

6 Missouri MAP

GRADE 8 MATH PRACTICE TESTS

Standards Aligned Problem Solving For
Comprehensive Assessment Programs



6 PRINTED
TESTS



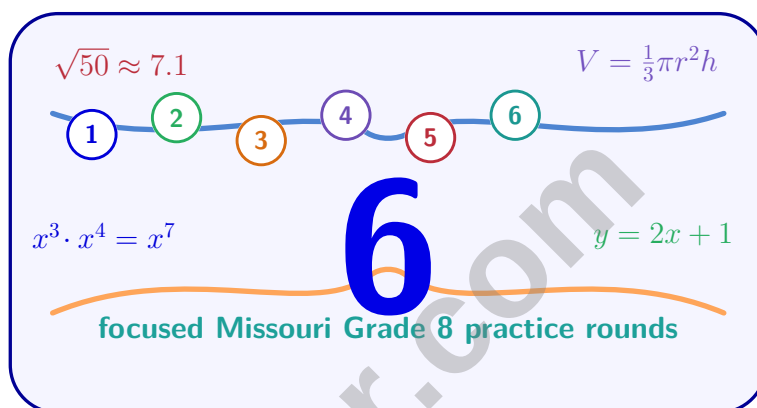
2 ONLINE
TESTS



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

6 Missouri MAP Grade 8 Math Practice Tests

State-Aligned Grade 8 Practice for Confidence, Accuracy, and Stamina



Six 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!

Six focused rounds for sharper MAP math thinking

This book gives you six 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 six-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?

Six MAP tests, 240 questions, and a complete review path

Part	What You Will Practice
Tests 1–3	Real numbers, exponents, scientific notation, equations, and careful reading.
Tests 4–6	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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1) Which expression is equivalent to $\frac{5^6}{5^2}$?

Expression	Value
A. 5^4	625
B. 5^3	125
C. 5^8	390,625
D. 5^{12}	244,140,625

☐ A. Option D

☐ C. Option C

☐ B. Option B

☐ D. Option A

2) Which number can be expressed as a fraction?

☐ A. $\sqrt{11}$
☐ C. $\frac{8}{3}$
☐ B. 2π
☐ D. $\sqrt{2} + 1$

3) A person compares two loans for \$2,000:

Loan	APR	Term
X	5%	2 years
Y	4%	3 years

If the person wants to minimize total borrowing cost, which loan is better?

☐ A. Need more information

☐ C. They cost the same

☐ B. Loan Y

☐ D. Loan X

4) Interest earned: Account X: $I(m) = 0.8m$ (monthly interest in dollars). Account Y at month 0: \$0, month 12: \$10. Which earns more annually (12 months)?

☐ A. Account X

☐ C. Both earn equal

☐ B. Account Y

☐ D. Cannot be determined


5) Which radicand gives a square root closest to 5.5?

☐ A. 25

☐ C. 33

☐ B. 28

☐ D. 30

6) Which of the following is a perfect cube?

☐ A. 200

☐ C. 180

☐ B. 150

☐ D. 125

7) The mass of an electron is about 9.1×10^{-31} kg. In which range does this fall?

☐ A. Between 0.1 and 1 kg

☐ C. Greater than 10^{-30} kg

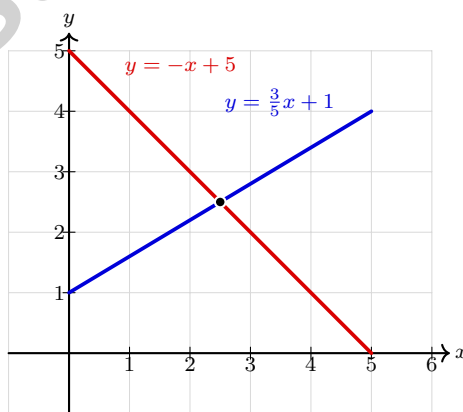
☐ B. Equal to 9.1 kg

☐ D. Between 10^{-32} and 10^{-30} kg

8) $\frac{\frac{8 \times 10^9}{2 \times 10^3}}{4 \times 10^2} = ?$

☐ A. 10^5
☐ C. 4×10^4
☐ B. 1×10^6
☐ D. 1×10^4

9) Look at the coordinate grid. Which system of equations has the solution shown by the intersection point?


