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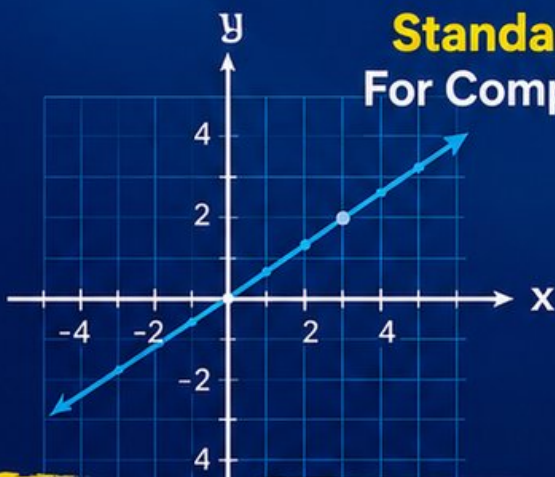
Missouri
MAP

Grade 8

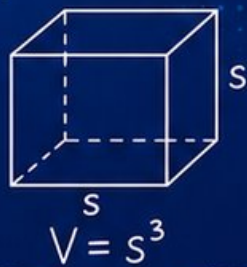
MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs



$$2x + 3y = 12$$
$$y = mx + b$$



**9 PRINTED
TESTS**

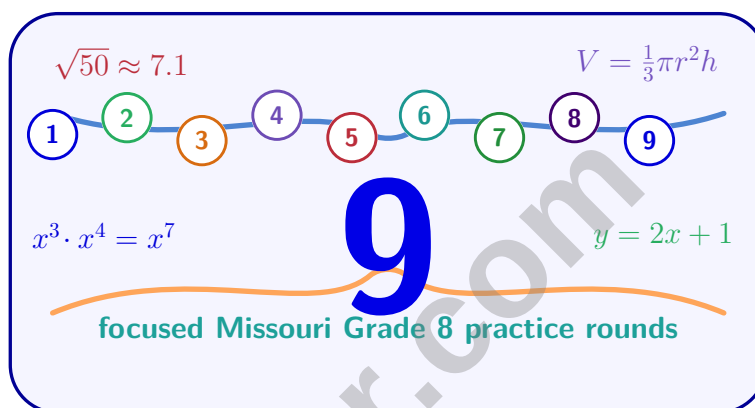


**2 ONLINE
TESTS**

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

9 Missouri MAP Grade 8 Math Practice Tests

Purposeful Missouri Grade 8 Math Prep for Reasoning, Modeling, and Problem Solving



Nine 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!

Nine focused rounds for sharper MAP math thinking

This book gives you nine 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 nine-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?

Nine MAP tests, 360 questions, and a complete review path

Part	What You Will Practice
Tests 1–3	Real and irrational numbers, integer exponents, scientific notation, equations, and careful reading.
Tests 4–6	Slope, systems of equations, functions, inequalities, transformations, congruence, and similarity.
Tests 7–9	Pythagorean reasoning, volume, data analysis, linear models, probability, mixed review, and stamina.
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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& answers

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1) Which best approximates $\sqrt{50}$?

☐ A. 6.5

☐ C. 5.0

☐ B. 7.5

☐ D. 7.1

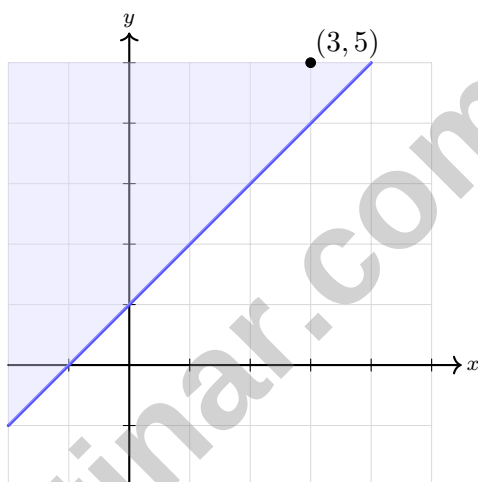
2) When a point is reflected across the y -axis, which coordinate(s) change?

