

3

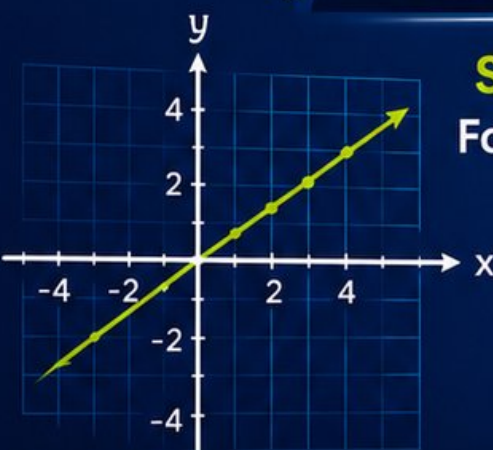
Arizona AASA

GRADE 8

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs



$$V = s^3$$



$$y = mx + b$$
$$2x + 5 = 13$$
$$x = 4$$



3

**PRINTED
TESTS**



2

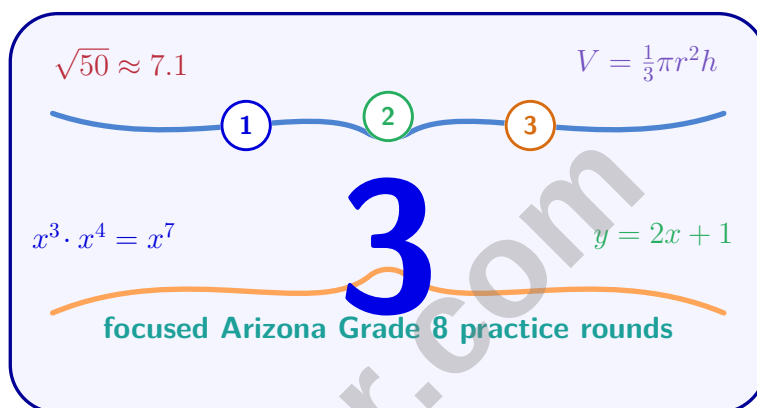
**ONLINE
TESTS**



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

3 Arizona AASA Grade 8 Math Practice Tests

Standards-Aligned Arizona Review for Grade 8 Math Success



Three 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!

Three focused rounds for sharper AASA math thinking

This book gives you three 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 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.

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?

Three AASA 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.



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Table of Contents

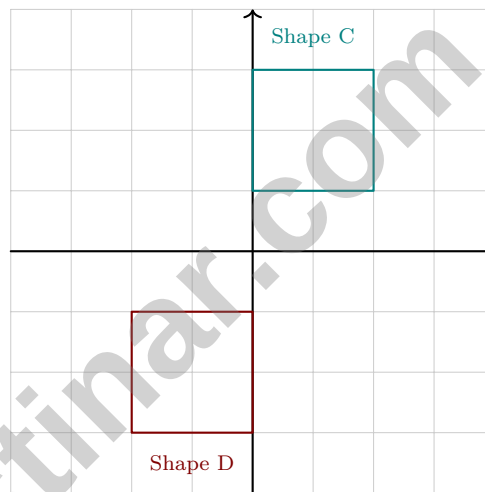


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1) A line in slope-intercept form is $y = mx + b$. If the slope is $-\frac{3}{4}$ and the line passes through $(4, -3)$, what is b ?

☐ A. 0☐ C. -6 ☐ B. 3☐ D. 6

2) A cube has a total surface area of 96 cm^2 . What is the length of one edge?

☐ A. 2 cm☐ C. 6 cm☐ B. 4 cm☐ D. 8 cm

3)

If Shape C is rotated 180° about the origin, which shape results?

☐ A. Shape D☐ D. A shape above the x -axis in Quadrant II☐ B. The same shape (unchanged)☐ C. A shape in Quadrant II

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4) Two equations are given: Equation 1: $2(x + 3) = 2x + 6$ and Equation 2: $2(x + 3) = 2x + 5$. Which statement is true?

- ☐ A. Both have exactly one solution ☐ C. Both have no solution
☐ B. Equation 1 has one solution; Equation 2 has infinitely many solutions ☐ D. Equation 1 has infinitely many solutions; Equation 2 has no solution

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

6) Which of the following satisfies $2x - 3 < 5$?

