

7

Arizona

AASA

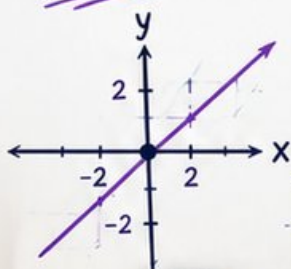
GRADE 8

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

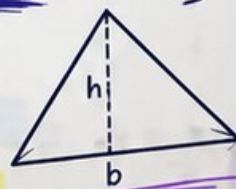
$$y = mx + b$$



BUILD
CONFIDENCE.
SHARPEN SKILLS.
ACE YOUR
EXAM!

Practice
Today
Succeed
Tomorrow!

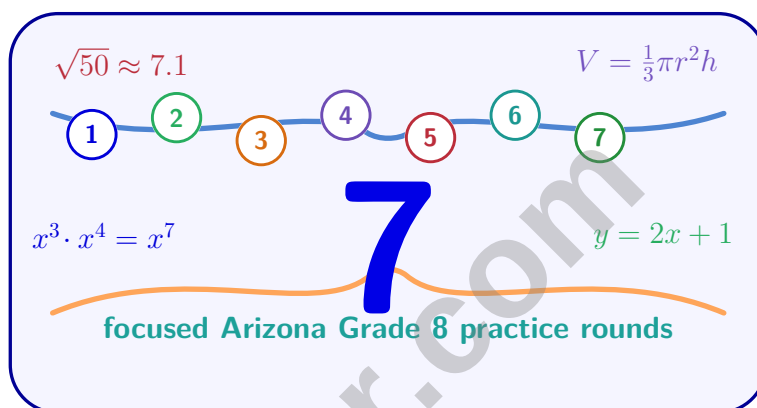
$$A = \frac{1}{2}bh$$

7 PRINTED
TESTS2 ONLINE
TESTS

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

7 Arizona AASA Grade 8 Math Practice Tests

Focused AASA Practice for Functions, Geometry, Data, and Equations



Seven 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!

Seven focused rounds for sharper AASA math thinking

This book gives you seven 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 seven-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?

Seven AASA tests, 280 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.
Test 7	Pythagorean reasoning, volume, data analysis, linear models, probability, mixed review, and stamina.
Answer Pages	Compact keys and explanations that show why each answer works.

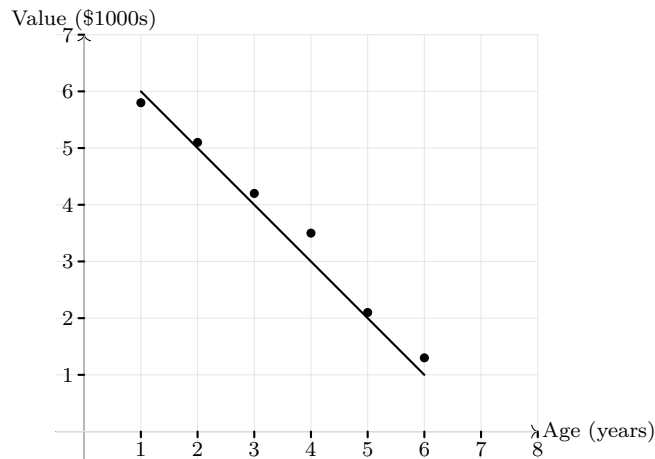
The tests are mixed on purpose. Grade 8 success means recognizing which idea is being tested even when the next question changes format.



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Table of Contents

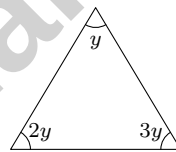
★ Practice Test 1	_____	13
★ Practice Test 2	_____	30
★ Practice Test 3	_____	45
★ Practice Test 4	_____	64
★ Practice Test 5	_____	79
★ Practice Test 6	_____	96
★ Practice Test 7	_____	111
Practice Test Answer Keys	_____	126
Practice Test Answers and Explanations	_____	131



1)

A scatter plot shows vehicle age vs. value. Which best describes the relationship?

- ☐ A. Positive linear relationship ☐ C. No relationship
☐ B. Negative linear relationship ☐ D. Exponential growth

2) What is the value of y in the triangle shown?