☐ A. Only the x -coordinate

☐ C. Both x and y change

☐ B. Only the y -coordinate

☐ D. Neither coordinate changes



3)

The graph shows a solid line and shading above. The point $(3, 5)$ is marked in the shaded region. Which inequality is represented?

☐ A. $y > x + 1$

☐ C. $y < x + 1$

☐ B. $y \geq x + 1$

☐ D. $y \leq x + 1$



- 4) Explain why 10^5 is 100 times greater than 10^3 . Use exponents in your reasoning.

- 5) Which deposit would earn more interest after 2 years at 5% simple interest?

- ☐ A. \$1,000 ☐ C. \$2,000
☐ B. \$1,500 ☐ D. \$2,500

- 6) Which expression equals 2^{10} ?

- ☐ A. $2^5 + 2^5$ ☐ C. $(2^5)^2$
☐ B. $2^6 + 2^4$ ☐ D. $2^{15} \div 2^6$

- 7) Three stores sell apples. Store A: 3 pounds for \$6. Store B: 5 pounds for \$11. Store C: 2 pounds for \$5. Which store has the lowest unit price?

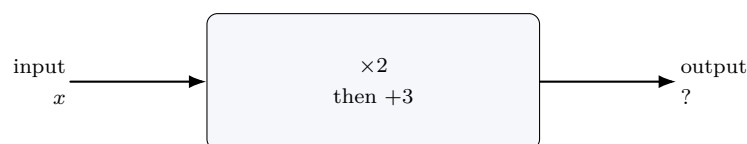
- ☐ A. Store C (\$2.50 per pound) ☐ C. Store A (\$2 per pound)
☐ B. Store B (\$2.20 per pound) ☐ D. Store A and Store B are the same

- 8) Convert $0.454545 \dots$ to a fraction in simplest form.



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- 9) A taxi charges a base fare of \$3 plus \$2 per mile. The equation $y = 2x + 3$ represents the total fare y for x miles. What does the slope 2 represent?
- ☐ A. The base fare ☐ C. The total number of miles
☐ B. The minimum fare ☐ D. The charge per mile
- 10) A student writes the equation $2x + 3 = 2x + 3$ and claims it has no solutions. Is the student correct? Explain.
- ☐ A. Yes; the equation simplifies to $0 = 0$, which is impossible ☐ C. No; the equation is an identity with infinitely many solutions
☐ B. No; the equation has one unique solution ☐ D. Cannot determine without solving
- 11) Solve: $-3x + 8 < 2$
- ☐ A. $x > 2$ ☐ C. $x > -2$
☐ B. $x < 2$ ☐ D. $x < -2$
- 12) Expand $(2x - 5)(3x - 2)$.
- ☐ A. $5x^2 - 19x + 10$ ☐ C. $6x^2 - 4x - 15x - 10$
☐ B. $6x^2 - 10$ ☐ D. $6x^2 - 19x + 10$
- 13) A function machine multiplies the input by 2 and adds 3. If the input is x , what is the output?

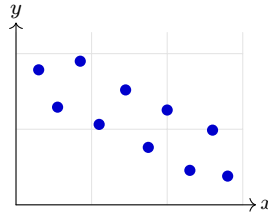


- ☐ A. $2x + 3$ ☐ C. $3x + 2$
☐ B. $2(x + 3)$ ☐ D. $x + 5$



- 1) Among 180 volunteers at an event, 108 are adults and 72 are youth. Of the adults, 81 worked the morning shift. What is the relative frequency of morning-shift workers among adults?

- ☐ A. 0.45 ☐ C. 0.75
☐ B. 0.60 ☐ D. 0.85



2)

A researcher studies the relationship between screen time (hours/day) and grade point average (GPA 0–4.0) for high school students. The scatter plot shows weak negative correlation ($r = -0.35$) with substantial scatter. The researcher writes: **“The data show that screen time weakly causes lower GPAs.”** Which phrase in this statement is incorrect?

