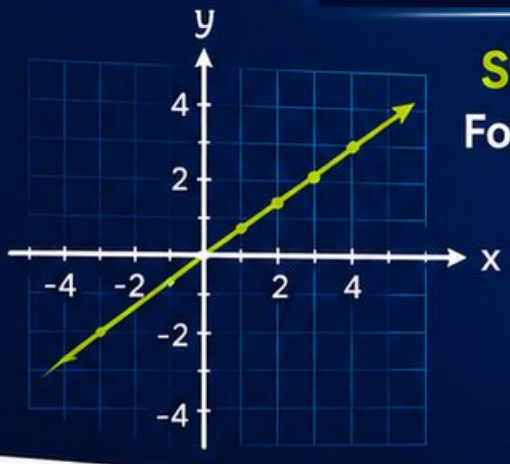
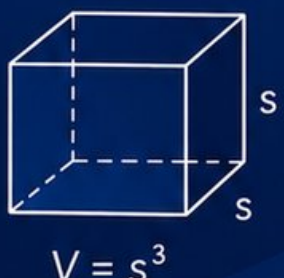
# 3 Missouri MAP GRADE 8 MATH PRACTICE TESTS




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




$y = mx + b$

$2x + 5 = 13$

$x = 4$

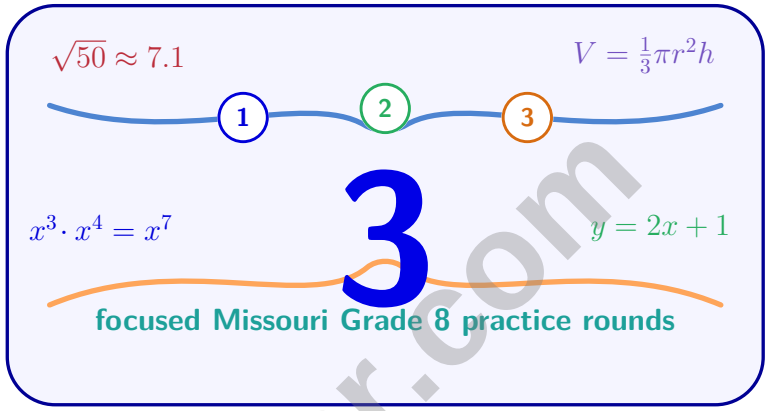
**3 PRINTED TESTS**

**2 ONLINE TESTS**

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

# 3 Missouri MAP Grade 8 Math Practice Tests

*Focused MAP Prep for Grade 8 Skills and Test Confidence*






Three 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**

# Copyright ©

## Testinar Inc

Published by Testinar Inc

Testinar.com

# Welcome, Missouri Grade 8 Problem Solver!

Three focused rounds for sharper MAP math thinking

This book gives you three 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.



# How to Use This Book

A three-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?

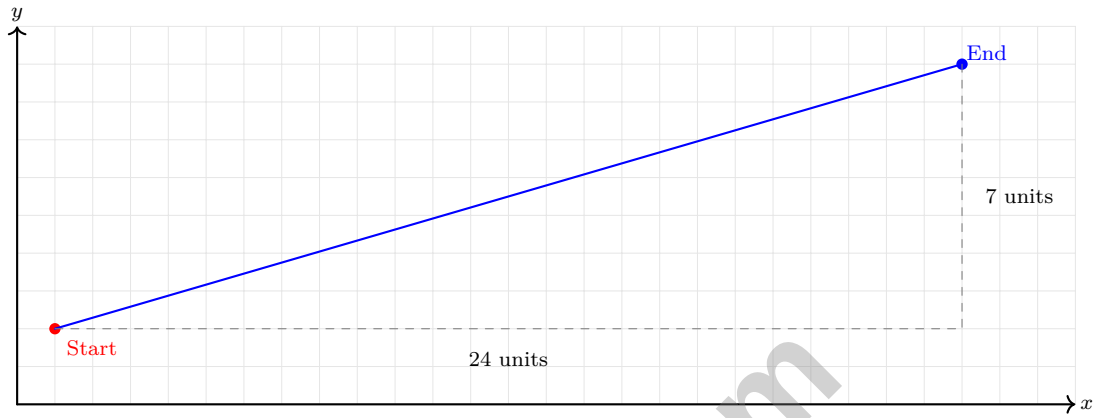
Three MAP tests, 120 questions, and a focused review path

| Part | What You Will Practice |
|---|---|
| Tests 1–2 | Real numbers, exponents, scientific notation, equations, and careful reading. |
| Test 3 | 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.

