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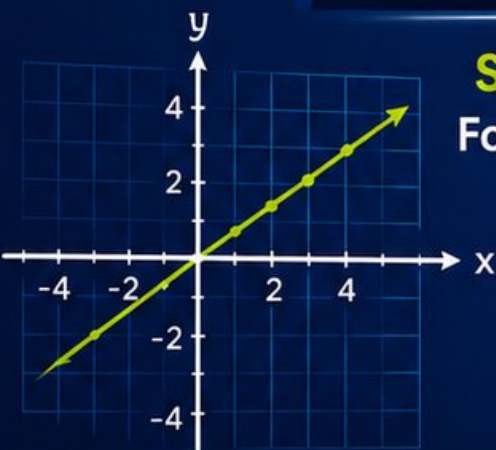
Alabama ACAP

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

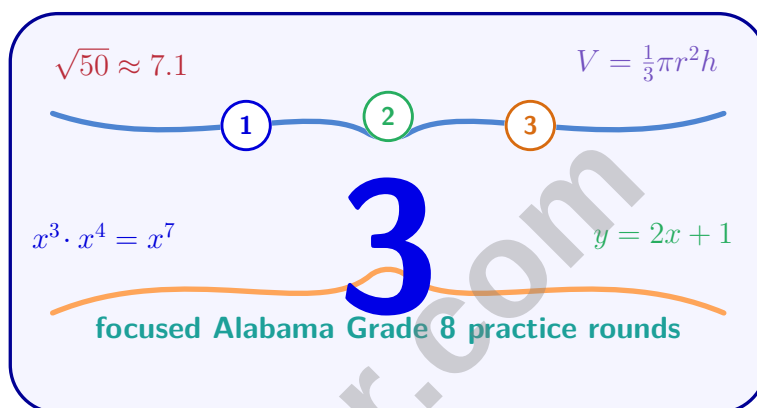
**ONLINE
TESTS**



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

3 Alabama ACAP Grade 8 Math Practice Tests

Three ACAP Practice Rounds for Focused Grade 8 Review



Three complete 40-question Grade 8 ACAP 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, Alabama Grade 8 Problem Solver!

Three focused rounds for sharper ACAP math thinking

This book gives you three full Grade 8 ACAP 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 Alabama 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.

Alabama 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 ACAP 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.

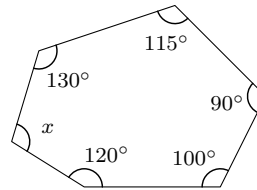
The tests are mixed on purpose. Grade 8 success means recognizing which idea is being tested even when the next question changes format.



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For more practice
& answers

Table of Contents

★ Practice Test 1	_____	13
★ Practice Test 2	_____	30
★ Practice Test 3	_____	47
Practice Test Answer Keys	_____	63
Practice Test Answers and Explanations	_____	66



1)

A hexagon has five known interior angles: 120° , 100° , 90° , 115° , 130° . What is the sixth angle?