- ☐ A. *screen time* ☐ C. *weakly*
☐ B. *lower GPAs* ☐ D. *causes*

- 3) A square pyramid with base edge 10 m has a volume of 500 m^3 . What is its height?

- ☐ A. 5 m ☐ C. 15 m
☐ B. 10 m ☐ D. 20 m

- 4) An irregular octagon is decomposed into a rectangle (12 m by 8 m) with four congruent right triangles attached to each side (each 2 m by 2 m). What is the total area?

- ☐ A. 96 m^2 ☐ C. 112 m^2
☐ B. 104 m^2 ☐ D. 128 m^2



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5) Consider the data: $\{3, 6, 9, 12\}$ (mean = 7.5). What is the MAD?

☐ A. 2

☐ C. 3.75

☐ B. 3

☐ D. 4.5

6) A school is electing a president, vice-president, and treasurer from 9 candidates. How many ways can these positions be filled?

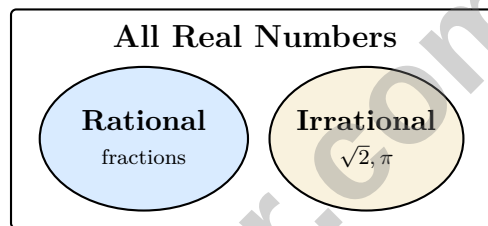
☐ A. $9 + 8 + 7 = 24$

☐ C. $\binom{9}{3} = 84$

☐ B. $9 \times 8 \times 7 = 504$

☐ D. $9^3 = 729$

Venn Diagram



7)

Which number belongs in the Irrational circle?

☐ A. -4 (negative integer)

☐ C. $\sqrt{23}$ (square root)

☐ B. $\frac{7}{9}$ (fraction)

☐ D. 2.25 (decimal)

8) Convert $0.\overline{142857}$ (6-digit repeat) to a fraction.

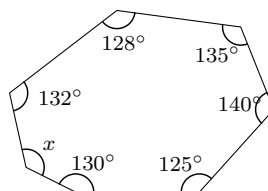
☐ A. $\frac{1}{6}$

☐ C. $\frac{142857}{99999}$

☐ B. $\frac{142857}{100000}$

☐ D. $\frac{142857}{999999} = \frac{1}{7}$





1)

A heptagon has six interior angles: 130° , 125° , 140° , 135° , 128° , 132° . Find the seventh angle.

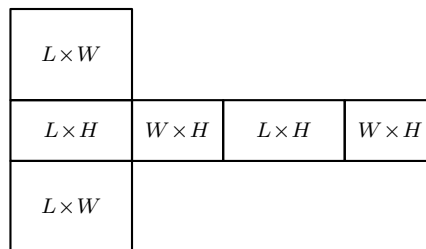
☐ A. 100° ☐ C. 110° ☐ B. 105° ☐ D. 115°

2) Calculate $\frac{9.6 \times 10^8}{3.2 \times 10^5}$ and express in scientific notation.

3) A proportional relationship passes through $(0, 0)$ and $(3, 12)$. What is the constant of proportionality k ? (Give your answer as a simplified fraction or decimal.)



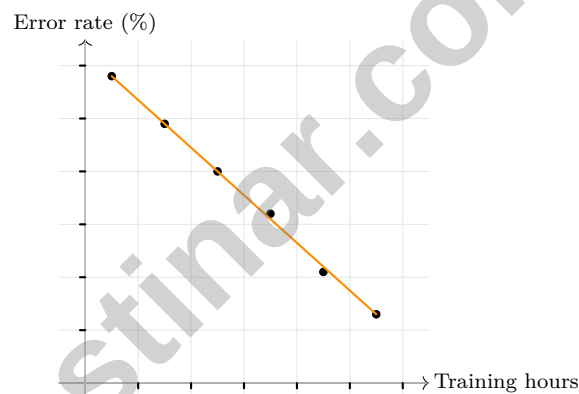
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4) Net of a rectangular prism

A rectangular prism has dimensions 4 cm (L) $\times$ 3 cm (W) $\times$ 2 cm (H). If we unfold it into a net, how many faces does the net show?