- ☐ A. $x = 5$ ☐ C. $x = 3$
☐ B. $x = 10$ ☐ D. $x = 8$

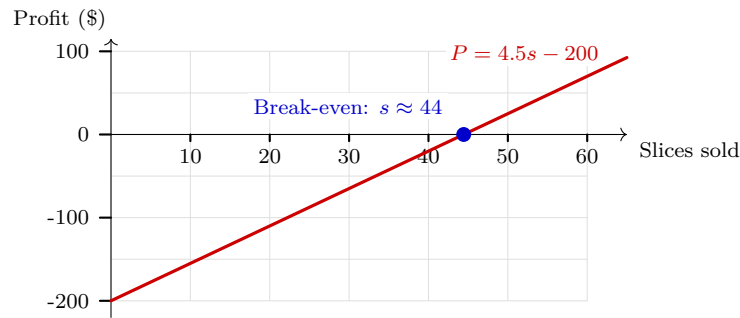
7) A gardener's budget is $B = 50x + 75y$, where x is the number of seed packets and y is the number of tools. The gardener can spend at most \$300. Which inequality represents this constraint?

- ☐ A. $50x + 75y \leq 300$ ☐ C. $50x + 75y < 300$
☐ B. $50x + 75y \geq 300$ ☐ D. $50x + 75y > 300$

8) A cylinder has a radius of 3 cm and a height of 10 cm. Approximately, what is its volume? Use $\pi \approx 3.14$.

- ☐ A. 94.2 cm^3 ☐ C. 282.6 cm^3
☐ B. 188.4 cm^3 ☐ D. 565.2 cm^3





9)

A pizza shop's profit model is $P = 4.5s - 200$, where P is profit in dollars and s is the number of slices sold. How many slices must be sold to break even (profit = 0)?

- ☐ A. Approximately 35 slices ☐ C. Approximately 100 slices
☐ B. Approximately 50 slices ☐ D. Approximately 44 slices

10) An online retailer offers a \$500 item at \$45/month for 12 months with financing. What is the implicit interest charge?

- ☐ A. \$640 ☐ C. \$540
☐ B. \$45 ☐ D. \$40

11) 3.2×10^{-3} equals:

- ☐ A. 3,200 ☐ C. 0.0032
☐ B. 0.032 ☐ D. 3.2



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1) Express $\left(\frac{1}{3}\right)^{-2}$ as a positive exponent.

- ☐ A. $\frac{1}{9}$
☐ B. -9

- ☐ C. $\frac{2}{3}$
☐ D. 9

2) Convert $0.4\overline{2}$ to a fraction in simplest form.

- ☐ A. $\frac{4}{20}$
☐ B. $\frac{42}{100}$

- ☐ C. $\frac{42}{99}$
☐ D. $\frac{38}{90} = \frac{19}{45}$

3) To the nearest hundredth, $\sqrt{19} \approx ?$

- ☐ A. 4.35
☐ B. 4.38

- ☐ C. 4.37
☐ D. 4.36

4) Given $f(x) = 4x - 3$, find $f(5)$.

5) Which statement is true?

- ☐ A. $\sqrt{36}$ is irrational
☐ B. π is rational

- ☐ C. $\sqrt{11}$ is irrational
☐ D. $0.333\ldots$ is irrational

6) Which value is in correct scientific notation form?

- ☐ A. 12.3×10^5
☐ B. 0.15×10^6

- ☐ C. 1.23×10^5
☐ D. 123×10^4



- 7) An aquarium is a rectangular prism with dimensions 4 feet (length) $\times$ 2 feet (width) $\times$ 2.5 feet (height). The bottom and four sides are glass, but the top is open (no glass). How much glass (in square feet) is needed to build the aquarium?

- ☐ A. 32 sq. ft. ☐ C. 38 sq. ft.
☐ B. 36 sq. ft. ☐ D. 48 sq. ft.

- 8) A figure is translated 6 units left and 3 units up. Which rule describes this translation?

- ☐ A. $(x, y) \rightarrow (x - 6, y + 3)$ ☐ C. $(x, y) \rightarrow (x - 6, y - 3)$
☐ B. $(x, y) \rightarrow (x + 6, y - 3)$ ☐ D. $(x, y) \rightarrow (x + 6, y + 3)$

9)

x	y
0	2
1	5
2	8
3	11

The table shows the relationship between x and y on a line. What is the slope?

