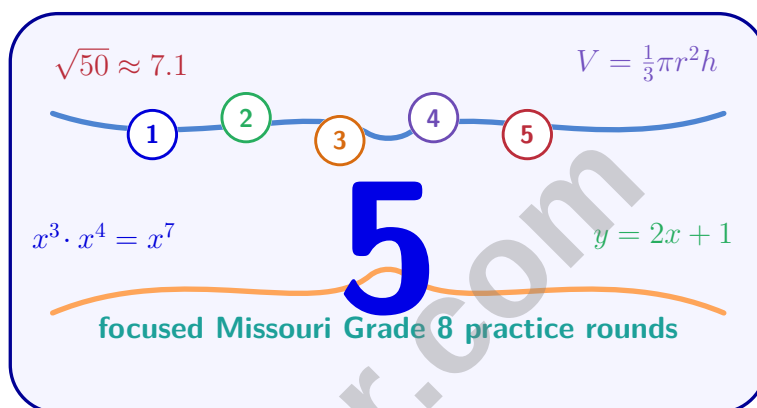
$$a^2 + b^2 = c^2$$



$$y = mx + b$$

5 Missouri MAP Grade 8 Math Practice Tests

Clear MAP Practice for Systems, Geometry, and Probability



Five complete 40-question Grade 8 MAP practice rounds with real numbers, exponents, scientific notation, equations, functions, transformations, geometry, data analysis, probability, answer keys, and clear explanations for every item.

Jay Daie and Reza Nazari



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Welcome, Missouri Grade 8 Problem Solver!

Five focused rounds for sharper MAP math thinking

This book gives you five full Grade 8 MAP math practice tests. Each round is built to help you recognize structure, reason with real numbers and exponents, analyze linear relationships, connect equations with graphs, and explain your thinking with care.

Your Missouri 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 8 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 an exponent rule, equation, graph, transformation, diagram, 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.

Missouri 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 MAP tests, 200 questions, and a focused review path

Part	What You Will Practice
Tests 1–2	Real numbers, exponents, scientific notation, equations, and careful reading.
Tests 3–5	Functions, systems, transformations, geometry, data analysis, and multi-step problem solving.
Answer Pages	Compact keys and explanations that show why each answer works.

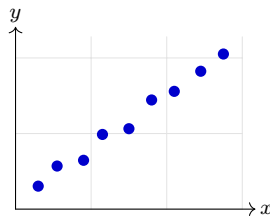
The tests are mixed on purpose. Grade 8 success means recognizing which idea is being tested even when the next question changes format.



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For more practice
& answers

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1)

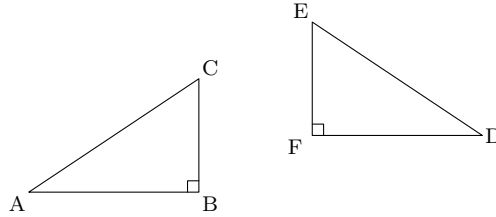
A scatter plot shows hours of sleep (x) versus cognitive test score (y) for a sample of college students. The relationship is strong and positive ($r = 0.88$). An advertisement claims: “**Buy our mattress; it will increase your test scores by 20 points!**” What is the logical flaw?

- ☐ A. Correlation coefficients cannot be negative
- ☐ B. College students do not sleep enough
- ☐ C. Strong correlation does not prove that the mattress causes better scores
- ☐ D. Sleep has no effect on test scores

- 2) A runner trains at 6 miles per hour. Write the equation $d = kt$ for distance d (miles) and time t (hours). What is k ?



- 3) Two congruent right triangles are positioned differently. Triangle 1 has a right angle at vertex B. Triangle 2 has a right angle at vertex F. What can you conclude?



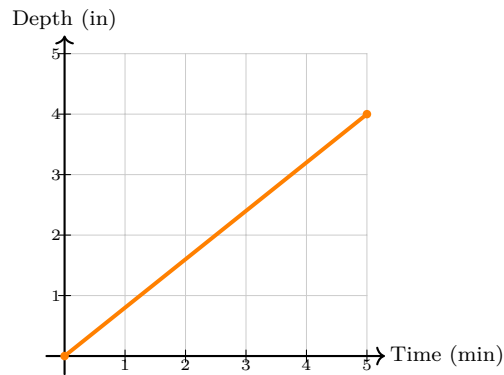
- ☐ A. The hypotenuses are different lengths
- ☐ B. The triangles have the same side lengths
- ☐ C. Triangle 1 is larger than Triangle 2
- ☐ D. The angles are all different
- 4) Use elimination to solve:
$$\begin{cases} 3x + 4y = 10 \\ 3x - 2y = 4 \end{cases}$$

- ☐ A. $(1, \frac{7}{4})$
- ☐ B. $(3, \frac{1}{4})$
- ☐ C. $(0, \frac{5}{2})$
- ☐ D. $(2, 1)$



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- 5) A graph shows depth of water versus time as a pool is filled.



