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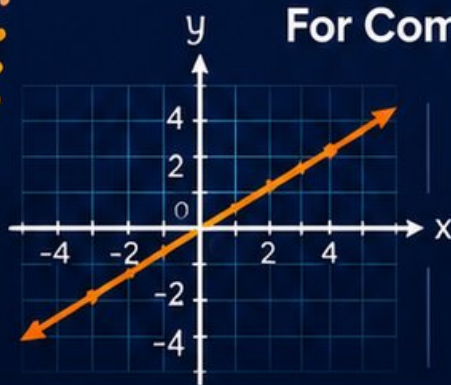
Missouri MAP

GRADE 8

MATH

PRACTICE TESTS

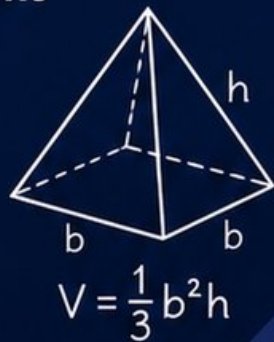
Standards Aligned Problem Solving
For Comprehensive Assessment Programs



$$A = \pi r^2$$

$$C = 2\pi r$$

$$V = \frac{1}{3}\pi r^2 h$$



8 PRINTED
TESTS



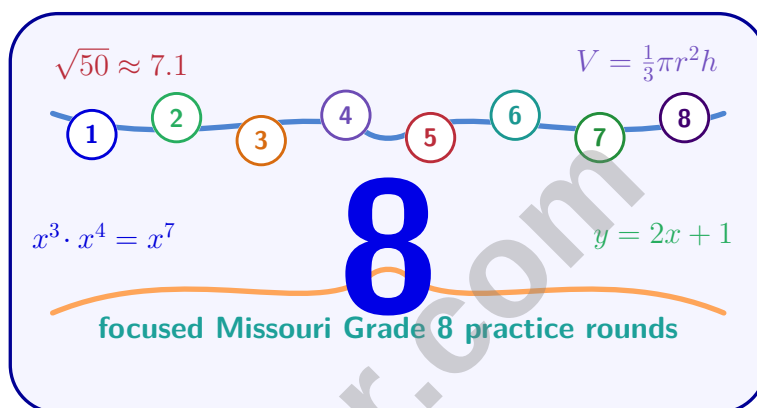
2 ONLINE
TESTS



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

8 Missouri MAP Grade 8 Math Practice Tests

Missouri Practice for Equations, Functions, Geometry, and Data



Eight 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!

Eight focused rounds for sharper MAP math thinking

This book gives you eight 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

An eight-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?

Eight MAP tests, 320 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 7–8	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.



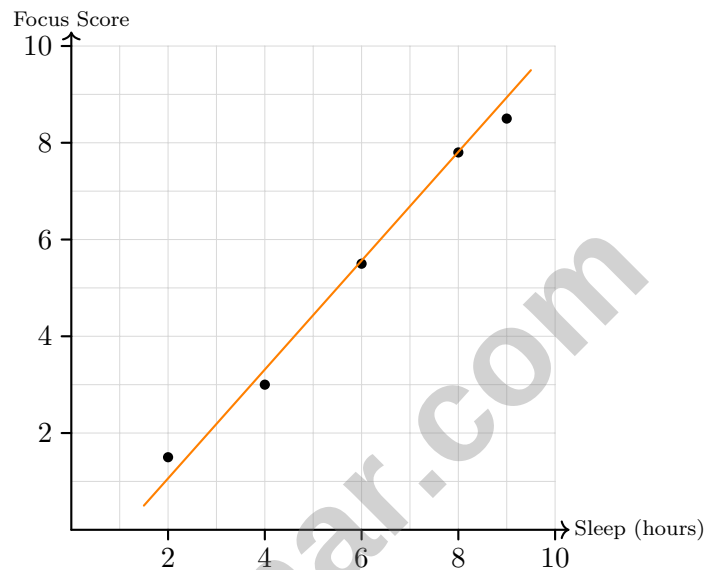
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- 1) If a square has side length $(x + 3)$, and a smaller square inside has side length $(x - 3)$, what is the difference in their areas?