# Table of Contents

1) A hiker's GPS shows the horizontal distance traveled is 24 units and the vertical distance is 7 units. Using the Pythagorean Theorem, what is the total straight-line distance?



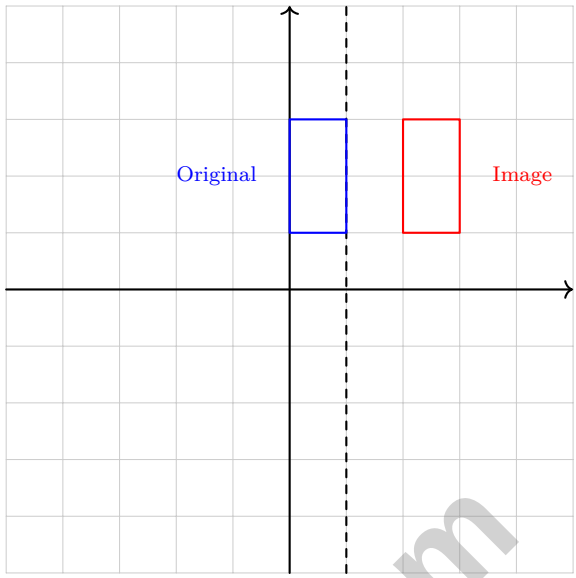

☐ A. 31 units
☐ B. $\sqrt{625}$ units
☐ C. 25 units
☐ D. $\sqrt{500}$ units

2) The mass of the Sun is approximately $2 \times 10^{30}$ kg. How many times more massive is the Sun than Earth, which has mass $6 \times 10^{24}$ kg?

3) Two students find the surface area of a composite solid made of a cube (edge 3 cm) sitting on a rectangular prism (base $3 \times 3$ cm, height 2 cm). Student A computes: Cube SA + Prism SA $= 54 + 42 = 96$ cm$^2$. Student B subtracts the shared face: $54 + 42 - 2(9) = 96 - 18 = 78$ cm$^2$. Who is correct and why?

☐ A. Student A; they forgot the shared face
☐ B. Student B; they correctly subtract the overlapping area twice
☐ C. Student A; both solids are separate
☐ D. Neither; the correct answer is 48 cm$^2$

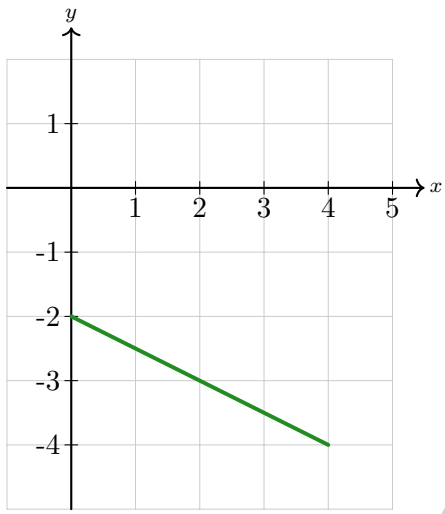
4)




The figure shows a reflection across the dashed line $x = 1$. If a point on the original was at $(0, 2)$, where is it in the image?

☐ A. $(1, 2)$
☐ B. $(2, 2)$
☐ C. $(0, 2)$
☐ D. $(3, 2)$

5)




What is the equation of the line shown?

- ☐ A. $y = -\frac{1}{2}x - 2$
- ☐ B. $y = -2x - 2$
- ☐ C. $y = \frac{1}{2}x - 2$
- ☐ D. $y = 2x - 2$

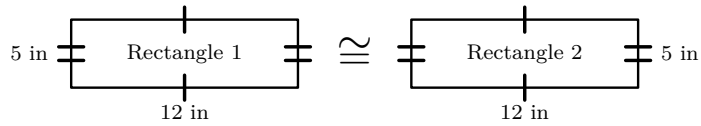
6) Solve: $5 - x > 8$

- ☐ A. $x > -3$
- ☐ B. $x > 13$
- ☐ C. $x < -3$
- ☐ D. $x < 13$

7) For the inequality $2x + y > 6$, rearrange to slope-intercept form, identify the boundary line type, and determine the shading region.

