

8

Arizona

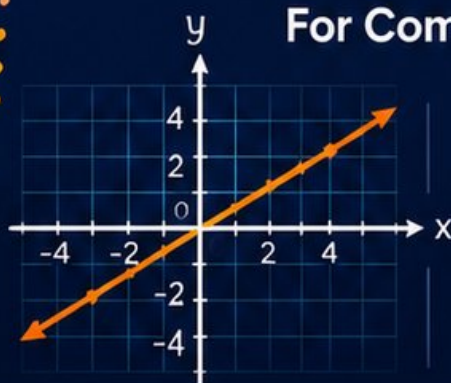
AASA

GRADE 8

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs



$$A = \pi r^2$$
$$C = 2\pi r$$
$$V = \frac{1}{3}\pi r^2 h$$



$$V = \frac{1}{3}b^2 h$$



8

 PRINTED TESTS

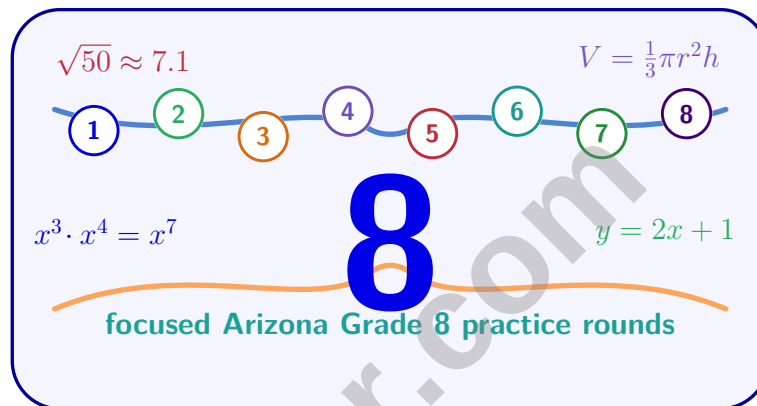
2

 ONLINE TESTS

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

8 Arizona AASA Grade 8 Math Practice Tests

Focused Arizona Practice for Grade 8 Functions, Geometry, and Data



Eight 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!

Eight focused rounds for sharper AASA math thinking

This book gives you eight 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

An eight-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?

Eight AASA tests, 320 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.
Tests 7–8	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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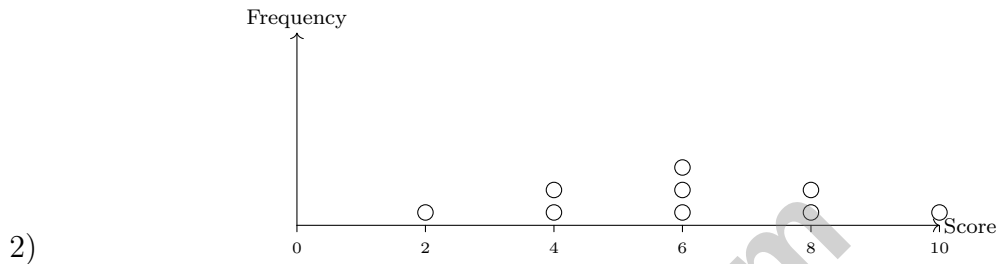
1) Solve:
$$\begin{cases} \frac{1}{4}x + y = 2 \\ x - y = 4 \end{cases}$$

☐ A. $(\frac{24}{5}, \frac{4}{5})$

☐ B. $(\frac{20}{3}, \frac{8}{3})$

☐ C. $(5, -1)$

☐ D. $(3, -1)$



Data from dot plot: $\{2, 4, 4, 6, 6, 6, 8, 8, 10\}$ with mean = 6. Find MAD.

☐ A. 1.5

☐ B. 1.78

☐ C. 2

☐ D. 2.2



A scatter plot shows no clear pattern or trend. Which line is the best fit?