What is the filling rate (slope)?

- ☐ A. $\frac{4}{5}$ inches per minute ☐ C. 4 inches per minute
☐ B. $\frac{5}{4}$ inches per minute ☐ D. 5 inches per minute
- 6) What two positive integers multiply to 12 and add to 7?

- 7) Tickets cost \$4 for children and \$7 for adults. The theater sold 200 tickets for a total of \$1,100. How many children's tickets were sold?

- ☐ A. 100 ☐ C. 50
☐ B. 150 ☐ D. 120



1) Which system represents two lines that intersect at exactly one point?

☐ A. $x = 2$ and $x = 2$

☐ B. $y = 4$ and $y = 4$

☐ C. $y = x + 1$ and $y = x + 3$

☐ D. $y = 2x + 1$ and $y = -x + 7$

2) Evaluate $(2x^3)^2$ when $x = 1$.

3) Function with slope 2 and y -intercept -5 is?

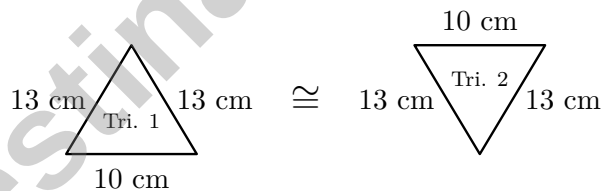
☐ A. $y = 2x - 5$

☐ B. $y = -5x + 2$

☐ C. $y = 2x + 5$

☐ D. $y = -2x - 5$

4) Two congruent isosceles triangles have equal bases but different orientations. Triangle 1 has base 10 cm and equal sides of 13 cm. What is the perimeter of Triangle 2?



☐ A. 26 cm

☐ B. 20 cm

☐ C. 36 cm

☐ D. 52 cm

5) A temperature drops 4 degrees every 2 hours. What is the slope?

☐ A. $\frac{1}{2}$ degrees per hour

☐ B. 4 degrees per hour

☐ C. 2 degrees per hour

☐ D. -2 degrees per hour



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6) A coffee shop has fixed costs of \$400 per day and variable costs of \$2 per cup sold. If cups sell for \$5 each, about how many cups must be sold to break even?

☐ A. 100 cups

☐ C. 134 cups

☐ B. 120 cups

☐ D. 160 cups

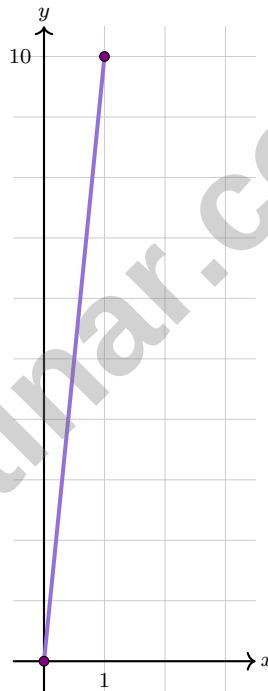
7) If $h(x) = -x + 4$, what is $h(1)$?

☐ A. 3

☐ C. -3

☐ B. 5

☐ D. 4



8)

The constant of proportionality is:

☐ A. 1

☐ C. 10

☐ B. 5

☐ D. 20



1) Which is the best estimate of $\frac{\pi}{2}$?

☐ A. 1.27

☐ C. 2.14

☐ B. 3.14

☐ D. 1.57

2) $F(c) = c + 273$ and G through $(0, 273)$ and $(100, 373)$. Which has greater slope?

☐ A. F

☐ C. Both same.

☐ B. G

☐ D. Cannot be determined.

3) Write 4.7×10^{-4} in decimal (standard) form.

4) What is $(-3)^{-2}$?

