

ARIZONA AASA

GRADE 8 MATH

PRACTICE TESTS

5

PRINTED
TESTS



2

 ONLINE
TESTS

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



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



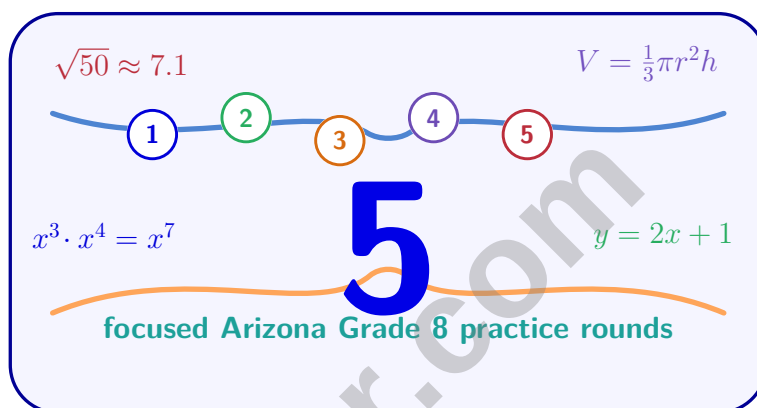
$$a^2 + b^2 = c^2$$



$$y = mx + b$$

5 Arizona AASA Grade 8 Math Practice Tests

Focused AASA Practice for Equations, Graphs, and Geometry



Five complete 40-question Grade 8 AASA 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, Arizona Grade 8 Problem Solver!

Five focused rounds for sharper AASA math thinking

This book gives you five full Grade 8 AASA 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 Arizona 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 five-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.

Arizona 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?

Five AASA tests, 200 questions, and a focused review path

Part	What You Will Practice
Tests 1–2	Real numbers, exponents, scientific notation, equations, and careful reading.
Tests 3–5	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	_____	15
★ Practice Test 2	_____	31
★ Practice Test 3	_____	46
★ Practice Test 4	_____	61
★ Practice Test 5	_____	78
Practice Test Answer Keys	_____	94
Practice Test Answers and Explanations	_____	98

1) A line passes through $(2, 10)$ and has slope 3. What is the y -intercept?

☐ A. 3

☐ C. 10

☐ B. 4

☐ D. 6

2) What is $\sqrt[3]{1728}$?

☐ A. 10

☐ C. 12

☐ B. 11

☐ D. 13

3) An area model for $(x + 6)(x - 2)$ shows four rectangular regions. What is their total area?

	x	6
x	x^2	$6x$
-2	$-2x$	-12

☐ A. $x^2 + 4x - 12$
☐ C. $x^2 + 8x - 12$
☐ B. $x^2 - 12$
☐ D. $x^2 + 6x - 2$

4) A water tank is being drained at a constant rate. The relationship between time and remaining water is shown:

Time (min)	5	15	25
Water (gal)	60	40	20

What is the slope (rate of drainage)?

☐ A. -2 gallons per minute

☐ C. -3 gallons per minute

☐ B. 2 gallons per minute

☐ D. 60 gallons per minute


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5) A river flows at 3 mph. A boat travels 4 hours downstream and 6 hours upstream for the same distance. What is the boat's speed in still water?

☐ A. 10 mph

☐ C. 15 mph

☐ B. 12 mph

☐ D. 18 mph

6) If $h(x) = 3x$, what is $h(-2)$?

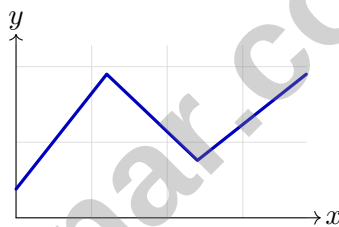
☐ A. -6

☐ C. -2

☐ B. 6

☐ D. 3

7) A function exhibits error: a student says "The graph increases at all points." But the actual graph increases, then decreases, then increases again. Which statement correctly identifies the student's error?