☐ A. $y = \frac{3}{5}x + 1$ and $y = -x + 5$
☐ C. $y = \frac{3}{5}x - 1$ and $y = -x + 2$
☐ B. $y = \frac{3}{5}x$ and $y = x + 4$
☐ D. $y = \frac{3}{5}x + 2$ and $y = -x + 5$


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- 10) Hexagon ABCDEF is congruent to hexagon GHIJKL. In hexagon ABCDEF, the interior angles are: $120^\circ, 120^\circ, 120^\circ, 120^\circ, 120^\circ, 120^\circ$. Which of the following must be true about hexagon GHIJKL?

- ☐ A. All its angles are 90°
☐ D. Some of its angles are greater than 120°
☐ B. All its angles are 120°
☐ C. Its angles sum to 360°

- 11) A fitness trainer charges a client based on the number of sessions attended. The data table shows:

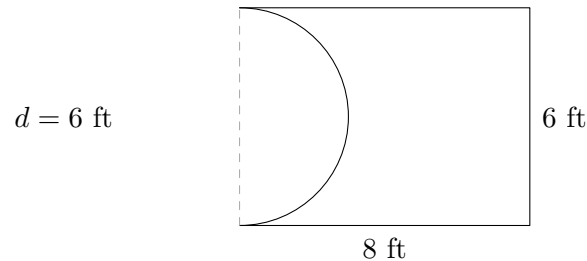
Sessions	2	5	8
Cost (\$)	60	150	240

What is the slope (cost per session)?

- ☐ A. \$30 per session
 ☐ C. \$20 per session
☐ B. \$60 per session
 ☐ D. \$150 per session
- 12) A father is currently 32 years older than his son. In 8 years, the father will be twice as old as the son. What is the son's current age?
- ☐ A. 16
 ☐ C. 24
☐ B. 20
 ☐ D. 28
- 13) Given $f(x) = x^2$ and $g(x) = 2x + 1$, which statement is true?
- ☐ A. $f(3) = g(3)$
☐ C. $f(3) < g(3)$
☐ B. $f(3) > g(3)$
☐ D. Cannot be determined



- 1) A student calculated the perimeter of a composite figure (semicircle on a rectangle) by adding dimensions: $8 + 6 + 8 + 6 + \pi \times 4 = 28 + 4\pi \approx 40.56$ ft. Which error did they make?



- ☐ A. Forgot to use the diameter, not radius.
☐ B. Double-counted the top of the rectangle where the semicircle attaches.
☐ C. Used perimeter formula instead of area.
☐ D. Calculated the radius as diameter.
- 2) A student says that if a cube is dilated by scale factor 3, the volume is multiplied by 3. Is this correct?
- ☐ A. Yes, volume always scales linearly
☐ B. No, volume is multiplied by 9
☐ C. No, volume is multiplied by 27
☐ D. No, the volume remains the same
- 3) Two variables have a negative correlation. Which scenario best matches this relationship?
- ☐ A. Years of education and age
☐ B. Speed of travel and time to reach a destination
☐ C. Height and weight for adults
☐ D. Foot length and shoe size



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4) Two-way table of 300 students by GPA level and tutoring status:

	Tutored	Not Tutored	Total
High GPA	60	90	150
Low GPA	80	70	150
Total	140	160	300

Is there evidence of an association between tutoring and GPA? Justify using relative frequencies.

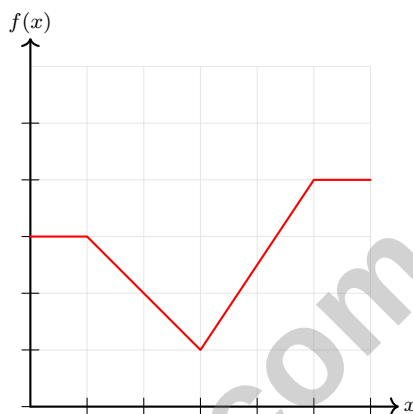
- ☐ A. No; both groups have identical relative frequencies for tutoring.
 ☐ C. No; the joint frequency $\frac{60}{300} = 0.20$ equals the product of marginals.
- ☐ B. Yes; high GPA students are tutored at $\frac{60}{150} = 0.40$, while low GPA at $\frac{80}{150} \approx 0.53$.
 ☐ D. Yes; 80 low-GPA students are tutored, compared to 60 high-GPA.
- 5) Compare the variability of two data sets: Data A: {8, 9, 10, 11, 12} (mean = 10) Data B: {5, 8, 10, 12, 15} (mean = 10) Which has greater variability? (*Calculate or estimate MAD for each.*)
- ☐ A. Cannot determine without more information
 ☐ C. Data A
- ☐ B. They have equal variability
 ☐ D. Data B
- 6) The probability that a student passes a test is $\frac{4}{5}$. What is the probability that the student does NOT pass?

