

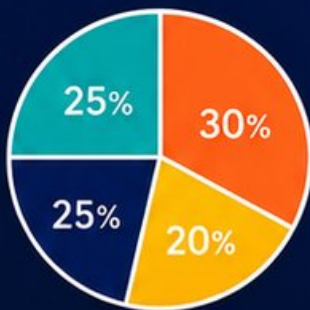
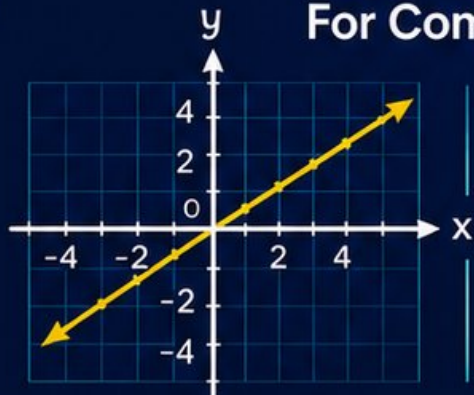
Missouri MAP

GRADE 8

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

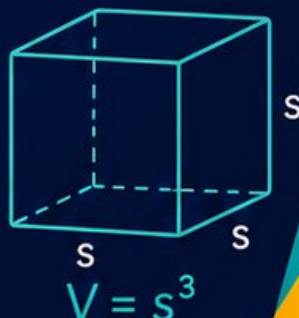


$$y = mx + b$$

$$2x - 3y = 6$$

$$\sqrt{x^2 + y^2}$$

$$A = bh$$



**4 PRINTED
TESTS**



**2 ONLINE
TESTS**



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



4 Missouri MAP Grade 8 Math Practice Tests

Purposeful MAP Prep with Review, Answer Keys, and Explanations



Four 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!

Four focused rounds for sharper MAP math thinking

This book gives you four 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 four-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?

Four MAP tests, 160 questions, and a focused review path

Part	What You Will Practice
Tests 1–2	Real numbers, exponents, scientific notation, equations, and careful reading.
Tests 3–4	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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& answers

Table of Contents

★ Practice Test 1	_____	14
★ Practice Test 2	_____	29
★ Practice Test 3	_____	44
★ Practice Test 4	_____	59
Practice Test Answer Keys	_____	74
Practice Test Answers and Explanations	_____	77

1) A water tank holds 200 gallons at 15% salinity. To reduce salinity to 10%, how much fresh water (0% salinity) should be added?

☐ A. 50 gal

☐ C. 100 gal

☐ B. 150 gal

☐ D. 200 gal

2) A store's revenue is $\$200 + \15 per item sold. What is the slope of revenue versus items sold?

☐ A. \$200

☐ C. \$215

☐ B. \$30

☐ D. \$15

3) A right triangle has legs of $\sqrt{7}$ and 3. What is the hypotenuse?

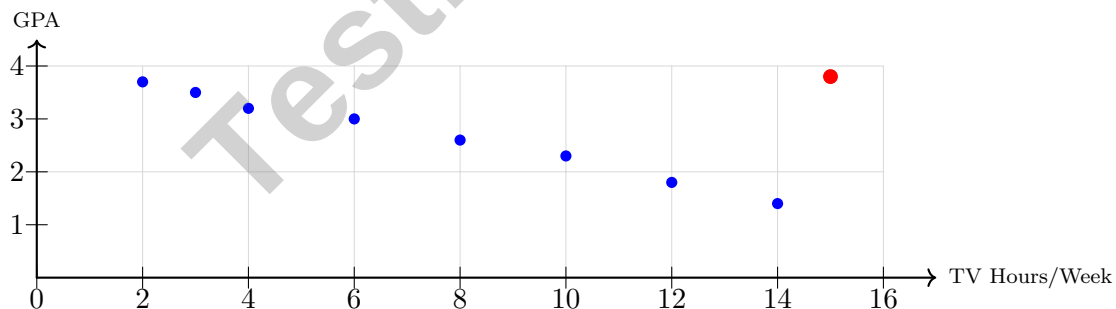
☐ A. $\sqrt{16}$

☐ C. $\sqrt{10}$

☐ B. 4

☐ D. 10

4) A scatter plot displays student GPA versus hours watched TV per week. Most students show a pattern: those who watch more TV have lower GPAs. A student with a GPA of 3.8 watches 15 hours of TV per week, while similar high watchers have GPAs around 1.4–2.0. Is this student an outlier?