☐ A. $-\frac{1}{9}$

☐ C. $-\frac{9}{1}$

☐ B. 9

☐ D. $\frac{1}{9}$

5) Using $\sqrt{2} \approx 1.41$, estimate $3 + \sqrt{2}$ to the nearest hundredth.



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6) Which statement is true?

☐ A. $\sqrt[3]{8} = 2$ and $\sqrt[3]{27} = 3$

☐ B. $\sqrt{36} = 6$ and $\sqrt{64} = 7$

☐ C. $\sqrt{100} = 5$ and $\sqrt[3]{125} = 25$

☐ D. $\sqrt[3]{64} = 8$ and $\sqrt{144} = 11$

7) $(4.5 \times 10^{-6}) \times (2 \times 10^{-4}) = ?$

☐ A. 9×10^{-2}

☐ B. 6.5×10^{-10}

☐ C. 9×10^{-10}

☐ D. 9×10^{24}

8) Solve:
$$\begin{cases} y = \frac{1}{3}x + 2 \\ y = -\frac{2}{3}x + 5 \end{cases}$$

☐ A. $(2, 7/3)$

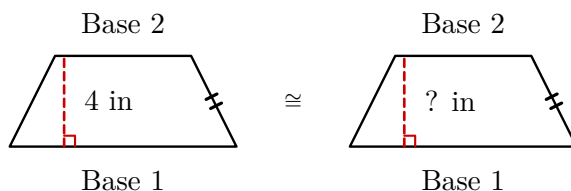
☐ B. $(4, 10/3)$

☐ C. $(1, 7/3)$

☐ D. $(3, 3)$

9) Which is smallest: $\sqrt{10}$, $\sqrt{19}$, or $\sqrt{35}$?

10) Two congruent trapezoids are shown with side length markings. Trapezoid 1 has a height of 4 inches. What is the height of Trapezoid 2?



☐ A. 2 inches

☐ B. 4 inches

☐ C. 8 inches

☐ D. Cannot be determined



Missouri MAP Grade 8 Practice Test Answer Keys**How to use this section with a Grade 8 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 Missouri MAP practice test.