- ☐ A. 3 faces ☐ C. 6 faces
☐ B. 4 faces ☐ D. 8 faces



5)

A training program finds error rate follows $E = -0.9t + 6$, where E is error rate (

- ☐ A. Error rate increases as training time increases ☐ C. Error rate stays constant regardless of training
☐ B. Error rate decreases as training time increases ☐ D. Training has no effect on errors



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.NS.A.2)** $7^2 = 49$ and $8^2 = 64$. Since 50 is just above 49, $\sqrt{50} \approx 7.07$, closest to 7.1 (not 7.5).
- 2) **Choice A is correct.** **(8.GM.A.1)** Reflection across the y -axis uses the rule $(x, y) \rightarrow (-x, y)$. Only the sign of x changes; the y -coordinate stays the same. (Coordinate swapping is reflection across $y = x$, not the y -axis.)
- 3) **Choice B is correct.** **(8.EE1.C.7)** The solid line (boundary included) with shading ABOVE indicates $y \geq x + 1$. Verify: $(3, 5)$ gives $5 \geq 3 + 1 = 4$ ✓ TRUE.
- 4) **The correct answer is 100.** **(8.EE1.A.1)** When dividing powers with the same base, subtract the exponents. $10^{5-3} = 10^2$, and $10^2 = 100$, so 10^5 is 100 times larger than 10^3 .
- 5) **Choice D is correct.** **(8.EE1.B.6)** At 5% over 2 years, higher principal earns more interest: $I = P \times 0.05 \times 2 = 0.1P$. Largest P is \$2,500.
- 6) **Choice C is correct.** **(8.EE1.A.1)** $(2^5)^2 = 2^{5 \cdot 2} = 2^{10}$. The other choices do not simplify to 2^{10} .
- 7) **Choice C is correct.** **(8.F.B.5)** Store A: $6/3 = 2$ per pound. Store B: $11/5 = 2.20$ per pound. Store C: $5/2 = 2.50$ per pound. Store A is cheapest.
- 8) **The correct answer is $\frac{5}{11}$.** **(8.NS.A.1)** Let $x = 0.454545 \dots$. Then $100x = 45.454545 \dots$, so $99x = 45$ and $x = \frac{45}{99} = \frac{5}{11}$.
- 9) **Choice D is correct.** **(8.GM.B.8)** In the context of a linear equation, the slope represents the rate of change. Here, the fare increases by \$2 for each additional mile.
- 10) **Choice C is correct.** **(8.EE1.C.7)** Both sides are identical $(2x + 3 = 2x + 3)$, so the equation is true for all values of x . This is an identity, not "no solution."
- 11) **Choice A is correct.** **(8.EE1.C.7)** Subtract 8: $-3x < -6$. Divide by -3 (FLIP): $x > 2$.
- 12) **Choice D is correct.** **(8.EE1.C.7)** FOIL: $(2x - 5)(3x - 2) = 6x^2 - 4x - 15x + 10 = 6x^2 - 19x + 10$.
- 13) **Choice A is correct.** **(8.F.A.1)** Multiply by 2 first: $2x$. Then add 3: $2x + 3$.
- 14) **Choice B is correct.** **(8.F.A.2)** A rate: 0.15. B rate: $(80 - 55)/(200 - 100) = 25/100 = 0.25$. Since $0.25 > 0.15$, B is higher.
- 15) **Choice B is correct.** **(8.F.A.3)** The differences are $120 - 60 = 60$, $180 - 120 = 60$, $240 - 180 = 60$. Constant differences mean this is a linear relationship with a speed of 60 mi/h.
- 16) **Choice B is correct.** **(8.F.B.4)** Slope: $\frac{16-12}{2-0} = \frac{4}{2} = 2$ cm/week. (Or: from week 0 to 4, height goes from 12 to 20, a change of 8 cm in 4 weeks = 2 cm/week.)
- 17) **Choice B is correct.** **(8.GM.A.3)** The orange rectangle has width 2; the purple has width 1. Scale factor is $\frac{1}{2}$.
- 18) **Choice A is correct.** **(8.GM.B.7)** Sum of angles in a triangle is 180° . Solve: $180 - 55 - 68 = 57^\circ$.