- ☐ A. $\frac{1}{5}$
☐ C. $\frac{5}{4}$
- ☐ B. $\frac{4}{5}$
☐ D. $\frac{0}{5}$



1) What is the first difference for the sequence 5, 13, 21, 29?

- ☐ A. 8 (constant, so linear) ☐ D. Cannot be determined without the x -values
- ☐ B. 5 (not constant, so nonlinear)
- ☐ C. The differences vary, so nonlinear



2)

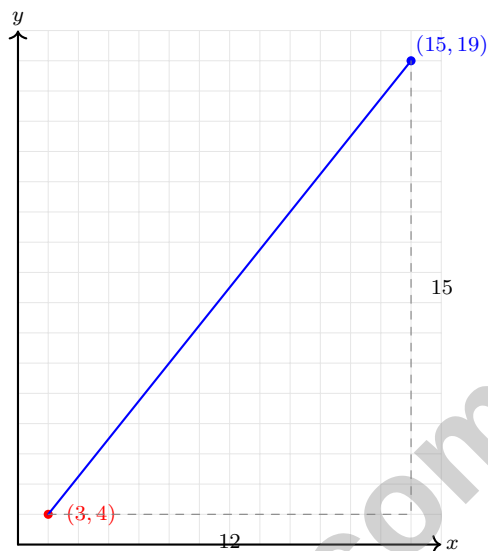
On which interval is the rate of change the most negative?

- ☐ A. From $x = 0$ to $x = 1$ ☐ C. From $x = 3$ to $x = 5$
- ☐ B. From $x = 1$ to $x = 3$ ☐ D. From $x = 5$ to $x = 6$



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- 3) A construction site has a diagonal brace from $(3, 4)$ to $(15, 19)$. What is the length of the brace (rounded to nearest unit)?



- ☐ A. 27 units ☐ C. 20 units
☐ B. 19 units ☐ D. 15 units
- 4) What is the sum of the interior angles of a decagon (10-sided polygon)?
- ☐ A. 1800° ☐ C. 1620°
☐ B. 1260° ☐ D. 1440°
- 5) A figure is dilated by a scale factor of 3. How does the length of each side change?
- ☐ A. Divided by 3 ☐ C. Unchanged
☐ B. Multiplied by 3 ☐ D. Increased by 3 inches