- ☐ A. 2 ☐ C. $\frac{1}{3}$
☐ B. 11 ☐ D. 3

- 10) Solve for x : $5(x - 2) = 3(x + 2)$

- ☐ A. $x = 8$ ☐ C. $x = 1$
☐ B. $x = -8$ ☐ D. $x = 10$



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1) The table below shows a relation. Is it a function?

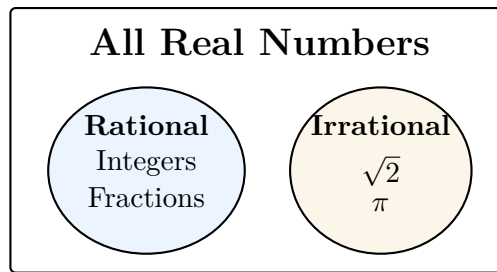
x	y
1	3
2	6
3	9
4	12

- ☐ A. No, because the outputs are larger than inputs.
- ☐ B. Yes, each input has exactly one output.
- ☐ C. No, because y values increase by 3.
- ☐ D. Yes, because all values are positive.
- 2) A data point is at $(6, 8)$. The trend line at $x = 6$ gives a predicted value of $y = 7$. What is the residual?
- ☐ A. 14
- ☐ B. 7
- ☐ C. 1
- ☐ D. -1
- 3) Triangle X is similar to Triangle Y . In Triangle X , one angle measures 60° . What is the measure of the corresponding angle in Triangle Y ?
- ☐ A. 30°
- ☐ B. 60°
- ☐ C. 120°
- ☐ D. Cannot be determined
- 4) The table shows $f(x)$. If $f(x) = 8$, what is x ?

x	1	2	3	4
$f(x)$	4	6	8	10

- ☐ A. 1
- ☐ B. 2
- ☐ C. 3
- ☐ D. 4





5)

Which statement is true?

- | | |
|--|--|
| ☐ A. All square roots are irrational
☐ B. All integers are rational
☐ C. Some repeating decimals are irrational | ☐ D. Every irrational number can be written as a fraction |
|--|--|

6) Write $0.\overline{4}$ as a fraction in simplest form.

- | | |
|---|---|
| ☐ A. $\frac{2}{5}$
☐ B. $\frac{4}{10}$ | ☐ C. $\frac{4}{99}$
☐ D. $\frac{4}{9}$ |
|---|---|

7) Which product is irrational?

- | | |
|--|---|
| ☐ A. $\sqrt{9} \times \sqrt{4}$
☐ B. $\sqrt{2} \times \sqrt{8}$ | ☐ C. $2 \times \sqrt{3}$
☐ D. $\sqrt{16} \times \sqrt{25}$ |
|--|---|

8) Which is the best estimate of $\sqrt{45}$?