- ☐ A. 18° ☐ C. 36°
☐ B. 30° ☐ D. 45°

3) Solve the system:
$$\begin{cases} y = x + 2 \\ y = 2x - 1 \end{cases}$$

- ☐ A. (3, 5) ☐ C. (5, 7)
☐ B. (3, 1) ☐ D. (-1, 1)



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- 4) A music streaming service charges \$8 for premium features plus \$12 per month for access. Which equation represents the total cost T for m months of service?

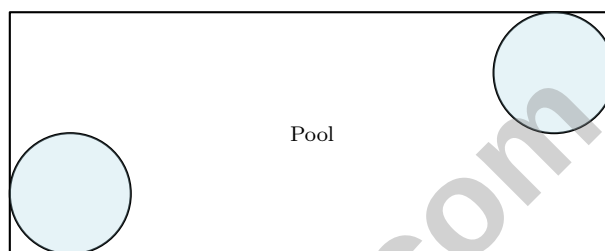
☐ A. $T = 12m + 8$

☐ C. $T = 20m$

☐ B. $T = 8m + 12$

☐ D. $T = 8m - 12$

- 5) A swimming pool shape is a rectangle (20 m by 8 m) with two circular spa zones (radius 2 m each) built into two corners. What is the area of the pool excluding the spas? Use $\pi \approx 3.14$.



☐ A. 74.88 m^2

☐ C. 134.88 m^2

☐ B. 144 m^2

☐ D. 159.04 m^2

- 6) A triangle has area 36 cm^2 . If the triangle is dilated by a scale factor of $\frac{2}{3}$, what is the area of the dilated triangle?

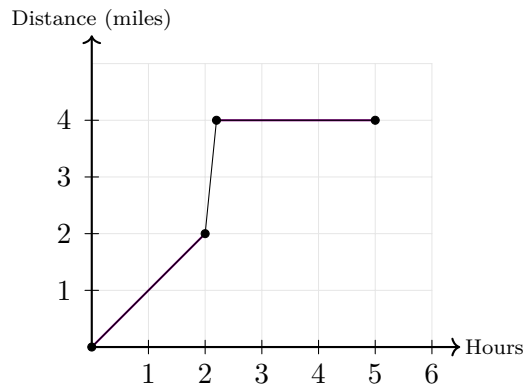
☐ A. 16 cm^2

☐ C. 36 cm^2

☐ B. 24 cm^2

☐ D. 54 cm^2





7)

A traveler's distance graph shows: 0 to 2 hours rising, then a jump, then flat. What does the jump represent?

- ☐ A. The traveler rested without moving ☐ C. This graph cannot represent a real physical scenario (discontinuity)
- ☐ B. The traveler waited at the same distance ☐ D. The traveler went backward in distance

8) A right triangle has legs of 15 and 20. How much longer is the hypotenuse than the shorter leg?

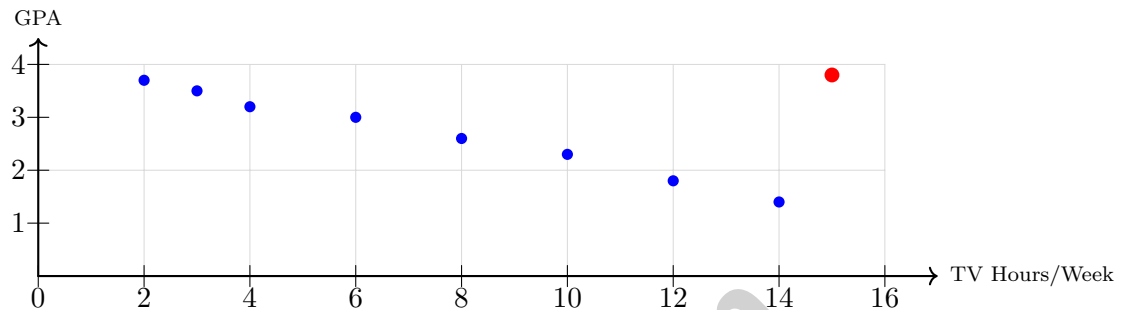
- ☐ A. 10 ☐ C. 25
- ☐ B. 20 ☐ D. 35

9) The cost of a gym membership is \$50 per month. If Sarah spends a total of \$200 after t months, write and solve an equation to find t . Verify your answer.