☐ A. The student only looked at one part of the graph

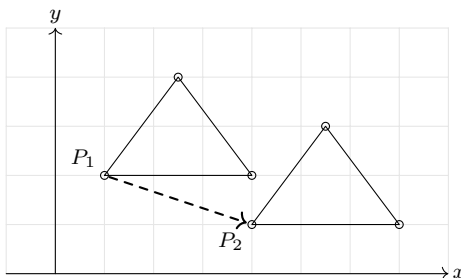
☐ C. The graph is decreasing everywhere

☐ B. The graph is increasing everywhere

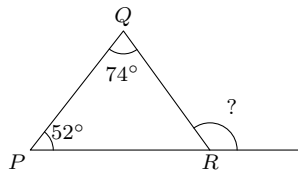
☐ D. The graph is constant everywhere



- 8) Two congruent polygons are positioned on a coordinate grid. Polygon 1 has vertices at $(1, 2)$, $(4, 2)$, and $(2.5, 4)$. Polygon 2 is translated 3 units right and 1 unit down. Which set of coordinates represents Polygon 2?



- ☐ A. $(1, 2)$, $(4, 2)$, $(2.5, 4)$
☐ C. $(4, 1)$, $(7, 1)$, $(5.5, 3)$
☐ B. $(2, 3)$, $(5, 3)$, $(3.5, 5)$
☐ D. $(0, 3)$, $(3, 3)$, $(1.5, 5)$
- 9) A point Q is at the origin and undergoes three transformations: first a translation right 2, then a rotation 90° counterclockwise about the origin, then a reflection across the x -axis. Where does the point end up?
- ☐ A. $(0, 2)$
☐ C. $(2, 0)$
☐ B. $(0, -2)$
☐ D. $(-2, 0)$
- 10) An exterior angle of triangle PQR is shown. If the two remote interior angles measure 52° and 74° , what is the exterior angle?

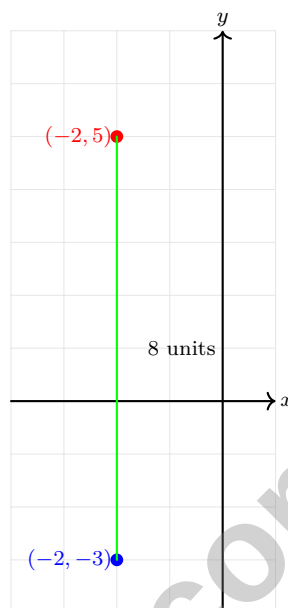


- ☐ A. 74°
☐ C. 180°
☐ B. 126°
☐ D. 206°



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- 1) What is the vertical distance between $(-2, 5)$ and $(-2, -3)$?



☐ A. 3

☐ C. 2

☐ B. 8

☐ D. 5

- 2) Find $(1.2 \times 10^6) + (8 \times 10^5)$ in scientific notation.

- 3) A bakery produces 50 cookies per hour. After 4 hours, how many cookies have been produced?



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4) Which value of x satisfies $x^2 = 100$?

☐ A. 8

☐ C. 10

☐ B. 9

☐ D. 11

5) Factor $x^2 + 3x - 10$.

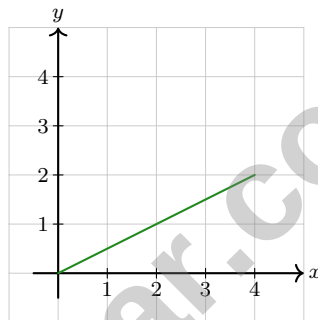
☐ A. $(x + 5)(x - 2)$

☐ C. $(x + 10)(x - 1)$

☐ B. $(x - 5)(x + 2)$

☐ D. $(x - 10)(x - 1)$

6) Which of the following graphs shows a LINEAR function?



☐ A. No, the slope is less than 1

☐ C. No, only if it passes through the origin

☐ B. No, because the rate of change varies

☐ D. Yes, the line is straight

7) A table of values for a linear relationship is partially filled:

x	2	5	8
y	3	?	15

What is the missing y -value?

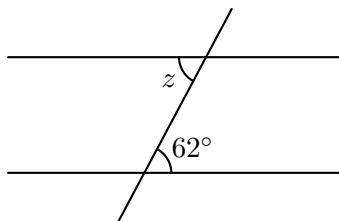
☐ A. 8

☐ C. 10

☐ B. 12

☐ D. 9





1)

Two parallel lines are cut by a transversal. The angle marked 62° and angle z are alternate interior angles. What is z ?

☐ A. 28° ☐ C. 118° ☐ B. 62° ☐ D. 148°

2) A savings account earns 2% simple interest annually. If you deposit \$6,000, how much will you have after 2 years?