- ☐ A. $y > -2x + 6$; solid line; shade above
- ☐ B. $y < -2x + 6$; dashed line; shade below
- ☐ C. $y > -2x + 6$; dashed line; shade above
- ☐ D. $y > 2x - 6$; dashed line; shade below

1) Two congruent rectangles are shown. Rectangle 1 has a length of 12 inches and a width of 5 inches. What is the perimeter of Rectangle 2?




☐ A. 17 inches
☐ B. 24 inches
☐ C. 34 inches
☐ D. 60 inches

2) What is $0.\overline{111}$ as a fraction?

☐ A. $\frac{1}{111}$
☐ B. $\frac{111}{100}$
☐ C. $\frac{111}{1000}$
☐ D. $\frac{111}{999} = \frac{1}{9}$

3) Which is larger: $\sqrt{11}$ or 3.5?

☐ A. They are equal
☐ B. Cannot be determined
☐ C. $\sqrt{11}$
☐ D. 3.5

4) Which order is correct from smallest to largest?

☐ A. $\sqrt{2}, \sqrt{5}, \sqrt{3}$
☐ B. $\sqrt{5}, \sqrt{3}, \sqrt{2}$
☐ C. $\sqrt{3}, \sqrt{2}, \sqrt{5}$
☐ D. $\sqrt{2}, \sqrt{3}, \sqrt{5}$

5) Which number is equivalent to $6.5 \times 10^{-3}$?

☐ A. 6,500
☐ B. 65,000
☐ C. 0.065
☐ D. 0.0065

6) A chemist combines a 25% salt solution with an 80% salt solution to make 100 mL of a 50% solution. How many mL of the 25% solution are used?

7) A cylindrical paint can has radius 2.5 feet and height 3 feet. The paint covers only the curved side (lateral surface), not the top or bottom. Which expression gives the area that needs paint?

☐ A. $2\pi(2.5)^2 + 2\pi(2.5)(3)$
☐ B. $2\pi(2.5)(3)$
☐ C. $\pi(2.5)^2 + \pi(2.5)(3)$
☐ D. $(2.5)(3)$

8) A line segment has endpoints at $(1, 2)$ and $(5, 6)$. After a translation, the endpoints become $(3, 5)$ and $(7, 9)$. What is the translation vector?

☐ A. $(2, 3)$
☐ B. $(-2, -3)$
☐ C. $(4, 4)$
☐ D. $(1, 2)$

9) If a line has slope $\frac{2}{5}$ and $y$-intercept $-3$, what is its equation?

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

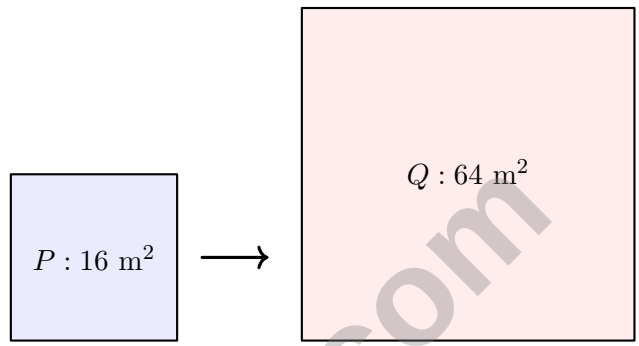
10) Which phrase matches the inequality $5 - x > 10$?

☐ A. Five minus a number is greater than ten
☐ B. Five plus a number is greater than ten
☐ C. A number times five is greater than ten
☐ D. Five minus a number is at least ten

1) Three consecutive angles on a straight line measure $x$, $x + 15$, and $2x - 15$. Find $x$.

☐ A. 25° ☐ C. 45°
☐ B. 35° ☐ D. 55°

2) Figure $P$ has area 16 m$^2$ and Figure $Q$ (similar to $P$) has area 64 m$^2$. What is the scale factor from $P$ to $Q$?




☐ A. 2 ☐ C. 8
☐ B. 4 ☐ D. 16

3) If $f(x) = \frac{x+4}{2}$ and $f(x) = 5$, what is $x$?

☐ A. 2 ☐ C. 6
☐ B. 4 ☐ D. 10

4) The decimal expansion of a rational number is:

☐ A. Always irrational ☐ C. Always non-terminating
☐ B. Cannot be written as a fraction ☐ D. Either terminating or repeating

5) Which pair correctly matches the repeating block length to the multiplier used in the conversion method?