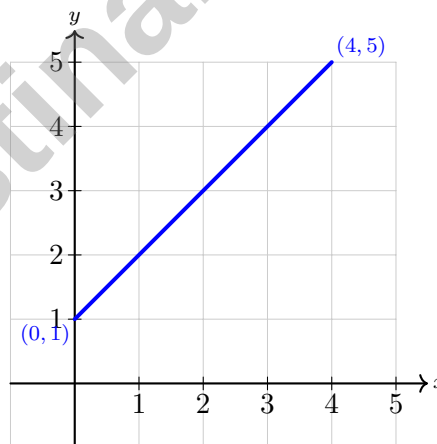


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- 1) A scatter plot displays student GPA versus hours watched TV per week. Most students show a pattern: those who watch more TV have lower GPAs. A student with a GPA of 3.8 watches 15 hours of TV per week, while similar high watchers have GPAs around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



- ☐ A. No, the GPA is typical for high TV watchers
☐ B. No, GPA is unrelated to TV time
☐ C. Yes, it deviates from the expected negative pattern
☐ D. No, all points above GPA 3.0 are outliers



2)

What is the slope of the line shown in the graph?

- ☐ A. 1
☐ B. 2
☐ C. $\frac{1}{2}$
☐ D. 4



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3) A phone plan costs \$30 per month plus \$0.15 per text message. If Marcus paid \$45 last month, which equation represents the situation, where t is the number of texts?

☐ A. $30 + 0.15t = 45$

☐ C. $45 + 30t = 0.15$

☐ B. $30t + 0.15 = 45$

☐ D. $0.15t - 30 = 45$

4) A phone plan charges \$20 base plus \$0.10 per text. If you budget at most \$35, which inequality shows max texts?

☐ A. $0.10t + 20 > 35$

☐ C. $0.10 + 20t \geq 35$

☐ B. $20t + 0.10 \leq 35$

☐ D. $0.10t + 20 \leq 35$

5) When two parallel lines are cut by a transversal, two co-interior angles are $(2x + 15)^\circ$ and $(x + 45)^\circ$. What is x ?

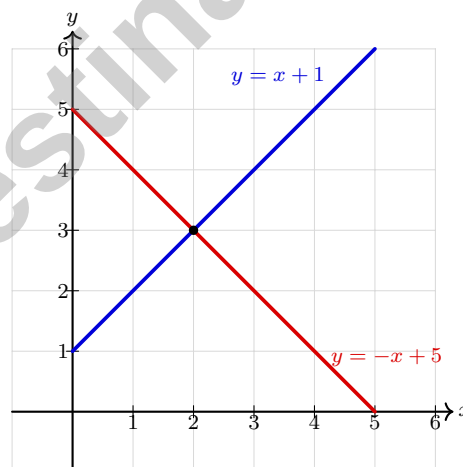
☐ A. 40

☐ C. 80

☐ B. 60

☐ D. 120

6) Which ordered pair is the solution to the system shown on the graph?



☐ A. (3, 4)

☐ C. (2, 3)

☐ B. (1, 2)

☐ D. $(\frac{5}{2}, \frac{7}{2})$



- 1) A triangle with vertices at $(1, 0)$, $(3, 0)$, and $(2, 2)$ is reflected across the x -axis. What is the y -coordinate of the image of the vertex originally at $(2, 2)$?

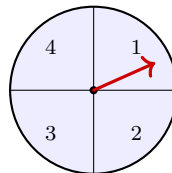
☐ A. 2☐ C. 0☐ B. -2 ☐ D. 4

- 2) A residual is the vertical distance between a data point and the trend line. Which set of residuals indicates the BEST fit?