☐ A. No, the GPA is typical for high TV watchers

☐ C. Yes, it deviates from the expected negative pattern

☐ B. No, GPA is unrelated to TV time

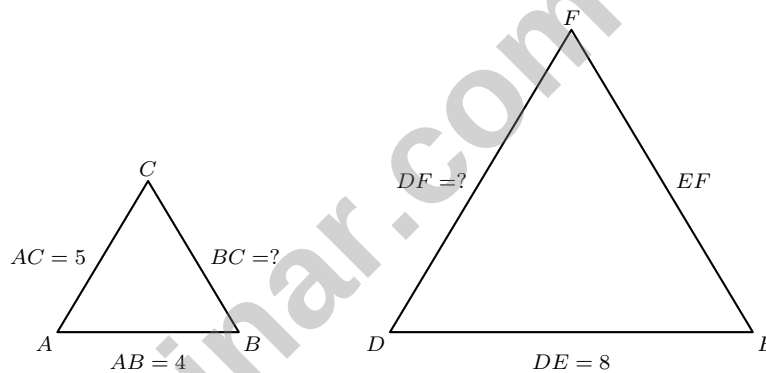
☐ D. No, all points above GPA 3.0 are outliers



5) A teacher plots the relationship between attendance and test scores. The trend line shows a positive slope. What does this tell you?

- ☐ A. Attendance directly causes higher test scores ☐ C. Test scores determine how often students attend
☐ B. All students with perfect attendance pass the test ☐ D. As attendance increases, test scores tend to increase on average

6) Two similar triangles are shown. Triangle ABC has sides 4 cm and 5 cm. Triangle DEF has a corresponding side of 8 cm. Find the length of the side in DEF corresponding to the 5 cm side in ABC .

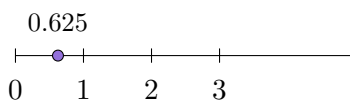


- ☐ A. 10 cm ☐ C. 9 cm
☐ B. 6.5 cm ☐ D. 2.5 cm
- 7) If $f(x) = |x - 2|$, what is $f(5)$?
- ☐ A. 3 ☐ C. 7
☐ B. -3 ☐ D. -7



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8)



Which number can be written as a terminating decimal?

☐ A. $\sqrt{5}$

☐ C. $\sqrt{e}$ (where $e \approx 2.718$)

☐ B. $1 + \pi$

☐ D. $\frac{5}{8}$

9) Convert $0.2\overline{7}$ to a fraction in simplest form.

☐ A. $\frac{27}{100}$

☐ C. $\frac{27}{90}$

☐ B. $\frac{27}{99}$

☐ D. $\frac{5}{18}$

10) Two complementary angles have measures of x and $2x + 6$. Write and solve an equation to find both angle measures.

11) Which statement about $\sqrt{2} + 1$ is correct?

☐ A. It is rational

☐ C. It equals $\sqrt{3}$
☐ B. It is between 0 and 1

☐ D. It is irrational

12) Which is the best estimate of $\sqrt{18}$?

☐ A. 3.0

☐ C. 4.2

☐ B. 4.0

☐ D. 9.0



1) Which expression equals 4.25×10^{-1} ?

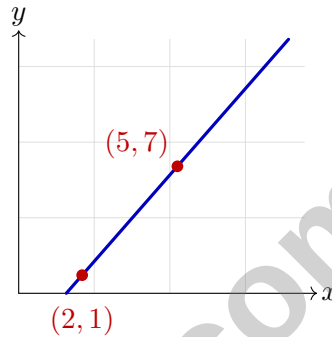
☐ A. 425

☐ C. 42.5

☐ B. 4.25

☐ D. 0.425

2) A graph shows a line passing through (2, 1) and (5, 7). If the line continues, which point would it pass through?



☐ A. (8, 13)

☐ C. (8, 11)

☐ B. (8, 12)

☐ D. (7, 10)

3) A vending machine contains 32 coins (dimes and quarters). The total value is \$5.30. How many dimes are there?

☐ A. 8

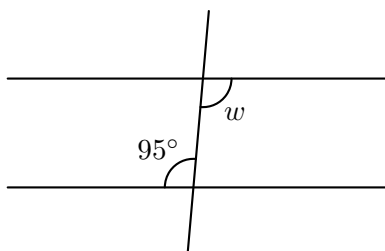
☐ C. 14

☐ B. 12

☐ D. 18



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4)

Two parallel lines are cut by a transversal. The angle 95° and angle w are alternate interior angles. What is w ?

☐ A. 5° ☐ C. 95° ☐ B. 85° ☐ D. 175°

5) If a data set has mean = 50 and MAD = 0, which statement is true?

☐ A. All values equal 50☐ C. There are no values equal to 50☐ B. The data is very spread out☐ D. The smallest value is 50

6) Solve the system $\begin{cases} 3x - 2y = 4 \\ x + 2y = 8 \end{cases}$ by elimination.

7) When rolling two six-sided dice, what is the probability of rolling a sum of 7?

☐ A. $\frac{1}{5}$ ☐ C. $\frac{1}{12}$ ☐ B. $\frac{1}{6}$ ☐ D. $\frac{7}{36}$ 

1) A line passes through the points (2, 5) and (6, 13). What is the slope of the line?