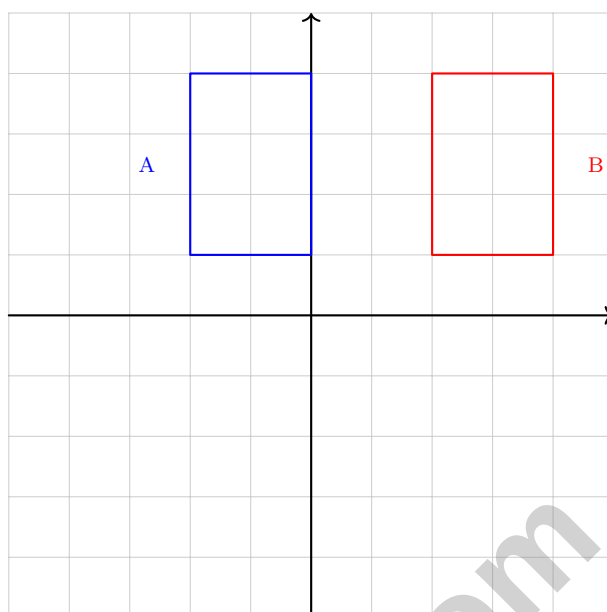
☐ A. 145° ☐ C. 165° ☐ B. 155° ☐ D. 175°

2) A rectangular prism has dimensions $2\text{ m} \times 3\text{ m} \times 4\text{ m}$ with surface area 52 m^2 . If all dimensions are doubled to $4\text{ m} \times 6\text{ m} \times 8\text{ m}$, by what factor does the surface area increase?

☐ A. Multiplied by 2☐ C. Multiplied by 4☐ B. Multiplied by 3☐ D. Multiplied by 8

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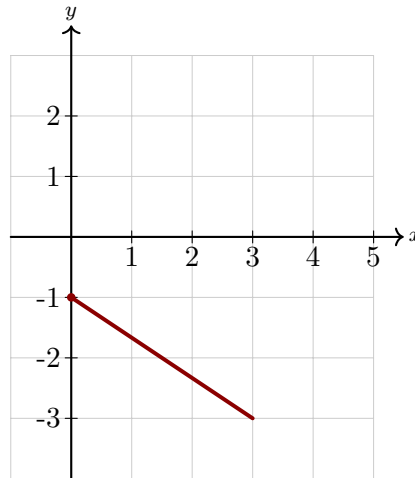


3)

The figure shows shape A and shape B. Which single transformation maps A to B?

- ☐ A. Reflection across the y -axis ☐ C. Rotation 90° counterclockwise
☐ B. Translation 4 units right ☐ D. Dilation with scale factor 2





4)

What is the y -intercept of the line shown?

☐ A. -3

☐ C. -2

☐ B. 0

☐ D. -1

5) Which value of x satisfies $2x + 6 = x + 12$?

☐ A. $x = 6$

☐ C. $x = 18$

☐ B. $x = 4$

☐ D. $x = 2$

6) 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. $0.10t + 20 \leq 35$

7) Which inequality's graph has a solid boundary line AND shades the region BELOW a negatively-sloped line?

☐ A. $y > -2x + 5$

☐ C. $y \geq -2x + 5$

☐ B. $y < -2x + 5$

☐ D. $y \leq -2x + 5$



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1) In similar triangles, corresponding sides are in the ratio $\frac{3}{7}$. If the larger triangle has a side of 21 cm, find the corresponding side in the smaller triangle.

☐ A. 7 cm

☐ C. 15 cm

☐ B. 9 cm

☐ D. 28 cm

2) Which number is the largest?

☐ A. 3.1×10^{-2}

☐ C. 3.1×10^0

☐ B. 3.1×10^{-1}

☐ D. 3.1×10^1

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

4) A scatter plot shows the number of hours a student studies versus their test score. The trend line has equation $y = 5x + 60$. If a student studies for 6 hours, what is the predicted test score?

5) A repeating decimal $0.\overline{d_1d_2d_3}$ (3 digits) will have which denominator when fully simplified?

☐ A. Always exactly 999 (before simplification).

☐ C. A factor of 999 (could be 27, 37, 111, 333, 999, ...).

☐ B. Always exactly 1000.

☐ D. A factor of 1000 (could be 8, 125, 200, ...).



- 6) Convert $0.454545\ldots$ to a fraction in simplest form.

- 7) A student borrows \$1,500 for college at 4% simple interest and repays over 10 years. What is the total amount owed?

- 8) To the nearest tenth, which is the best estimate for $\sqrt{56}$?

☐ A. 7.0☐ C. 8.0☐ B. 6.0☐ D. 7.5

- 9) Which is the best estimate of $\sqrt{15}$?

☐ A. 3.2☐ C. 4.2☐ B. 7.5☐ D. 3.9

- 10) A rectangular prism has length $\frac{3}{2}$ ft, width 1 ft, and height $\frac{1}{2}$ ft. What is its surface area?