☐ A. Residuals of $15, -12, 18, -14, 20$ ☐ C. Residuals of $-20, -18, 22, 25, 19$ ☐ B. Residuals of $-1, 0, 1, 0, -1$ ☐ D. Residuals of $-5, -4, 3, 4, 2$

- 3) Two points are at $(-3, 4)$ and $(5, -2)$. Calculate the distance between them. Round to the nearest tenth if necessary.

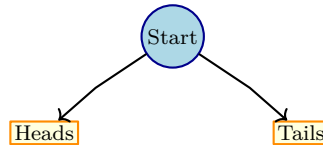
- 4) A spinner with 4 equal sections is spun twice. What is the probability of landing on section 1 at least once?

☐ A. $\frac{7}{16}$ ☐ C. $\frac{1}{8}$ ☐ B. $\frac{9}{16}$ ☐ D. $\frac{1}{2}$ 

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& answers

- 5) A probability experiment involves flipping a coin (heads or tails) and rolling a die (1 through 6). How many different outcomes are possible?



6 die outcomes each

- ☐ A. $2 + 6 = 8$ ☐ C. $6^2 = 36$
☐ B. $2 \times 6 = 12$ ☐ D. $2 + 6 \times 2 = 14$
- 6) A regular pentagon has all interior angles equal. If one interior angle is 108° , what is the sum of all five interior angles? Show your work.

- 7) A student's quiz scores over 6 weeks are $\{72, 78, 75, 81, 84, 90\}$. The mean is 80. Calculate the Mean Absolute Deviation.