- ☐ A. 6 ☐ C. $12x$
☐ B. 9 ☐ D. x^2



2)

Based on the trend line, if a student sleeps 7 hours, what is the predicted focus score?

- ☐ A. Approximately 5 ☐ C. Approximately 7
☐ B. Approximately 6 ☐ D. Approximately 8

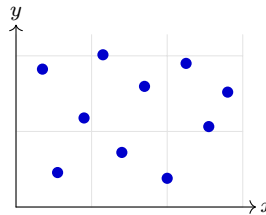
- 3) Four angles are formed at the intersection of two lines. If one angle measures b° , which expression represents the sum of the measures of the other three angles?

- ☐ A. b ☐ C. $360 - b$
☐ B. $180 - b$ ☐ D. $540 - b$



- 4) A square prism and a square pyramid have the same base side length (5 cm) and height (15 cm). How many times larger is the prism's volume than the pyramid's?

- ☐ A. 1.5 times ☐ C. 3 times
☐ B. 2 times ☐ D. 5 times



5)

A scatter plot shows two variables with points scattered randomly in all directions with absolutely no visible trend or pattern. What does this indicate about the relationship between the variables?

- ☐ A. No correlation ☐ C. Strong negative correlation
☐ B. Strong positive correlation ☐ D. Perfect linear relationship

- 6) A survey of 240 shoppers by age group and purchase type:

	Apparel	Electronics	Total
Teen	48	32	80
Adult	72	88	160
Total	120	120	240

What is the joint relative frequency of teens buying electronics, as a percentage?

- ☐ A. $\approx 13\%$ ☐ C. $\approx 33\%$
☐ B. $\approx 27\%$ ☐ D. $\approx 40\%$



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7) A data set with 10 values has $MAD = 0$, and all values are 100. If one value changes from 100 to 120, what is the new MAD?

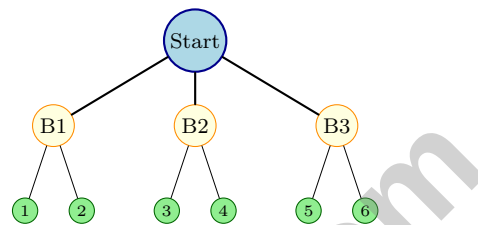
☐ A. 0

☐ C. 3.6

☐ B. 2

☐ D. Cannot be determined

8) A tree diagram shows that a choice has 3 branches first, then each branch splits into 2 more branches. How many final outcomes are there?


☐ A. $3 + 2 = 5$
☐ C. $3^2 = 9$
☐ B. $3 \times 2 = 6$
☐ D. $2^3 = 8$

9) Which is the best estimate of 4π ?

☐ A. 8.0

☐ C. 12.56

☐ B. 10.56

☐ D. 14.0

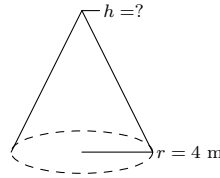
10) The product of two irrational numbers is:

☐ A. Always rational

☐ C. Could be either rational or irrational

☐ B. Always irrational

☐ D. Always negative

1)

A cone has a base radius of 4 m and volume of 201.06 m^3 . What is its height? (Use $\pi \approx 3.14$.)

☐ A. 12 m☐ C. 18 m☐ B. 15 m☐ D. 24 m

2) A teacher records the height (in cm) of each student. Does the height function have more inputs or more outputs?

☐ A. More inputs, because each student maps to a height.☐ C. Equal numbers, since the domain and range must match.☐ B. More outputs, because height can vary.☐ D. It depends on the specific students in the class.