☐ A. $\frac{11}{4}$ ft²☐ C. 7 ft²☐ B. $\frac{11}{2}$ ft²☐ D. $\frac{15}{2}$ ft²

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& answers

1) Convert $0.\overline{7}$ to a fraction.

☐ A. $\frac{1}{9}$

☐ B. $\frac{7}{10}$

☐ C. $\frac{7}{99}$

☐ D. $\frac{7}{9}$

2) A data analyst fits two different trend lines to a scatter plot. Line A has MAD (mean absolute deviation of residuals) = 0.3, while Line B has MAD = 0.8. Which conclusion is justified?

☐ A. Line B is better because it has a higher MAD

☐ B. Line A is better because residuals are closer to zero

☐ C. Both lines are equally good

☐ D. We cannot compare lines using MAD alone

3) Given $f(x) = 2x - 5$, what is $f(4)$?

☐ A. 11

☐ B. 3

☐ C. -1

☐ D. 13

4) If $\sqrt{x}$ is rational and x is a positive integer, what must be true about x ?

☐ A. x is odd

☐ B. x is greater than 10

☐ C. x is prime

☐ D. x is a perfect square

5) Angles P and Q are supplementary. If angle $P = 127^\circ$, what is angle Q ?

☐ A. 53°

☐ B. 63°

☐ C. 73°

☐ D. 127°



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& answers

- 6) A recent graduate has a monthly gross income of \$3,000. She budgets: rent \$900, food \$400, transportation \$300, and savings \$200. How much is left for discretionary spending?

☐ A. \$200 ☐ C. \$1,800
☐ B. \$2,500 ☐ D. \$1,200

- 7) Which list is in order from smallest to largest?

☐ A. 3.2×10^{-5} , 3.2×10^1 , 3.2×10^{-3} ☐ C. 3.2×10^{-3} , 3.2×10^{-5} , 3.2×10^1
☐ B. 3.2×10^1 , 3.2×10^{-3} , 3.2×10^{-5} ☐ D. 3.2×10^{-5} , 3.2×10^{-3} , 3.2×10^1

- 8) Two hikers start from the same point, walking in opposite directions. One walks at 4 mph, the other at 5 mph. After how many hours are they 27 miles apart?

- 9) A point at (8, 6) is dilated by some scale factor from the origin and lands at (2, 1.5). What is the scale factor?

- 10) $\sqrt{68}$ is closest to which integer?

☐ A. 7 ☐ C. 9
☐ B. 6 ☐ D. 8



Alabama ACAP 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 Alabama ACAP practice test.