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 D is correct.** **(8.EE1.A.1)** $\frac{5^6}{5^2} = 5^{6-2} = 5^4 = 625$.
- 2) **Choice C is correct.** **(8.NS.A.1)** $\frac{8}{3}$ is already expressed as a fraction, so it is rational. All other options are irrational: $\sqrt{11}$ is a non-perfect-square root, 2π is an irrational multiple of π , and $\sqrt{2} + 1$ is an irrational plus a rational (still irrational).
- 3) **Choice D is correct.** **(8.EE1.B.6)** Loan X costs \$200 in interest; Loan Y costs \$240. Loan X is cheaper overall.
- 4) **Choice B is correct.** **(8.F.A.2)** $I_X(12) = 0.8(12) = 9.60$ dollars. Slope of Y: $(10 - 0)/12 \approx 0.833$ per month, so $I_Y(12) = 10$ dollars. Since $10 > 9.60$, Account Y earns more.
- 5) **Choice D is correct.** **(8.NS.A.2)** $(5.5)^2 = 30.25$. Since $\sqrt{30} \approx 5.48$ is closest to 5.5, the answer is 30.
- 6) **Choice D is correct.** **(8.EE1.B.6)** $125 = 5^3$. The other options are not perfect cubes.
- 7) **Choice D is correct.** **(8.EE1.A.1)** Since $-32 < -31 < -30$, we have $10^{-32} < 9.1 \times 10^{-31} < 10^{-30}$.
- 8) **Choice D is correct.** **(8.EE1.A.3)** First divide: $\frac{8 \times 10^9}{2 \times 10^3} = 4 \times 10^6$. Then divide again: $\frac{4 \times 10^6}{4 \times 10^2} = 1 \times 10^4$.
- 9) **Choice A is correct.** **(8.EE1.C)** The graph shows the lines $y = \frac{3}{5}x + 1$ (blue) and $y = -x + 5$ (red) intersecting at $(2.5, 2.5)$.
- 10) **Choice B is correct.** **(8.GM.A.2)** Since the hexagons are congruent, all corresponding angles are equal. Hexagon GHIJKL has the same angles as ABCDEF: $120^\circ, 120^\circ, 120^\circ, 120^\circ, 120^\circ, 120^\circ$. (Note: The interior angle sum of any hexagon is always 720° , so option C is incorrect.)
- 11) **Choice A is correct.** **(8.F.B.4)** Using $(2, 60)$ and $(5, 150)$: slope = $\frac{150 - 60}{5 - 2} = \frac{90}{3} = \30 per session.
- 12) **Choice C is correct.** **(8.EE1.C.7)** Let s = son's current age. Then father's age = $s + 32$. In 8 years: $s + 32 + 8 = 2(s + 8)$, so $s + 40 = 2s + 16$, giving $s = 24$ years.
- 13) **Choice B is correct.** **(8.F.A.1)** $f(3) = 3^2 = 9$ and $g(3) = 2(3) + 1 = 7$. Since $9 > 7$, we have $f(3) > g(3)$.
- 14) **Choice A is correct.** **(8.GM.C.9)** The student calculated the sum of the three different face areas but forgot to double each (since there are two of each face). The correct calculation is $SA = 2(12 + 8 + 6) = 52 \text{ m}^2$.
- 15) **Choice C is correct.** **(8.GM.A.1)** A 45° clockwise rotation tilts all sides by 45° downward. A horizontal side becomes a line sloping downward at 45° (parallel to $y = -x$ region).
- 16) **Choice D is correct.** **(8.NS.A.2)** $\frac{\sqrt{10}}{\sqrt{2}} = \sqrt{5} \approx 2.236$.
- 17) **Choice A is correct.** **(8.GM.B.8)** The line passes through $(0, 4)$ and $(3, 1)$, so slope = -1 and $y = -x + 4$. For $x = 1$, the equation gives $y = 3$, so $(1, 3)$ is on the line.
- 18) **The correct answer is A, C.** **(8.GM.A.4)** Correct: (A) Corresponding angles are congruent — definition of similarity. (C) Corresponding sides are proportional — they scale by a constant factor k . Incorrect: (B) Equal length is congruence, not similarity. (D) Congruence requires equality; similarity allows scaling. (E) Scale factor can be any positive number; $k < 1$ is a reduction, still similarity.
- 19) **Choice D is correct.** **(8.EE1.C.7)** Subtract 7: $-4y = 8$. Divide by -4 : $y = -2$.
- 20) **The correct answer is 2.** **(8.F.B.5)** The largest absolute value among the residuals is 2.
- 21) **Choice D is correct.** **(8.EE1.C.7)** Multiply by 2: $3x - 6 < 12$. Add 6: $3x < 18$. Divide by 3: $x < 6$.
- 22) **Choice B is correct.** **(8.EE1.C.7)** For $y < x + 2$, the y values are LESS than the line, so shade BELOW. The dashed line is correct for the strict inequality $<$.
- 23) **Choice A is correct.** **(8.GM.C)** Cylinder A: $V_A = \pi \times 16 \times 10 = 160\pi$. For equal volumes: $160\pi = \pi \times 25 \times h_B \Rightarrow h_B = \frac{160}{25} = 6.4 \text{ m}$.
- 24) **The correct answer is 0.7.** **(8.EE1.A.1)** Total: 10 marbles. Not blue: $5 + 2 = 7$. $P(\text{not blue}) = \frac{7}{10} = 0.7$.
- 25) **Choice A is correct.** **(8.DSP.A.3)** Slope: $\frac{5-2}{5-1} = \frac{3}{4}$. Using point $(1, 2)$: $2 = \frac{3}{4}(1) + b \Rightarrow b = \frac{5}{4}$.
- 26) **Choice D is correct.** **(8.F.B.5)** A proportional equation has the form $y = kx$ (passes through origin, no constant term). Only $y = -5x$ fits this form.



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You Know More Than You Think

Hi, Skilled Learner!

◇ After working through Grade 8 practice, you now have more tools than you may realize: models, formulas, graphs, equations, and reasoning habits. ◇

★ **Remember this:** The next step is learning when to use each tool. That comes from practice, review, and the courage to try a method even when you are unsure. This version gave you 6 opportunities to rehearse test-day habits. ★

Tools You Can Use

- **Models:** Make relationships visible.
- **Equations:** Represent unknowns clearly.
- **Graphs:** Show change and location.
- **Formulas:** Organize measurement problems.

Grade 8 test-day tip: Before solving, name the tool you plan to use. That small choice makes your work more intentional.

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

Jay Daie

Your Skill-Building Coach

PRACTICE TODAY. ACHIEVE TOMORROW.

6

Give your child the confidence and skills they need with **6 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 |
| | ✓ And More! |



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