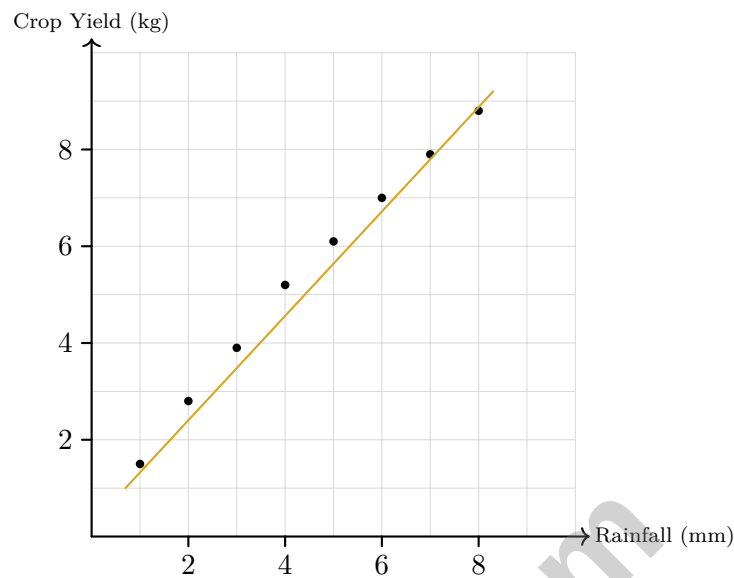
3) A store sells items for \$8 each and charges a flat shipping fee of \$12. The total cost C for n items is represented by which function?

☐ A. $C = 8n + 12$ ☐ C. $C = 20n$ ☐ B. $C = 12n + 8$ ☐ D. $C = 8n - 12$

4) A rectangular field is 70 meters long and 24 meters wide. A diagonal path crosses from one corner to the opposite corner. How many meters shorter is the diagonal path than walking the length and width?

☐ A. 46 m☐ C. 50 m☐ B. 20 m☐ D. 94 m

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5)

In a study of rainfall and crop yield, the trend line shows a positive relationship. How much would yield increase for every 1 mm increase in rainfall?

- ☐ A. Between 1 and 2 kg ☐ C. Between 2 and 3 kg
☐ B. Less than 1 kg ☐ D. More than 3 kg

6) Under which transformation would the image of a point (x, y) always lie on the opposite side of the origin from the original point?

- ☐ A. Reflection across the x -axis ☐ C. 180° rotation about the origin
☐ B. Reflection across the y -axis ☐ D. Translation 5 units right

7) A car's fuel consumption model is $M = -0.05d + 35$, where M is miles per gallon and d is driving distance in hundreds of miles. What does the slope of -0.05 tell you?

- ☐ A. The car uses 0.05 gallons per mile ☐ C. For every 100 miles driven (1 unit of d), MPG decreases by 0.05
☐ B. The car starts with 35 gallons at $d = 0$ ☐ D. The car loses 0.05 MPG for every gallon used

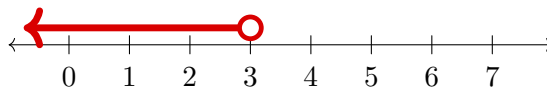


- 1) An electrician charges \$50 for a service call and \$35 per hour. A customer's bill comes to \$225. How many hours did the electrician work?
- ☐ A. 4 hours ☐ C. 6 hours
☐ B. 5 hours ☐ D. 7 hours
- 2) Two figures are related by a 90° counterclockwise rotation about the origin. If the pre-image has a side parallel to the x -axis, what is true about the corresponding side in the image?
- ☐ A. It is also parallel to the x -axis ☐ C. It forms a 45° angle with the axes
☐ B. It is parallel to the y -axis ☐ D. Its length becomes half
- 3) A line passes through $(0, 2)$ and $(1, 4)$. The inequality with this solid boundary line and shading above is:
- ☐ A. $y < 2x + 2$ ☐ C. $y \leq 2x + 2$
☐ B. $y > 2x + 2$ ☐ D. $y \geq 2x + 2$
- 4) The equation $2x - y = 4$ can be rewritten in slope-intercept form as:
- ☐ A. $y = 2x - 4$ ☐ C. $y = 2x + 4$
☐ B. $y = -2x - 4$ ☐ D. $y = x - 2$
- 5) What is the solution to $9 - x = 4$?
- ☐ A. $x = 5$ ☐ C. $x = 13$
☐ B. $x = -5$ ☐ D. $x = 36$



- 6) A holiday savings club requires \$50 monthly deposits for 12 months with no interest. What is the total saved?