☐ A. $\frac{1}{2}$

☐ B. 4

☐ C. $\frac{3}{2}$

☐ D. 2

2) Solve:
$$\begin{cases} x + 2y = 10 \\ 3x - 2y = 2 \end{cases}$$

☐ A. $(1, \frac{9}{2})$

☐ B. (2, 4)

☐ C. $(3, \frac{7}{2})$

☐ D. (4, 3)

3) A farmer's market charges \$2 for apples and \$3 for oranges. On Saturday, the vendor sold 120 pieces of fruit for \$310. How many apples were sold?

☐ A. 40

☐ B. 60

☐ C. 50

☐ D. 80

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

☐ A. 3

☐ B. 4

☐ C. $\frac{26}{3}$

☐ D. $\frac{13}{3}$

5) What is the pre-image of point (4, -2) if it was produced by the translation $(x, y) \rightarrow (x + 3, y - 5)$?

☐ A. (7, 3)

☐ B. (7, -7)

☐ C. (1, -7)

☐ D. (1, 3)



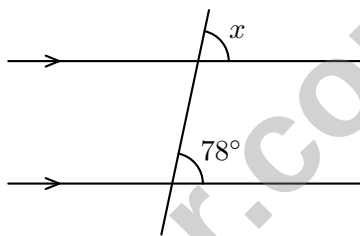
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- 6) In triangle XYZ , angle $X = (n + 15)^\circ$, angle $Y = (n + 20)^\circ$, and angle $Z = (2n + 25)^\circ$. What is the value of n ?

☐ A. 25 ☐ C. 35
☐ B. 30 ☐ D. 40

- 7) A student calculates the distance between $(0, 0)$ and $(8, 6)$ and gets $\sqrt{100}$. Is this correct? If correct, simplify. If incorrect, what should it be?

☐ A. Correct; $\sqrt{100} = 10$ ☐ C. Incorrect; distance is $\sqrt{14}$
☐ B. Incorrect; distance is 14 ☐ D. Correct; it stays $\sqrt{100}$



8)

Two parallel lines are cut by a transversal. One angle measures 78° . What is x , the measure of the corresponding angle on the upper parallel line?

☐ A. 51° ☐ C. 102°
☐ B. 78° ☐ D. 128°

- 9) A square pyramid has a height of 8 inches and a volume of 128 in^3 . What is the length of each base edge?