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& answers

Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice C is correct.** (8.25) A hexagon's interior angles add to 720° . The known angles add to $120+100+90+115+130 = 555^\circ$, so the missing angle is $720 - 555 = 165^\circ$.
- 2) **Choice C is correct.** (8.30) Original: $SA = 2(6 + 8 + 12) = 52 \text{ m}^2$. Scaled: $SA = 2(24 + 32 + 48) = 208 \text{ m}^2$. Ratio: $208/52 = 4$. When dimensions scale by $k = 2$, surface area scales by $k^2 = 4$.
- 3) **Choice B is correct.** (8.22) Shape A has a corner at $(-2, 1)$ and shape B has a corresponding corner at $(2, 1)$. The horizontal shift is $2 - (-2) = 4$ units.
- 4) **Choice D is correct.** (8.9) The y -intercept is where the line crosses the y -axis, at point $(0, -1)$.
- 5) **Choice A is correct.** (8.11) Subtract x and 6: $x = 6$. Check: $2(6) + 6 = 18$ and $6 + 12 = 18$ ✓. (Distractor B: arithmetic error; C: adding instead of subtracting.)
- 6) **Choice D is correct.** (8.11) Base (20) plus texts at 0.10 each ($0.10t$), total at most 35.
- 7) **Choice D is correct.** (8.12) Solid line requires $\leq$ or $\geq$. Shading BELOW a negative slope means $\leq$. Combined: $y \leq -2x + 5$.
- 8) **The correct answer is 3.56×10^5 .** (8.5) Move the decimal 5 places left to get 3.56; since the original number is greater than 1, the exponent is positive 5.
- 9) **Choice A is correct.** (8.20) A positive slope (0.6) means as x increases, y increases, indicating a positive relationship.
- 10) **Choice D is correct.** (8.30) 18 months = 1.5 years. $I = 5000 \times 0.06 \times 1.5 = \450 .
- 11) **Choice D is correct.** (8.3) The quotient rule shows: $\frac{x^5}{x^5} = x^{5-5} = x^0$. Since $\frac{x^5}{x^5} = 1$, we have $x^0 = 1$.
- 12) **Choice C is correct.** (8.4) $18 \times 18 = 324$, so $\sqrt{324} = 18$.
- 13) **Choice D is correct.** (8.6) Multiply: $6 \times 3 = 18 = 1.8 \times 10^1$. Add exponents: $10^{2+4} = 10^6$. Combine: $1.8 \times 10^1 \times 10^6 = 1.8 \times 10^7$.
- 14) **Choice C is correct.** (8.8) Store A: $8/4 = 2$ per notebook. Store B: $12/5 = 2.40$ per notebook. Store A is cheaper.
- 15) **Choice D is correct.** (8.12) Substitute $y = 3x$ into $x + y = 12$: $x + 3x = 12$, so $4x = 12$, giving $x = 3$. Then $y = 3(3) = 9$. Solution: $(3, 9)$.
- 16) **Choice B is correct.** (8.11) Find two numbers that multiply to 24 and add to -11 : -4 and -6 . Verify: $(-4)(-6) = 24$ and $-4 - 6 = -11$.
- 17) **Choice A is correct.** (8.13) Each vertical line at $x = a$ represents all points with that x -coordinate. If the line intersects the graph more than once, the input a has multiple outputs, violating the function definition.
- 18) **The correct answer is $\frac{53}{90}$.** (8.1) Set $x = 0.5\bar{8} = 0.5888\dots$. Then $10x = 5.\bar{8}$ and $100x = 58.\bar{8}$. Subtracting: $90x = 53$, so $x = \frac{53}{90}$.
- 19) **The correct answer is A, C.** (8.1) 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.
- 20) **Choice A is correct.** (8.15) Slope of r : $(7 - 3)/(3 - 1) = 4/2 = 2$. Slope of s : 1. Since $2 > 1$, r increases faster.
- 21) **Choice A is correct.** (8.15) A nonlinear function does not form a straight line. This graph shows a parabola (curved shape), characteristic of a quadratic or nonlinear function.
- 22) **Choice A is correct.** (8.16) Initial fee is \$3 (intercept), rate per mile is \$0.50 (slope). Equation: $C = 0.50d + 3$.
- 23) **Choice B is correct.** (8.17) From 0 to 2s: flat (height constant at 4m). From 2 to 3s: the height drops to 1m. From 3 to 4s: flat at 1m. From 4 to 5s: the height rises to 3m. From 5 to 6s: flat at 3m.
- 24) **Choice C is correct.** (8.22) Reflection is a rigid motion that preserves all distances and angles. So the reflected pentagon is congruent to the original.
- 25) **Choice A is correct.** (8.23) Reflection across $y = -x$ maps $(x, y) \rightarrow (-y, -x)$. So $(5, 0) \rightarrow (0, -5)$.
- 26) **Choice A is correct.** (8.25) Angle 1 (63°) and angle 2 (95°) form a triangle with angle 3. The angle corresponding to angle 1 (by the parallel line property) is 63° . Then by triangle angle sum: angle 3 = $180 - 63 - 95 = 22^\circ$.



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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Testinar

More Practice. More Confidence.
Better Results.