- 7) Solve: $x + 7 < 10$. Which number line shows the solution?



- ☐ A. $x < 3$
☐ C. $x \leq 3$
- ☐ B. $x > 3$
☐ D. $x \geq 3$
- 8) Factor $4x^2 - 9$.
- ☐ A. $(2x - 3)(2x + 3)$
☐ C. $(2x - 3)^2$
- ☐ B. $(4x - 9)(x + 1)$
☐ D. $(x - 3)(4x + 3)$
- 9) Of the following, which set contains a repeated input with different outputs?
- ☐ A. $\{(2, 3), (2, 5), (3, 4)\}$
☐ C. $\{(4, 1), (5, 2), (6, 3)\}$
- ☐ B. $\{(1, 5), (2, 5), (3, 5)\}$
☐ D. $\{(7, 2), (8, 2), (9, 2)\}$
- 10) Function f : “starts at 5, increases by 3 each unit.” Function g given in table: (0, 10), (1, 12), (2, 14). Which has the greater y -intercept?

x	0	1	2
$g(x)$	10	12	14

- ☐ A. Function f
☐ C. Both same.
- ☐ B. Function g
☐ D. Cannot compare.



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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.EE1.C.7) Difference of squares: $(x+3)^2 - (x-3)^2 = [(x+3) + (x-3)][(x+3) - (x-3)] = (2x)(6) = 12x$.
- 2) **Choice C is correct.** (8.F.B.5) Reading from the trend line at $x = 7$, the corresponding y -value is just under 7, so the best estimate is approximately 7.
- 3) **Choice C is correct.** (8.GM.A.5) Four angles around an intersection point sum to 360° . If one angle is b , the sum of the other three is $360 - b$.
- 4) **Choice C is correct.** (8.GM.C.9) Prism: $V_p = B \times h = 25 \times 15 = 375 \text{ cm}^3$. Pyramid: $V_{py} = \frac{1}{3} \times 25 \times 15 = 125 \text{ cm}^3$. Ratio: $\frac{375}{125} = 3$.
- 5) **Choice A is correct.** (8.DSP.A.1) Points scattered randomly with no visible trend or pattern indicate no correlation between the variables. There is no identifiable relationship.
- 6) **Choice A is correct.** (8.DSP.A.4) Joint relative frequency: $\frac{32}{240} \approx 0.133 \approx 13\%$. Cell count divided by grand total.
- 7) **Choice C is correct.** (8.GM.B.8) The new mean is $\frac{9(100)+120}{10} = 102$. The nine values of 100 are each 2 from the mean, and 120 is 18 from the mean. The MAD is $\frac{9(2)+18}{10} = 3.6$.
- 8) **Choice B is correct.** (8.NS.A.2) Each of the 3 initial branches splits into 2 outcomes: $3 \times 2 = 6$ final outcomes.
- 9) **Choice C is correct.** (8.NS.A.2) $4\pi \approx 4 \times 3.14 = 12.56$.
- 10) **Choice C is correct.** (8.NS.A.1) For example, $\sqrt{2} \times \sqrt{8} = \sqrt{16} = 4$ (rational), but $\sqrt{2} \times \sqrt{3} = \sqrt{6}$ (irrational). So the product can be either.
- 11) **Choice D is correct.** (8.NS.A.1) Let $x = 0.\overline{12} = 0.1222\dots$. Then $10x = 1.\overline{2}$ and $100x = 12.\overline{2}$. Subtracting: $90x = 11$, so $x = \frac{11}{90}$.
- 12) **The correct answer is $(-6, -4)$.** (8.GM.A.3) Using $(x, y) \rightarrow (-y, x)$: $(-4, 6) \rightarrow (-6, -4)$.
- 13) **The correct answer is 24.** (8.GM.B.6, 8.GM.B.7) From $7^2 + b^2 = 25^2$, we get $49 + b^2 = 625$, so $b^2 = 576$ and $b = 24$ meters (a Pythagorean triple).
- 14) **Choice D is correct.** (8.NS.A.2) Since the square root function is increasing and $26 < 27$, we have $\sqrt{26} < \sqrt{27}$. Therefore $\sqrt{27}$ is larger.
- 15) **Choice D is correct.** (8.EE1.A.1) Move the decimal 6 places to the right: $7.5 \times 10^6 = 7,500,000$.