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.SP.A.3) As age increases, value decreases in a roughly linear pattern, indicating a negative relationship.
- 2) **Choice B is correct.** (8.G.A.5) Sum of angles: $y + 2y + 3y = 180$, so $6y = 180$ and $y = 30^\circ$.
- 3) **Choice A is correct.** (8.EE.C) Set the expressions for y equal: $x + 2 = 2x - 1$, so $x = 3$. Then $y = 3 + 2 = 5$. Solution: (3, 5).
- 4) **Choice A is correct.** (8.F.B.4) One-time premium feature fee is \$8 (intercept). Monthly service cost is \$12 (slope). Total is $T = 12m + 8$.
- 5) **Choice C is correct.** (8.G.B.7) Rectangle area is $20 \times 8 = 160 \text{ m}^2$. Each circular pool has area $3.14 \times 2^2 = 12.56 \text{ m}^2$, so two pools have area 25.12 m^2 . The remaining area is $160 - 25.12 = 134.88 \text{ m}^2$.
- 6) **Choice A is correct.** (8.G.A.4) Area scales by the square of the scale factor: $36 \times \left(\frac{2}{3}\right)^2 = 36 \times \frac{4}{9} = 16 \text{ cm}^2$.
- 7) **Choice C is correct.** (8.F.B.5) A jump discontinuity in a distance-time graph would mean the distance changes suddenly without showing the travel in between, which is not physically realistic for normal motion. A real distance-time graph should change continuously.
- 8) **Choice A is correct.** (8.G.B.6, 8.G.B.7) From $15^2 + 20^2 = 225 + 400 = 625$, we get $c = 25$. The difference is $25 - 15 = 10$ (scaled 3-4-5 triple).
- 9) **The correct answer is $t = 4$ months.** (8.EE.C.7) The equation is $50t = 200$. Divide both sides by 50: $t = 4$ months. Verify: $50(4) = 200$ ✓.
- 10) **Choice C is correct.** (8.G.C.9) $V = \frac{4}{3}\pi r^3 = \frac{4}{3} \times 3.14 \times 343 \approx 1436.03 \text{ m}^3$.
- 11) **Choice C is correct.** (8.G.B.7) If the angles are $3k$ and $7k$, then $3k + 7k = 90$, so $10k = 90$ and $k = 9^\circ$. The smaller angle is $3 \times 9 = 27^\circ$.
- 12) **Choice B is correct.** (8.G.B.7) Base area: $B = \frac{1}{2} \times 6 \times 8 = 24 \text{ in}^2$. Volume: $V = \frac{1}{3} \times 24 \times 10 = 80 \text{ in}^3$.
- 13) **Choice D is correct.** (8.F.A.1) Each country has exactly one capital city. The other relations can assign more than one output to a single input.
- 14) **Choice B is correct.** (8.F.A.2) First base cost: \$5. Second base cost: \$7. Since $7 > 5$, second is higher.
- 15) **Choice D is correct.** (8.G.A.2) Rotation is a rigid motion that preserves lengths. If two segments are congruent before rotation, they remain congruent after rotation. Both still have their original lengths.
- 16) **Choice C is correct.** (8.G.A.3) Reflection across $y = x$ swaps coordinates: $(0, -7) \rightarrow (-7, 0)$.
- 17) **Choice A is correct.** (8.G.B.8) $d = \sqrt{(5-2)^2 + (7-3)^2} = \sqrt{3^2 + 4^2} = \sqrt{9+16} = \sqrt{25} = 5$ units.
- 18) **Choice D is correct.** (8.G.A.5) The sum of exterior angles is always 360° . If each exterior angle is 24° , then $n = \frac{360}{24} = 15$.
- 19) **Choice C is correct.** (8.SP.A.1) Relatively balanced distribution above and below a line with many points on or near it indicates moderate to strong correlation.
- 20) **The correct answer is B,E.** (8.EE.B.6) The equation has slope $-\frac{2}{3}$ and y -intercept 5, so B and E are correct. The point (5, 0) is not on the line because $-\frac{2}{3}(5) + 5 = \frac{5}{3}$, not 0. A perpendicular line would have slope $\frac{3}{2}$, not $-\frac{3}{2}$.
- 21) **Choice B is correct.** (8.G.B.8) Expanded data: 4, 4, 8, 8, 8, 12, 12, 12, 12, 12. The mean is 9.2. Deviations: $|4-9.2| = 5.2$ (twice), $|8-9.2| = 1.2$ (three times), $|12-9.2| = 2.8$ (five times). Sum = $10.4 + 3.6 + 14 = 28$. MAD = $28/10 = 2.8$.
- 22) **The correct answer is 5.** (8.EE.C.7) Solve $45 + 5q \geq 70$, giving $q \geq 5$. The minimum whole number is 5.
- 23) **The correct answer is 2.** (8.G.B.8) Slope = $\frac{1-(-3)}{2-0} = 2$.
- 24) **Choice C is correct.** (8.SP.B.5) Sums of 10, 11, 12: (4,6), (5,5), (6,4), (5,6), (6,5), (6,6). That's 6 outcomes.
- 25) **Choice C is correct.** (8.EE.A.2) Select the 1st book (7 choices), 2nd (6 remaining), 3rd (5 remaining). Total: $7 \times 6 \times 5 = 210$. (This is $P(7, 3) = \frac{7!}{4!}$)
- 26) **Choice B is correct.** (8.SP.A.2) At $x = 5$ on the trend line, the corresponding y -value is approximately 6.
- 27) **Choice C is correct.** (8.NS.A.1) Only $-\frac{9}{2}$ is rational (a fraction of two integers). The others are irrational: $\sqrt{13}$ is a non-perfect-square root, $2 + \sqrt{5}$ is a sum involving an irrational, and $\sqrt{\pi}$ is the root of an irrational.



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Hi, Smart Reviewer!

◇ The best learning often happens after the test, when you look back and notice what worked and what needs attention. This broad and demanding book gave you seven strong Grade 8 practice tests, so you had repeated chances to build accuracy, pacing, and confidence. ◇

★ **Remember this:** You can use these practice tests as a map. The questions you solved quickly show strengths; the questions you missed show where to train next. ★

Review Routine

- **Sort:** Group mistakes by skill.
- **Reread:** Check whether the question was misunderstood.
- **Resolve:** Do the problem again without looking.
- **Record:** Write the lesson in one sentence.

Grade 8 test-day tip: Review in short focused sessions. Ten careful minutes can be more useful than an hour of rushing.

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

Jay Daie

Your Review Coach

PRACTICE TODAY SUCCEED TOMORROW!

Give your child the confidence and skills they need with **7 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!

GRADE 8

Practice
Today
Succeed
Tomorrow!

Algebra

Geometry

Statistics

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 | ✓ 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! |



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