☐ A. 4 in ☐ C. 8 in
☐ B. $4\sqrt{3}$ in ☐ D. 12 in



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)** Initial salt: $0.15(200) = 30$ gallons. After adding x gallons of fresh water: total volume $= 200 + x$, salt amount $= 30$. Setting salinity to 10%: $\frac{30}{200+x} = 0.10$, so $30 = 0.10(200 + x) = 20 + 0.10x$, giving $0.10x = 10$, thus $x = 100$ gal.
- 2) **Choice D is correct.** **(8.F.B.4)** The slope is the rate of change of revenue per item, which is \$15 per item. The \$200 is the y -intercept, not the slope.
- 3) **Choice B is correct.** **(8.GM.B.6, 8.GM.B.7)** From $(\sqrt{7})^2 + 3^2 = c^2$, we get $7 + 9 = 16$, so $c = \sqrt{16} = 4$.
- 4) **Choice C is correct.** **(8.DSP.A.1)** Most students show: more TV $\rightarrow$ lower GPA. This student breaks that pattern with high TV but also high GPA, making this point an outlier that deviates from the trend.
- 5) **Choice D is correct.** **(8.F.B.5)** A positive slope indicates a positive association: as x increases, y tends to increase. This is correlation, not necessarily causation.
- 6) **Choice A is correct.** **(8.GM.A.4)** Scale factor from ABC to DEF is $\frac{8}{4} = 2$. The corresponding side is $5 \times 2 = 10$ cm.
- 7) **Choice A is correct.** **(8.F.A.1)** Substitute $x = 5$: $f(5) = |5 - 2| = |3| = 3$.
- 8) **Choice D is correct.** **(8.NS.A.1)** $\frac{5}{8} = 0.625$, a terminating decimal. This is rational. The others are irrational: $\sqrt{5}$ is a non-perfect-square root, $\sqrt{e}$ is irrational, and $1 + \pi$ is an irrational sum.
- 9) **Choice D is correct.** **(8.NS.A.1)** Let $x = 0.2\bar{7} = 0.2777\dots$. Then $10x = 2.\bar{7}$ and $100x = 27.\bar{7}$. Subtracting: $90x = 25$, so $x = \frac{25}{90} = \frac{5}{18}$.
- 10) **The correct answer is (28, 62).** **(8.GM.A.5)** Complementary angles sum to 90° : $x + (2x + 6) = 90 \Rightarrow 3x + 6 = 90 \Rightarrow 3x = 84 \Rightarrow x = 28^\circ$. The angles are 28° and 62° .
- 11) **Choice D is correct.** **(8.NS.A.2)** Since $\sqrt{2}$ is irrational and 1 is rational, $\sqrt{2} + 1$ is irrational. (The sum of an irrational and a rational is irrational.)
- 12) **Choice C is correct.** **(8.NS.A.2)** $\sqrt{18} = 3\sqrt{2} \approx 3 \times 1.41 = 4.23$.
- 13) **Choice D is correct.** **(8.EE1.A.1)** Move the decimal 8 places left to get 1.2; the exponent is 8.
- 14) **Choice C is correct.** **(8.GM.C.9)** A cube has 6 faces. Each face has area $3^2 = 9$ in². Total $= 6 \times 9 = 54$ in².
- 15) **Choice B is correct.** **(8.GM.A.1)** The shape moves 4 units to the right and 0 units vertically. Shape X spans $x = 0$ -2; Shape Y spans $x = 4$ -6, confirming a 4-unit horizontal shift.
- 16) **The correct answer is 2.4.** **(8.GM.B.8)** Absolute deviations: $|12 - 16| = 4$, $|14 - 16| = 2$, $|16 - 16| = 0$, $|18 - 16| = 2$, $|20 - 16| = 4$. Sum $= 12$. MAD $= 12/5 = 2.4$.
- 17) **The correct answer is $\frac{1}{6}$.** **(8.EE1.A.1)** Favorable outcomes: (1,6), (2,5), (3,4), (4,3), (5,2), (6,1). That's 6 of 36. $P = \frac{6}{36} = \frac{1}{6}$.
- 18) **The correct answer is A,C.** **(8.EE1.C)** Option A: Lines $y = 3x + 1$ and $y = 3x - 2$ are parallel (same slope 3, different intercepts). Option B: Different slopes (3 and $\frac{1}{3}$), so one intersection. Option C: Both equations have the form $2x + y = k$ with $k = 4$ and $k = 6$ (parallel). Option D: Lines $y = 2x$ and $x + y = 6$ have different slopes, so one intersection. Option E: Lines $y = x$ and $y = -x$ have different slopes, intersecting at the origin.
- 19) **Choice A is correct.** **(8.GM.B.8)** Using (1, 4) and (5, 2): slope $= \frac{2-4}{5-1} = -\frac{1}{2}$. Substituting: $4 = -\frac{1}{2}(1) + b$ gives $b = \frac{9}{2}$.
- 20) **Choice A is correct.** **(8.EE1.C.7)** Add 8 to both sides: $x \leq -2 + 8 = 6$.
- 21) **Choice C is correct.** **(8.EE1.C.7)** Dashed lines correspond to STRICT inequalities ($<$ and $>$), which do not include the boundary. The symbols $\leq$ and $\geq$ use solid lines.
- 22) **Choice A is correct.** **(8.GM.C)** Since height is constant, volume depends on r^2 . $r_1^2 = 4 < r_2^2 = 9 < r_3^2 = 16$. Order: smallest to largest is r_1, r_2, r_3 .
- 23) **Choice B is correct.** **(8.DSP.A.3)** The data covers 5 to 20 minutes; predicting at 25 minutes is beyond the observed range, making it extrapolation.
- 24) **Choice D is correct.** **(8.EE1.B.6)** Interest: $I = 4000 \times 0.03 \times 3 = \360 . Final: $4000 + 360 = \$4,360$.
- 25) **Choice D is correct.** **(8.EE1.A.1)** $5^0 = 1$; $n^7 \cdot n^{-7} = n^{7-7} = n^0 = 1$. Product: $1 \cdot 1 = 1$.
- 26) **Choice D is correct.** **(8.EE1.B.6)** $3^3 = 27$ and $4^3 = 64$. Since $27 < 50 < 64$, we have $3 < \sqrt[3]{50} < 4$.



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Hi, Strategy Solver!

◇ Grade 8 math rewards students who think before they calculate. You practiced choosing strategies, not just hunting for answers. This carefully paced book gave you four steady Grade 8 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. ◇

★ **Remember this:** That matters because stronger math students do not use one method for every question. They notice the structure and choose the tool that fits. ★

Strategy Moves

- **Estimate:** Know the neighborhood of the answer.
- **Simplify:** Rewrite numbers in friendlier forms.
- **Model:** Draw what the words describe.
- **Verify:** Put the answer back into the problem.

Grade 8 test-day tip: Pause for ten seconds before hard questions. A short plan can save several minutes.

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

Jay Daie

Your Strategy Guide

PRACTICE TODAY, ACHIEVE TOMORROW!

Give your child the confidence and skills they need with **4 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!

4



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
- ✓ 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!



4 PRINTED TESTS



2 ONLINE TESTS



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