☐ A. Block length $n \rightarrow$ multiply by $10n$.
☐ B. 1-digit block $\rightarrow$ multiply by 100; 2-digit block $\rightarrow$ multiply by 10.
☐ C. All blocks $\rightarrow$ multiply by 10 regardless.
☐ D. 1-digit block $\rightarrow$ multiply by 10; 2-digit block $\rightarrow$ multiply by 100.

6) A right triangle has legs of length 3 and 5 units. Which integer range contains the hypotenuse length?

☐ A. Between 8 and 9
☐ B. Between 6 and 7
☐ C. Between 7 and 8
☐ D. Between 5 and 6

7) A circular garden has radius 2 meters. Using $\pi \approx 3.14$, which is the best estimate of the circumference?

☐ A. 6.28 m
☐ B. 25.12 m
☐ C. 12.8 m
☐ D. 12.56 m

8) Express 0.0072 in scientific notation.

☐ A. $0.72 \times 10^{-2}$
☐ B. $7.2 \times 10^{3}$
☐ C. $7.2 \times 10^{-4}$
☐ D. $7.2 \times 10^{-3}$

9) A cylindrical storage tank has a radius of 2.5 m and height of 4 m. What is the total surface area (including top and bottom)? Use $\pi \approx 3.14$.

☐ A. 62.8 $m^2$
☐ B. 82.25 $m^2$
☐ C. 102.05 $m^2$
☐ D. 128.1 $m^2$

# 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.**

# Practice Test Answers and Explanations

## Practice Test 1 Answers and Explanations

1) **Choice C is correct.** 8.GM.B.8 $d = \sqrt{24^2 + 7^2} = \sqrt{576 + 49} = \sqrt{625} = 25$ units. (This is a 7-24-25 Pythagorean triple.)

2) **The correct answer is** $3.33 \times 10^5$ **.** 8.EEI.A.1 Divide: $\frac{2\times10^{30}}{6\times10^{24}} = \frac{2}{6} \times 10^6 = \frac{1}{3} \times 10^6 \approx 3.33 \times 10^5$.

3) **Choice B is correct.** 8.GM.C.9 When composites solids touch, the shared face is covered on both objects. It must be subtracted twice (once from each solid's SA). Student B is correct: $96 - 18 = 78$ cm$^2$.

4) **Choice B is correct.** 8.GM.A.1 Reflecting across the vertical line $x = 1$: distance from $(0, 2)$ to the line is 1 unit left. The image is 1 unit right of the line at $(2, 2)$.

5) **Choice A is correct.** 8.GM.B.8 The $y$-intercept is $-2$. Using $(4, -4)$: slope $= \frac{-4-(-2)}{4-0} = \frac{-2}{4} = -\frac{1}{2}$.

6) **Choice C is correct.** 8.EEI.C.7 Subtract 5: $-x > 3$. Multiply by $-1$ (FLIP): $x < -3$.

7) **Choice C is correct.** 8.EEI.C.7 Rearrange: $y > -2x + 6$. Strict inequality ($>$) → DASHED boundary. Since $y$ is GREATER than the expression, shade ABOVE. Distractor A mistakes dashed for solid; B flips both inequality and shading; D has wrong slope.

8) **The correct answer is** $\frac{2}{9}$ **.** 8.NS.A.1 Set $x = 0.\overline{2}$, so $10x = 2.\overline{2}$. Subtracting: $10x - x = 2$, giving $9x = 2$ and $x = \frac{2}{9}$.

9) **Choice C is correct.** 8.GM.C $V = \frac{4}{3}\pi r^3 = \frac{4}{3} \times 3.14 \times 729 = 3052.08$ ft$^3$.

10) **Choice B is correct.** 8.DSP.A.3 In a linear model (8.SP.3), the rate of change is constant—the same number of cells are added each day. Here, the exponent $t$ makes the rate accelerate: day 1 might add 300 cells, day 2 adds 360 cells, etc. This violates the constant-slope assumption of linear models.

11) **Choice C is correct.** 8.EEI.B.6 Interest: $I = 15000 \times 0.07 \times 5 = \$5{,}250$.

12) **Choice C is correct.** 8.EEI.A.1 The diagram shows the product rule (add exponents). (C) uses it: $2^{4+5} = 2^9$. (A) is power of product, (B) is quotient rule, (D) is power of power.