☐ A. A line with the steepest possible slope

☐ B. A line that bounces between all the points randomly

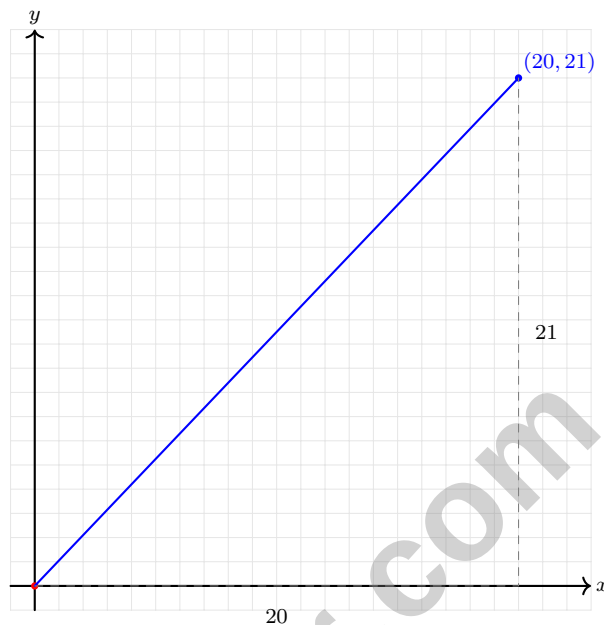
☐ C. A vertical line

☐ D. A horizontal line near the mean of the y -values



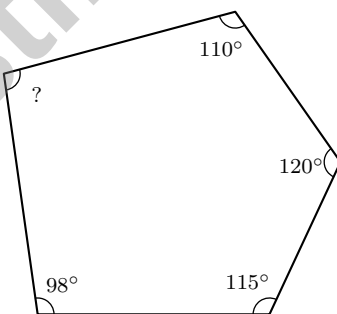
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- 4) A surveyor measures a plot of land with one corner at $(0, 0)$ and another at $(20, 21)$. What is the distance between these two corners?



- ☐ A. 41 ☐ C. $\sqrt{800}$
☐ B. 29 ☐ D. 1

5)



A pentagon has four known angles: 98° , 115° , 120° , 110° . Find the fifth angle.

- ☐ A. 87° ☐ C. 107°
☐ B. 97° ☐ D. 117°



- 6) A bag contains 10 cards: 6 red and 4 blue. Two cards are drawn without replacement. What is the probability of drawing a red card first and another red card second?
- ☐ A. $\frac{36}{100}$ ☐ C. $\frac{1}{3}$
☐ B. $\frac{5}{9}$ ☐ D. $\frac{15}{90}$
- 7) A band needs to assign 3 distinct instruments to 7 musicians (each musician gets at most one). How many ways can this be done?
- ☐ A. $7 + 6 + 5 = 18$ ☐ C. $\binom{7}{3} = 35$
☐ B. $7 \times 6 \times 5 = 210$ ☐ D. $3! = 6$
- 8) What is $\sqrt{121}$?
- ☐ A. 10 ☐ C. 12
☐ B. Irrational ☐ D. 11
- 9) Convert $0.\overline{037}$ to a fraction.
- ☐ A. $\frac{37}{1000}$ ☐ C. $\frac{37}{999}$
☐ B. $\frac{37}{99}$ ☐ D. $\frac{1}{37}$
- 10) 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
- 11) A household budget for monthly net income of \$4,000 is divided as follows: Housing 35%, Food 20%, Transportation 15%, Utilities 10%, Savings 10%, Other 10%. How much is allocated to housing?



Monthly net income: \$4,000

- ☐ A. \$400 ☐ C. \$1,400
☐ B. \$800 ☐ D. \$2,000



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- 1) A principal of \$5,000 is invested at 6% compound interest annually for 2 years. What is the total amount?

- ☐ A. \$5,300 ☐ C. \$5,618
☐ B. \$5,600 ☐ D. \$5,900

2)

Day	Mon	Tue	Wed	Thu	Fri
Customers	50	60	55	65	70

Weekly customer count with mean = 60. Calculate MAD.

- ☐ A. 6 ☐ C. 10
☐ B. 8 ☐ D. 12

- 3) Why is $y = \sqrt{x}$ considered a function for non-negative x ?