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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice C is correct.** **(8.DSP.A.1)** Even a strong correlation ($r = 0.88$) only shows association. The mattress company confuses correlation with causation. Better test scores might result from healthier habits, nutrition, or academic motivation—not specifically the mattress.
- 2) **The correct answer is 6.** **(8.F.B.5)** The unit rate is 6 miles per hour, so $k = 6$ and $d = 6t$.
- 3) **Choice B is correct.** **(8.GM.A.2)** Since the triangles are congruent, all corresponding sides and angles are equal. Both have a right angle and the same three side lengths.
- 4) **Choice D is correct.** **(8.EEI.C)** Subtract the second from the first: $(3x + 4y) - (3x - 2y) = 10 - 4$, so $6y = 6$, giving $y = 1$. Substitute: $3x + 4(1) = 10$, so $x = 2$. Solution: $(2, 1)$.
- 5) **Choice A is correct.** **(8.F.B.4)** From $(0, 0)$ to $(5, 4)$: slope $= \frac{4 - 0}{5 - 0} = \frac{4}{5}$ inches per minute.
- 6) **The correct answer is $(3, 4)$.** **(8.EEI.C.7)** The integers 3 and 4 multiply to 12 and add to 7.
- 7) **Choice A is correct.** **(8.EEI.C.7)** Let c = children, a = adults. Then $c + a = 200$ and $4c + 7a = 1100$. Substitute $a = 200 - c$: $4c + 7(200 - c) = 1100$, so $-3c = -300$, $c = 100$.
- 8) **Choice C is correct.** **(8.F.A.1)** In function notation $f(20)$, the input is $t = 20$ minutes and the output is the distance. So $f(20)$ means the distance from home after 20 minutes of driving.
- 9) **Choice C is correct.** **(8.F.A.3)** Only $y = 6x - 9$ is in the form $y = mx + b$. Options A, B, and D involve exponents, reciprocals, or square roots, making them nonlinear.
- 10) **Choice A is correct.** **(8.F.B.4)** Slope: $m = \frac{5-1}{3-1} = \frac{4}{2} = 2$. Using point $(1, 1)$: $1 = 2(1) + b \Rightarrow b = -1$. Equation: $y = 2x - 1$.
- 11) **Choice D is correct.** **(8.F.B.5)** A zero of a function is a point where $f(x) = 0$, represented on a graph as an x -intercept (where the curve crosses the x -axis). Option A is a y -intercept, B is a maximum, C is undefined.
- 12) **Choice C is correct.** **(8.GM.A.3)** Under dilation by scale factor k , all lengths (including perimeter) are multiplied by k . So $20 \times 3 = 60$.
- 13) **Choice A is correct.** **(8.GM.B.7)** Adjacent angles on a straight line are supplementary: $123 + x = 180$, so $x = 57^\circ$.
- 14) **Choice A is correct.** **(8.GM.B.8)** Check: $15^2 + 20^2 = 225 + 400 = 625 = 25^2$. Yes, it's a Pythagorean triple (a multiple of 3-4-5).
- 15) **Choice A is correct.** **(8.GM.A.5)** Complementary angles sum to 90° . So the complement is $90 - 46 = 44^\circ$.
- 16) **Choice D is correct.** **(8.GM.C.9)** $500 = \frac{1}{3} \times 75 \times h \Rightarrow h = \frac{500 \times 3}{75} = \frac{1500}{75} = 20$ ft.
- 17) **Choice B is correct.** **(8.GM.C.9)** Rectangle area is $11 \times 7 = 77 \text{ cm}^2$. The removed quarter-circle area is $\frac{1}{4} \times 3.14 \times 7^2 = 38.465 \text{ cm}^2$. Remaining area is $77 - 38.465 = 38.535 \text{ cm}^2$.
- 18) **The correct answer is A,B.** **(8.EEI.A.3)** Division rule: divide coefficients ($6.4 \div 1.6 = 4$, choice A) and subtract exponents ($-3 - (-5) = 2$, choice B). This gives 4×10^2 . Choice C is wrong, choice D incorrectly adds exponents, and choice E has the wrong exponent sign.
- 19) **Choice B is correct.** **(8.GM.A.5)** The sum of exterior angles of any convex polygon is always 360° , regardless of shape or number of sides.
- 20) **Choice B is correct.** **(8.DSP.A.4)** Joint relative frequency: $\frac{72}{160} = 0.45$.
- 21) **Choice C is correct.** **(8.GM.B.8)** Option C describes the common error of confusing range with MAD. Option B correctly uses absolute value, and options A and D do not describe the range error.
- 22) **Choice A is correct.** **(8.EEI.A.1)** Independent events: $P(H \text{ and } 4) = P(H) \times P(4) = \frac{1}{2} \times \frac{1}{6} = \frac{1}{12}$.
- 23) **Choice B is correct.** **(8.NS.A.2)** Each of the 4 colors can pair with each of the 3 sizes: $4 \times 3 = 12$ total options.
- 24) **Choice A is correct.** **(8.GM.B.6, 8.GM.B.7)** The ramp surface is the hypotenuse of a right triangle: $\sqrt{3^2 + 4^2} = \sqrt{9 + 16} = \sqrt{25} = 5$ feet (the 3-4-5 triple).
- 25) **Choice D is correct.** **(8.F.B.5)** The data shows steep growth early, flattening near age 15–16. This reflects human biology: rapid growth during childhood and early teens, then plateauing as growth ends in adulthood.



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Hi, Persistent Problem Solver!

◇ Some Grade 8 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 8 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 8 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!

Give your child the confidence and skills they need with **5 full-length Grade 8 Math** practice tests that reflect real test formats and cover all key math standards. Perfect for building skills, strengthening problem-solving abilities, and achieving success on test day!



WHAT'S INSIDE?



Standards-Aligned Practice

Questions designed to cover essential Grade 8 math standards.



Variety of Question Types

Multiple-choice, short answer, and more to build well-rounded skills.



Real-World Applications

Engaging problems that connect math to everyday life.



Step-by-Step Progress

Track improvement and build confidence with every test.

COVERS ALL ESSENTIAL TOPICS

- | | |
|---------------------------------------|----------------------------|
| ✓ The Number System | ✓ Statistics & Probability |
| ✓ Expressions & Equations | ✓ Pythagorean Theorem |
| ✓ Ratios & Proportional Relationships | ✓ Volume & Surface Area |
| ✓ Linear Equations | ✓ Transformations |
| ✓ Functions | ✓ Inequalities |
| ✓ Geometry | ✓ Data Analysis & Graphing |
| ✓ Measurement & Data | ✓ And More! |

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