- | | |
|--|--|
| ☐ A. 5.5
☐ B. 6.0 | ☐ C. 6.7
☐ D. 9.0 |
|--|--|



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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 A is correct.** (8.EE.B.6) Substitute: $-3 = -\frac{3}{4}(4) + b$, so $-3 = -3 + b$, thus $b = 0$.
- 2) **Choice B is correct.** (8.G.C.9) $6s^2 = 96$, so $s^2 = 16$, giving $s = 4$ cm. Check: $6(4)^2 = 6(16) = 96$ ✓.
- 3) **Choice A is correct.** (8.G.A.1) A 180° rotation about the origin takes a point in Quadrant I to Quadrant III. Shape C's corner at $(2, 3)$ maps to $(-2, -3)$, matching Shape D.
- 4) **Choice D is correct.** (8.EE.C.7) Eq. 1: Expand $2x + 6 = 2x + 6$ (identity, infinitely many). Eq. 2: Expand $2x + 6 = 2x + 5 \Rightarrow 6 = 5$ (false, no solution).
- 5) **The correct answer is 100.** (8.EE.A.3) 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 .
- 6) **Choice C is correct.** (8.EE.C.7) Solving $2x - 3 < 5$ gives $2x < 8$, so $x < 4$. Of the listed choices, only $x = 3$ satisfies the inequality.
- 7) **Choice A is correct.** (8.G.B.8) At most \$300 means the budget is less than or equal to 300. The solid boundary line includes the exact limit of \$300.
- 8) **Choice C is correct.** (8.G.C.9) Volume of a cylinder: $V = \pi r^2 h \approx 3.14 \times 3^2 \times 10 = 3.14 \times 90 = 282.6$ cm³.
- 9) **Choice D is correct.** (8.SP.A.3) Set $P = 0$: $0 = 4.5s - 200 \Rightarrow 4.5s = 200 \Rightarrow s \approx 44.4$ slices.
- 10) **Choice D is correct.** (8.G.B.7) Total installment cost: $45 \times 12 = \$540$. Interest: $540 - 500 = \$40$.
- 11) **Choice C is correct.** (8.EE.A.4) $3.2 \times 10^{-3} = 3.2 \div 1,000 = 0.0032$. Moving the decimal 3 places left.
- 12) **Choice C is correct.** (8.EE.B.5) Slope $k = \frac{3}{4}$. Line passes through origin and $(4, 3)$, so $y = \frac{3}{4}x$.
- 13) **Choice D is correct.** (8.EE.C) Subtract the second equation from the first: $(3x + 2y) - (3x - y) = 12 - 12$, so $3y = 0$ and $y = 0$. Substitute into $3x - y = 12$: $3x = 12$, so $x = 4$. Solution: $(4, 0)$.
- 14) **Choice D is correct.** (8.F.A.2) First line starts at $(0, 1)$ (higher). If slopes are close, first stays above. If second has much steeper slope, it can overtake first in Q1. Answer depends on specific slopes.
- 15) **Choice D is correct.** (8.F.A.3) Constant first differences (whether positive or negative) indicate a linear function. The negative value indicates the function is decreasing.
- 16) **Choice B is correct.** (8.F.B.5) In a distance-time graph, horizontal = no change in distance (stopped). Vertical would mean distance changes instantly (impossible). Steep means fast travel. Negative intercept just means starting point.
- 17) **Choice B is correct.** (8.G.A.2) Reflection across an altitude of an equilateral triangle is a rigid motion that preserves all side lengths and angles. The resulting triangle is congruent to the original: sides of 6 cm and all angles 60° .
- 18) **Choice A is correct.** (8.G.A.3) Reflecting across the x -axis maps $(0, 1) \rightarrow (0, -1)$ and $(2, 2) \rightarrow (2, -2)$. Translating left 4 gives $(-4, -1)$ and $(-2, -2)$, matching the image rectangle.
- 19) **Choice C is correct.** (8.G.A.5) Let angles be $3x$, $4x$, and $5x$. Sum: $3x + 4x + 5x = 180 \Rightarrow 12x = 180 \Rightarrow x = 15^\circ$. Smallest angle: $3x = 45^\circ$.
- 20) **The correct answer is A,C.** (8.NS.A.1) Statement A is true because rational numbers are closed under addition. Statement C is true because any terminating decimal, such as $0.75 = \frac{3}{4}$, is rational. Statement B is false because two irrational numbers can multiply to a rational number, for example $\sqrt{2} \times \sqrt{8} = 4$. Statement D is false because integers are rational. Statement E is false because perfect squares have rational square roots, not irrational ones.
- 21) **Choice B is correct.** (8.G.B.6, 8.G.B.7) From $6^2 + b^2 = 10^2$, we get $36 + b^2 = 100$, so $b = 8$ (scaled 3-4-5 triple).
- 22) **Choice A is correct.** (8.G.B.7) Corresponding angles are congruent. So $r = 41^\circ$.
- 23) **Choice B is correct.** (8.G.B.7) $V = \frac{1}{3}s^2h$. So $128 = \frac{1}{3}s^2(8)$, which gives $s^2 = 48$. Therefore $s = \sqrt{48} = 4\sqrt{3}$ inches.
- 24) **The correct answer is $\frac{53}{90}$.** (8.NS.A.1) Set $x = 0.5\bar{8} = 0.5888\dots$. Then $10x = 5.\bar{8}$ and $100x = 58.\bar{8}$. Subtracting: $90x = 53$, so $x = \frac{53}{90}$.
- 25) **Choice B is correct.** (8.G.B.7) Decompose the perimeter: two long sides of rectangle plus two semicircles (which form one complete circle). Long sides: $100 + 100 = 200$ m. Circle circumference: $\pi d = 3.14 \times 50 \approx 157$ m. Total = $200 + 157 = 357$ m.
- 26) **Choice C is correct.** (8.SP.A.1) A clear upward trend with most points close to the line indicates strong positive correlation. If most points stayed far from the trend, the correlation would be weak.



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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.

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PRACTICE. PREPARE. SUCCEED.



Testinar

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