- 16) **Choice D is correct.** (8.EE1.A.1) When raising a power to another power, multiply exponents: $(y^4)^3 = y^{4 \cdot 3} = y^{12}$.
- 17) **Choice C is correct.** (8.F.B.5) Slope $k = \frac{3}{4}$. Line passes through origin and $(4, 3)$, so $y = \frac{3}{4}x$.
- 18) **Choice D is correct.** (8.GM.B.8) The y -intercept is where the line crosses the y -axis, which occurs at $(0, 2)$.
- 19) **The correct answer is 66.** (8.GM.C.9) Vertical $= 4 \times 12 = 48 \text{ m}^2$. Horizontal $= 10 \times 3 = 30 \text{ m}^2$. Overlap $= 4 \times 3 = 12 \text{ m}^2$. Total $= 48 + 30 - 12 = 66 \text{ m}^2$.
- 20) **Choice D is correct.** (8.EE1.C.7) Distribute: $-2n + 8 = 10$. Subtract 8: $-2n = 2$. Divide by -2 : $n = -1$.
- 21) **Choice B is correct.** (8.F.A.2) $S(15) = 150 + 40(15) = 750$. Competitor slope: $(700 - 500)/5 = 40$ per day. From day 5 point: $C(d) = 500 + 40(d - 5) = 40d + 300$, so $C(15) = 40(15) + 300 = 900$. Since $900 > 750$, Competitor has more.
- 22) **The correct answer is A,D.** (8.F.B.4) Option A is correct because the slope of d_1 is 3 km/h. Option D is correct because $3 > 2$, so Hiker 1 travels faster. Hiker 2 starts 5 km from the trailhead, Hiker 1 starts 2 km from the trailhead, and the hikers are at the same distance when $t = 3$, not $t = 2$.
- 23) **Choice D is correct.** (8.EE1.B.6) Total installment cost: $250 + 150 \times 12 = 250 + 1800 = \$2,050$. Finance charge: $2050 - 1500 = \$550$.
- 24) **The correct answer is $\frac{1}{2}$.** (8.EE1.A.1) Sample space: HH, HT, TH, TT. Exactly one heads: HT, TH. That's 2 of 4. $P = \frac{1}{2}$.
- 25) **Choice C is correct.** (8.EE1.B.6) Area of a square $= s^2 = 11^2 = 121 \text{ cm}^2$.
- 26) **Choice D is correct.** (8.EE1.A.3) Multiply coefficients: $7.2 \times 1.5 = 10.8 = 1.08 \times 10^1$. Add exponents: $10^{5+3} = 10^8$. Combine: $1.08 \times 10^1 \times 10^8 = 1.08 \times 10^9$.



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Hi, Detail Champion!

◇ In Grade 8, small details can change an entire answer: a negative sign, a decimal place, a unit, an exponent, or an inequality symbol. ◇

★ **Remember this:** You practiced noticing those details. That is a serious test skill, and it gets better with every careful review. This version gave you 8 opportunities to rehearse test-day habits. ★

Detail Checks

- **Signs:** Circle negatives before simplifying.
- **Symbols:** Read inequality signs carefully.
- **Decimals:** Line up place values.
- **Units:** Match the unit the question asks for.

Grade 8 test-day tip: Use the final minute on each section for a detail scan, not a full redo.

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

Jay Daie

Your Detail-Check Coach

PRACTICE TODAY, SUCCEED TOMORROW!

Give your child the confidence and skills they need with **8 full-length Grade 8** Math practice tests that mirror 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.



BUILD SKILLS & BOOST CONFIDENCE

Strengthen understanding and feel prepared for test day.



COVERS ALL ESSENTIAL TOPICS

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



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More Practice. More Confidence.
Better Results.