☐ A. \$6,120☐ C. \$6,240☐ B. \$6,180☐ D. \$6,300

3) Visual: Expanded form. 2^5 means:

$$\underbrace{2 \times 2 \times 2 \times 2 \times 2}_{5 \text{ factors}}$$

If we multiply $2^3 \times 2^4$, how many total factors of 2 do we have?

☐ A. 2☐ C. 24☐ B. 12☐ D. 7

4) If $x^3 = 27$, what is x ?

☐ A. 2☐ C. 4☐ B. 5☐ D. 3

5) 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

6) $\frac{(4 \times 10^6) \times (3 \times 10^2)}{6 \times 10^4} = ?$

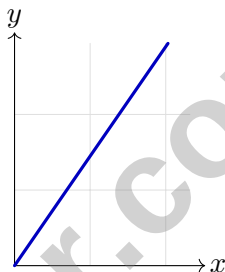
☐ A. 2×10^2

☐ C. 2×10^4

☐ B. 12×10^8

☐ D. 0.2×10^4

7) Which point must be on the graph of $y = 2x$?



☐ A. (1, 2)

☐ C. (2, 1)

☐ B. (1, 3)

☐ D. (0, 2)

8) Factor completely: $2x^2 + 10x + 8$.

☐ A. $2(x^2 + 5x + 4)$

☐ C. $2(x + 2)(x + 4)$

☐ B. $(x + 2)(2x + 4)$

☐ D. $2x(x + 5) + 8$

9) A line passes through (1, 3) and (3, 7). Is this a linear relationship?

☐ A. No, the slope is not 1

☐ C. Yes, a line is always linear

☐ B. No, because you need more than two points

☐ D. Yes, only if the slope is positive



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Arizona AASA 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 Arizona AASA practice test.