- 19) **The correct answer is A,E.** **(8.GM.C)** A is true because $V = 3.14(4^2)(10) = 502.4 \text{ cm}^3$. E is true because a cone's volume is one-third the volume of a cylinder with the same base and height. B is false because the sphere's volume is about 267.95 cm^3 , not the cylinder volume. C is false because the cone's volume with height 10 cm is about 167.47 cm^3 . D is false because a cylinder with height 6 cm has volume 301.44 cm^3 , which is greater than the sphere volume.
- 20) **Choice D is correct.** **(8.EE1.B.6)** $\sqrt{4} = 2$. The other choices do not equal 2: $\sqrt[3]{9} \neq 2$, $\sqrt{16} = 4$, and $\sqrt[3]{4} \neq 2$.
- 21) **Choice D is correct.** **(8.EE1.A.3)** Same exponents: $(5.2 - 1.5) \times 10^6 = 3.7 \times 10^6$.
- 22) **Choice C is correct.** **(8.EE1.C)** Add the equations to eliminate y : $(2x + y) + (x - y) = 7 + 2$, so $3x = 9$, giving $x = 3$. Substitute: $3 - y = 2$, so $y = 1$. Solution: $(3, 1)$.
- 23) **Choice B is correct.** **(8.F.B.5)** A flat section means the function is constant, so the temperature does not change. This occurs from noon to 6pm.
- 24) **Choice B is correct.** **(8.GM.A.2)** Congruent figures have equal corresponding sides. Since both octagons have 8 sides of 5 cm each, both have perimeter $8 \times 5 = 40$ cm.
- 25) **Choice C is correct.** **(8.GM.B.6, 8.GM.B.7)** Using the Pythagorean Theorem: $7^2 + 24^2 = 49 + 576 = 625$, so $c = 25$ (the 7-24-25 triple).
- 26) **The correct answer is $\frac{1}{3}$.** **(8.NS.A.1)** Let $x = 0.\overline{3}$. Then $10x = 3.\overline{3}$, so $9x = 3$ and $x = \frac{1}{3}$.
- 27) **Choice A is correct.** **(8.GM.B.8)** Since both points have the same x -coordinate, the distance is simply the difference in y -coordinates: $|9 - 1| = 8$.



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One Last Encouragement

Hi, Determined Student!

◇ You did meaningful Grade 8 practice. That matters because confidence is built through action, not waiting until everything feels easy. This high-stamina book gave you nine substantial Grade 8 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. ◇

★ **Remember this:** Carry this with you: you can learn hard things by breaking them into steps, asking good questions, and reviewing with honesty. ★

Take This With You

- **You Can Start:** Even when the problem looks big.
- **You Can Adjust:** When the first method is not enough.
- **You Can Learn:** From every corrected mistake.
- **You Can Improve:** One practice session at a time.

Grade 8 test-day tip: Walk into test day ready to think, not ready to be perfect. Thinking clearly is the goal.

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

Jay Daie

Your Grade 8 Math Friend

CONFIDENCE TODAY, SUCCESS TOMORROW!

GRADE

8

Help your child excel in math with **9 full-length Grade 8 practice tests** designed to reflect real test formats and cover all key math standards.

With a wide variety of questions and real-world applications, this book builds the skills and confidence students need to achieve their best!



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.



Build Skills & Boost Confidence

Strengthen understanding and feel prepared for test day.

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! |



2 Extra Online Practice Tests Included!

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

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Testinar

More Practice. More Confidence.
Better **Results**.