- ☐ A. Because $\sqrt{x}$ is always positive. ☐ C. Because the square root is the inverse of squaring.
☐ B. Because each input $x \geq 0$ produces exactly one output y . ☐ D. Because x and y are both non-negative.

- 4) $\alpha(x) = -3x + 12$ and β table (0, 12), (2, 6), (4, 0). Related how?

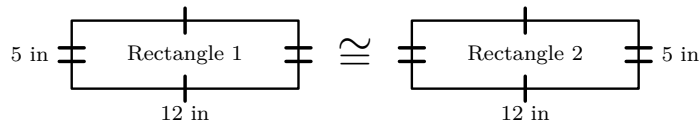
x	0	2	4
$\beta(x)$	12	6	0

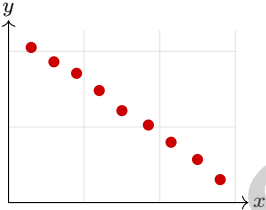
- ☐ A. Identical ☐ C. Different slopes.
☐ B. Same slope, different intercepts. ☐ D. Cannot be determined.



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- 5) 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?

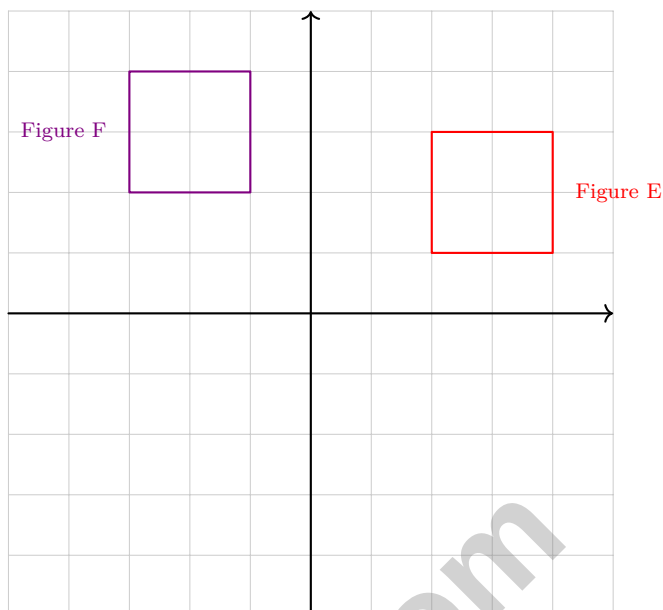


- ☐ A. 17 inches ☐ C. 34 inches
☐ B. 24 inches ☐ D. 60 inches
- 6) 
- A scatter plot of monthly temperature (x) versus monthly heating costs (y) shows a strong negative relationship. Which statement correctly interprets this?

- ☐ A. Heating costs and temperature are unrelated ☐ C. Higher temperatures cause lower heating bills
☐ B. Lower heating bills cause warmer weather ☐ D. As temperature increases, heating costs tend to decrease
- 7) A figure in Quadrant I is reflected across the line $y = -x$. Which quadrant will the image be in?

- ☐ A. Quadrant I ☐ C. Quadrant IV
☐ B. Quadrant II ☐ D. Quadrant III





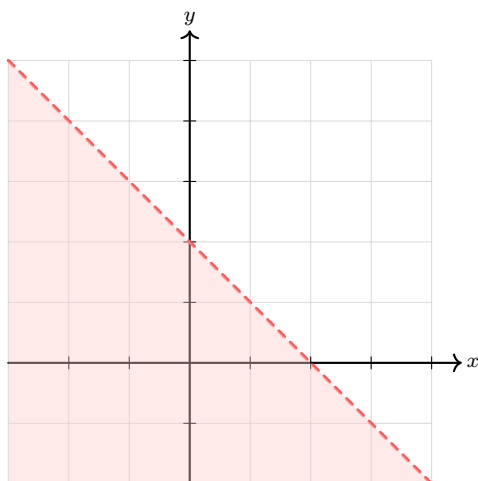
1)

Figures E and F are congruent. If Figure E was transformed to Figure F, which transformation(s) could have been applied?