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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice B is correct.** (8.F.B.4) Using $y = mx + b$: $10 = 3(2) + b \Rightarrow 10 = 6 + b \Rightarrow b = 4$.
- 2) **Choice C is correct.** (8.EE.A.2) $12 \times 12 \times 12 = 1728$, so $\sqrt[3]{1728} = 12$.
- 3) **Choice A is correct.** (8.EE.C.7) Sum of regions: $x^2 + 6x - 2x - 12 = x^2 + 4x - 12$.
- 4) **Choice A is correct.** (8.EE.B.5) Using (5, 60) and (15, 40): slope = $\frac{40 - 60}{15 - 5} = \frac{-20}{10} = -2$ gallons per minute.
- 5) **Choice C is correct.** (8.G.C) Let b = boat's speed in still water. Downstream: $d = (b+3) \times 4$. Upstream: $d = (b-3) \times 6$. Setting them equal: $4(b+3) = 6(b-3)$, so $4b + 12 = 6b - 18$, giving $30 = 2b$, thus $b = 15$ mph.
- 6) **Choice A is correct.** (8.F.A.1) Substitute $x = -2$: $h(-2) = 3(-2) = -6$.
- 7) **Choice A is correct.** (8.F.B.5) The actual graph increases, then decreases, then increases again. The student's error is describing only part of the graph instead of the full interval.
- 8) **Choice C is correct.** (8.G.A.2) Add 3 to each x -coordinate and subtract 1 from each y -coordinate: $(1+3, 2-1) = (4, 1)$, $(4+3, 2-1) = (7, 1)$, $(2.5+3, 4-1) = (5.5, 3)$.
- 9) **Choice B is correct.** (8.G.A.3) Start at (0, 0). After translation right 2: (2, 0). After rotation 90° counterclockwise: $(-0, 2) = (0, 2)$. After reflection across x -axis: (0, -2).
- 10) **Choice B is correct.** (8.G.A.5) By the exterior angle theorem, the exterior angle equals the sum of the two remote interior angles: $52 + 74 = 126^\circ$.
- 11) **Choice B is correct.** (8.G.B.6, 8.G.B.7) The 7-24-25 triple applies directly: $d^2 = 7^2 + 24^2 = 49 + 576 = 625$, so $d = 25$ cm.
- 12) **Choice C is correct.** (8.G.B.7) Alternate interior angles are congruent when a transversal cuts parallel lines. So $t = 153^\circ$.
- 13) **Choice B is correct.** (8.G.B.7) $V_A = \frac{1}{3} \times 25 \times 6 = 50 \text{ cm}^3$. $V_B = \frac{1}{3} \times 25 \times 12 = 100 \text{ cm}^3$. Difference: $100 - 50 = 50 \text{ cm}^3$.
- 14) **Choice B is correct.** (8.G.B.7) Decompose: rectangle and semicircle. Rectangle area = $10 \times 4 = 40 \text{ ft}^2$. Semicircle has diameter 4 ft, so radius $r = 2$ ft. Semicircle area = $\frac{1}{2}\pi r^2 = \frac{1}{2} \times 3.14 \times 2^2 = 6.28 \text{ ft}^2$. Total = $40 + 6.28 = 46.28 \text{ ft}^2$.
- 15) **Choice A is correct.** (8.G.A.5) For a nonagon ($n = 9$): $(9 - 2) \times 180 = 7 \times 180 = 1260^\circ$. The student is correct.
- 16) **Choice A is correct.** (8.SP.A.1) The rate of change is not constant, showing a curved or leveling pattern rather than a straight line. This indicates a nonlinear association.
- 17) **Choice B is correct.** (8.SP.A.4) Repeat beach-lovers: $130 - 91 = 39$. Relative frequency among beach-lovers: $\frac{39}{130} = 0.30$.
- 18) **The correct answer is A, D.** (8.EE.B.5) Line 1: $k = \frac{6}{4} = 1.5$, so $y = 1.5x$ (\$1.50/lb). Line 2: $k = \frac{12}{6} = 2$, so $y = 2x$ (\$2.00/lb). A is correct (Line 1 equation and price). D is correct (Line 2 has greater slope: $2 > 1.5$). C is wrong (Line 2 is steeper, not Line 1). B is correct but not a correct pair; E is subjective (worse deal, not better). Answer: A and D.
- 19) **Choice A is correct.** (8.SP.B.5) Each section is equal, so each has probability $\frac{1}{4}$.
- 20) **Choice A is correct.** (8.EE.A.2) Each letter has 26 choices and each digit has 10 choices. Multiply: $26 \times 26 \times 10 \times 10 \times 10 = 676,000$.
- 21) **Choice B is correct.** (8.G.B.8) Distance = $\sqrt{(3-0)^2 + (4-0)^2} = \sqrt{9+16} = \sqrt{25} = 5$ miles. (This is a 3-4-5 Pythagorean triple.)
- 22) **Choice D is correct.** (8.SP.A.2) A positive slope indicates a positive association: as x increases, y tends to increase. This is correlation, not necessarily causation.
- 23) **The correct answer is $(3, \frac{5}{2})$.** (8.EE.C) Add the equations to eliminate y : $(3x - 2y) + (x + 2y) = 4 + 8$, so $4x = 12$, giving $x = 3$. Substitute: $3 + 2y = 8$, so $2y = 5$ and $y = \frac{5}{2}$.
- 24) **The correct answer is 14.** (8.F.A.1) Substitute $x = 5$ into the function: $y = 3(5) - 1 = 15 - 1 = 14$.
- 25) **Choice B is correct.** (8.G.A.4) Dilation preserves angles (and shape). Only lengths scale, not angle measures.
- 26) **Choice D is correct.** (8.NS.A.1) $\sqrt{144} = 12$ because $12 \times 12 = 144$. Since 12 is an integer, it is rational.



Hi, Persistent Problem Solver!

◇ Some Grade 8 questions ask you to hold several ideas in your mind at once. That can feel hard, and that is exactly why practice matters. ◇

★ **Remember this:** You showed persistence by continuing through the set. That habit is powerful because difficult problems often open after one more good attempt. You practiced across 5 full Grade 8 practice tests, and that repeated effort matters. ★

Persistence Tools

- **Try a Smaller Case:** Use an easier number to see the pattern.
- **Draw It:** Make the situation visible.
- **Restate It:** Say the question in your own words.
- **Check One Step:** Fix the first unclear place.

Grade 8 test-day tip: When stuck, do not restart everything. Find the first step you trust, then rebuild from there.

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

Jay Daie

Your Persistence Coach

Practice Today. Succeed Tomorrow!

Give your child the confidence and skills they need with **5 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 |
| ✓ Measurement & Data | ✓ And More! |

5
PRINTED
TESTS



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