13) **Choice D is correct.** 8.EEI.B.6 $\sqrt{49} = 7$ and $\sqrt{64} = 8$, so $7 + 8 = 15 \neq \sqrt{113} \approx 10.63$. You cannot add the radicands before taking the root.

14) **Choice D is correct.** 8.EEI.A.3 Rewrite with common exponent: $7.8\times10^7 - 0.23\times10^7 = (7.8 - 0.23)\times10^7 = 7.57\times10^7$.

15) **Choice C is correct.** 8.F.B.5 Unit rate $k = \frac{110}{2} = 55$ miles per hour. The proportional equation is $d = 55t$.

16) **Choice A is correct.** 8.EEI.C.7 Expand: $2x + 6 = 3x - 3$. Subtract $2x$ and add 3: $9 = x$, so $x = 9$.

17) **Choice A is correct.** 8.EEI.C.7 FOIL: $(4x - 3)(x + 2) = 4x^2 + 8x - 3x - 6 = 4x^2 + 5x - 6$.

18) **Choice B is correct.** 8.F.A.1 The definition of a function requires that for each input value, there is exactly one corresponding output value. This ensures consistency and predictability.

19) **The correct answer is A,C.** 8.NS.A.1 $\sqrt{169} = 13$ is rational (perfect square). The repeating decimal $0.777\ldots = \frac{7}{9}$ is rational. The other values are irrational: $\sqrt{170}$ (non-perfect square), $2\pi$ (irrational multiple of $\pi$), and $\sqrt{2} + 1$ (irrational plus rational is irrational).

20) **Choice B is correct.** 8.F.A.2 Slope of $A$: $(6 - 0)/(3 - 0) = 2$. Slope of $B$: $(7 - 1)/(2 - 0) = 3$. Since $3 > 2$, Line $B$ increases faster.

21) **Choice A is correct.** 8.F.A.3 $y = \frac{7}{2}x - 6$ is linear with slope $\frac{7}{2}$ and $y$-intercept $-6$. Option B expands to $y = x^2 - x$ (nonlinear), and C and D are exponential and rational functions.

22) **Choice B is correct.** 8.F.B.4 In $h = mt + b$, the slope $m = 2$ represents the rate of change: 2 cm per week. The number 15 is the initial height (intercept).

23) **Choice B is correct.** 8.F.B.5 Total distance = 3 miles. Total time = 6 minutes. Average speed = $3 \div 6 = 0.5$ miles/min. The flat segment adds time but no distance.

24) **Choice B is correct.** 8.GM.A.3 The point $(1, 1)$ maps to $(-1, 1)$, and $(2, 2)$ maps to $(-2, 2)$. This is reflection across the $y$-axis: $(x, y) \to (-x, y)$.

25) **The correct answer is** 8.2 **.** 8.NS.A.2 $8^2 = 64$ and $9^2 = 81$, so $\sqrt{68}$ is between 8 and 9. A closer estimate is about 8.246, which rounds to 8.2 to the nearest tenth.

26) **Choice A is correct.** 8.GM.B.7 Co-interior angles are supplementary: $(2x + 15) + (x + 45) = 180$, so $3x + 60 = 180$, giving $x = 40$.

## Hi, Grade 8 Math Star!

◇ You finished this practice set with real effort. Grade 8 math asks you to connect ideas, explain your thinking, and stay steady through multi-step problems. ◇

⋆ **Remember this:** Every page you completed helped build stronger habits: reading carefully, choosing a method, showing work, and checking whether the answer makes sense. You practiced across 3 full Grade 8 practice tests, and that repeated effort matters. ⋆

**What You Built**

- **Focus:** You stayed with challenging questions.
- **Accuracy:** You learned to slow down when details matter.
- **Reasoning:** You practiced explaining why a method works.
- **Readiness:** You are more prepared than when you started.

**Grade 8 test-day tip:** Before test day, review the questions that made you pause. Those are the best teachers.

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

**Jay Daie**

Your Grade 8 Math Friend

# PRACTICE TODAY, ACHIEVE TOMORROW!

GRADE 8

Give your child the edge they need with **3 full-length** Grade 8 Math practice tests that reflect real test formats and cover all key math standards.
Perfect for building skills, boosting confidence, and preparing for 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!

## 2 Extra Online Practice Tests Included!

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

testinar.com/math8

## PRACTICE. PREPARE. SUCCEED.

Testinar | More Practice. More Confidence. Better Results.