- | | |
|--|--|
| ☐ A. Only a translation | ☐ C. A reflection and a translation |
| ☐ B. Only a reflection | ☐ D. A rotation and a dilation |



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2)

Based on the dashed line and shaded region, what inequality is shown?

☐ A. $y > -x + 2$

☐ C. $y \geq -x + 2$

☐ B. $y < -x + 2$

☐ D. $y \leq -x + 2$

3) Solve for n : $-2(n - 4) = 10$

☐ A. $n = 1$

☐ C. $n = 9$

☐ B. $n = -9$

☐ D. $n = -1$

4) A student solved a system and got $x = 4, y = -2$. Which system did the student solve?

☐ A. $2x + y = 6$ and $x - y = 5$

☐ C. $y = -x + 1$ and $y = 2x - 10$

☐ B. $3x - y = 14$ and $x + y = 2$

☐ D. $x - 2y = 7$ and $2x + y = 6$



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.C) From the second equation, $y = x - 4$. Substitute into the first: $\frac{1}{4}x + (x - 4) = 2$, so $\frac{5}{4}x = 6$, giving $x = \frac{24}{5}$. Then $y = \frac{24}{5} - 4 = \frac{24}{5} - \frac{20}{5} = \frac{4}{5}$.
- 2) **Choice B is correct.** (8.G.B.8) Deviations: $|2 - 6| = 4$, $|4 - 6| = 2$ (twice), $|6 - 6| = 0$ (three times), $|8 - 6| = 2$ (twice), $|10 - 6| = 4$. Sum = $4 + 4 + 0 + 4 + 4 = 16$. MAD = $16/9 \approx 1.78$.
- 3) **Choice D is correct.** (8.SP.A.2) When there is no clear trend (no correlation), data appears randomly scattered. The best fit is a horizontal line at the average y -value, since no slope can be meaningfully determined.
- 4) **Choice B is correct.** (8.G.B.8) $d = \sqrt{20^2 + 21^2} = \sqrt{400 + 441} = \sqrt{841} = 29$. (This is a 20-21-29 Pythagorean triple.)
- 5) **Choice B is correct.** (8.G.A.5) Sum of angles in a pentagon is 540° . Sum of known: $98 + 115 + 120 + 110 = 443^\circ$. Fifth angle: $540 - 443 = 97^\circ$.
- 6) **Choice C is correct.** (8.SP.B.5) $P(\text{red first}) = \frac{6}{10}$; $P(\text{red second} \mid \text{red first}) = \frac{5}{9}$. Product: $\frac{6}{10} \times \frac{5}{9} = \frac{30}{90} = \frac{1}{3}$.
- 7) **Choice B is correct.** (8.EE.A.2) Assign instrument 1 to any of 7 musicians, instrument 2 to any of the remaining 6, instrument 3 to any of the remaining 5: $7 \times 6 \times 5 = 210$. (This is $P(7, 3)$, a permutation because the instruments are distinguishable.)
- 8) **Choice D is correct.** (8.NS.A.1) $11 \times 11 = 121$, so $\sqrt{121} = 11$, which is a rational number (an integer).
- 9) **Choice C is correct.** (8.NS.A.1) Let $x = 0.\overline{037}$. Then $1000x = 37.\overline{037}$. Subtracting: $999x = 37$, so $x = \frac{37}{999}$.
- 10) **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.)
- 11) **Choice C is correct.** (8.G.B.7) Housing allocation = 35% of \$4,000 = $0.35 \times 4000 = \$1,400$.
- 12) **The correct answer is 10.** (8.F.A.2) Car A travels 60 mph and Car B travels 50 mph, so the difference is 10 mph.
- 13) **Choice D is correct.** (8.EE.A.3) A positive exponent shifts the decimal to the right. Move the decimal 2 places right: $3.8 \times 10^2 = 380$.
- 14) **Choice C is correct.** (8.SP.A.4) Total pastries: $80 + 40 = 120$. Marginal relative frequency: $\frac{120}{300} = 0.40$.
- 15) **Choice C is correct.** (8.EE.B.5) Unit rate $k = \frac{110}{2} = 55$ miles per hour. The proportional equation is $d = 55t$.
- 16) **The correct answer is (3, -5).** (8.G.A.2) A reflection across the x -axis changes the sign of the y -coordinate while keeping the x -coordinate the same. Thus, $(3, 5)$ maps to $(3, -5)$.
- 17) **Choice A is correct.** (8.EE.B.6) The y -intercept is -2 . Using $(4, -4)$: slope = $\frac{-4 - (-2)}{4 - 0} = \frac{-2}{4} = -\frac{1}{2}$.
- 18) **Choice A is correct.** (8.EE.C.7) Distribute: $-3x + 6 = 9$. Subtract 6: $-3x = 3$. Divide by -3 : $x = -1$.
- 19) **Choice D is correct.** (8.EE.C.7) Distribute: $6 - 2x \geq 4$. Subtract 6: $-2x \geq -2$. Divide by -2 (FLIP): $x \leq 1$.
- 20) **Choice B is correct.** (8.F.A.3) The y -differences are $16 - 10 = 6$, $22 - 16 = 6$, $28 - 22 = 6$. Since x changes by 2 each time, the rate of change is $\frac{6}{2} = 3$, constant and linear.
- 21) **Choice B is correct.** (8.G.A.5) Let $B = x$. Then $A = 2x$ and $C = x + 20$. The angles sum to 180° : $2x + x + (x + 20) = 180$, so $4x = 160$ and $x = 40$. Therefore $A = 2x = 80^\circ$.
- 22) **The correct answer is B,D.** (8.F.A.1) Option B: each input $(0, 1, 2, 3)$ has exactly one output $(0, 1, 2, 3)$ —a function. Option D: each input $(5, 6, 7)$ has exactly one output $(1, 2, 3)$ —a function. Option A: input 1 maps to both 2 and 3—not a function. Option C: input 2 maps to both 4 and 5—not a function. Option E: input 1 maps to both 1 and 3—not a function.
- 23) **The correct answer is 50.** (8.G.A.3) Original perimeter: $2(6 + 4) = 20$. Dilated perimeter: $20 \times 2.5 = 50$.
- 24) **Choice D is correct.** (8.NS.A.2) $\sqrt{2} \times \sqrt{8} = \sqrt{16} = 4$ exactly. Perfect pair product.
- 25) **Choice C is correct.** (8.EE.A.1) Apply power to numerator and denominator: $\left(\frac{x}{y}\right)^2 = \frac{x^2}{y^2}$.
- 26) **Choice C is correct.** (8.EE.A.2) Both $15^2 = 225$ and $(-15)^2 = 225$, so $x = 15$ or $x = -15$.
- 27) **Choice C is correct.** (8.EE.A.4) Multiply coefficients: $4.8 \times 1.25 = 6$. Add exponents: $10^{-2+2} = 10^0 = 1$. Result: $6 \times 10^0 = 6 \times 1 = 6$.



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The Power of Showing Work

Hi, Organized Solver!

◇ You practiced Grade 8 skills that often require more than one step. That means your written work matters. ◇

★ **Remember this:** Showing work is not extra. It is how you track your thinking, find errors, and prove that your answer did not happen by luck. You practiced across 8 full Grade 8 practice tests, and that repeated effort matters. ★

Organized Work Habits

- **One Line Per Step:** Keep the path readable.
- **Box the Answer:** Make the final result easy to find.
- **Use Labels:** Tell what each value represents.
- **Check the Path:** Follow your steps backward if needed.

Grade 8 test-day tip: When a problem has several steps, write less on each line. Space makes checking easier.

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

Jay Daie

Your Organized-Work Coach

PRACTICE TODAY, SUCCEED TOMORROW!

Give your child the confidence and skills they need with **8 full-length Grade 8** Math practice tests that mirror 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.



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!

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More Practice. More Confidence.
Better Results.