

Alabama

ACAP

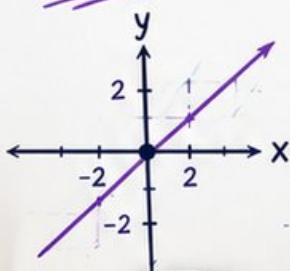
GRADE 8

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

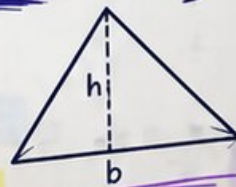
$$y = mx + b$$



**BUILD
CONFIDENCE.
SHARPEN SKILLS.
ACE YOUR
EXAM!**

Practice
Today
Succeed
Tomorrow!

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



7 PRINTED
TESTS



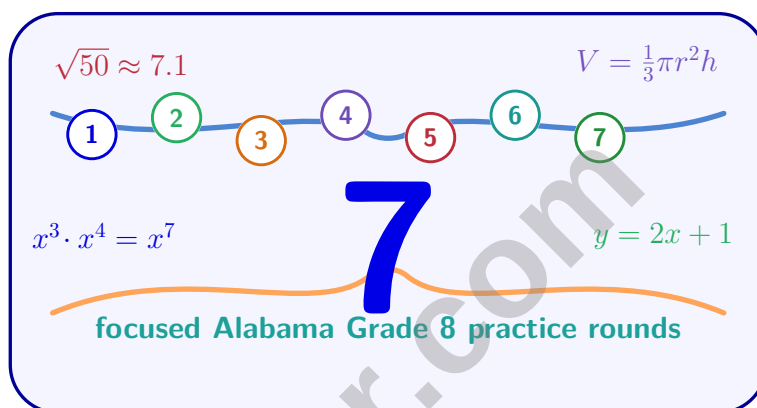
2 ONLINE
TESTS



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

7 Alabama ACAP Grade 8 Math Practice Tests

Seven ACAP Rounds for Functions, Geometry, Data, and Reasoning



Seven 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!

Seven focused rounds for sharper ACAP math thinking

This book gives you seven 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 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.

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?

Seven ACAP 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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For more practice
& answers

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1) A store advertises: “Pay \$250 down and \$150/month for 12 months.” If the item costs \$1,500 cash, what is the finance charge?

☐ A. \$0☐ C. \$100☐ B. \$50☐ D. \$550

2) Which pair of points lies on a proportional relationship through the origin?

☐ A. (2, 5) and (4, 9)☐ C. (1, 3) and (2, 5)☐ B. (3, 12) and (5, 21)☐ D. (2, 6) and (4, 12)

3) A rectangle has vertices at (0, 0), (4, 0), (4, 2), and (0, 2). If this rectangle is reflected across the line $y = x$, what is the length of the side that corresponds to the bottom side of the original rectangle (from (0, 0) to (4, 0))?

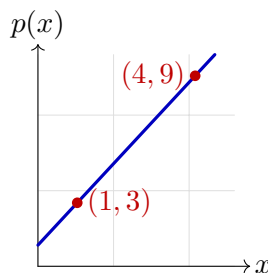


4) Solve:
$$\begin{cases} x = 2y + 1 \\ 3x - y = 8 \end{cases}$$

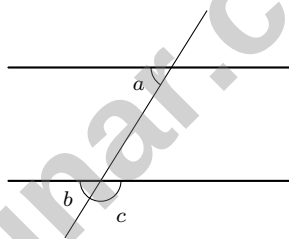
☐ A. (1, 0)☐ C. (5, 2)☐ B. (7, 3)☐ D. (3, 1)

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- 5) Function p with graph through $(1, 3)$ and $(4, 9)$ (slope shown visually). Function q : “starts at 5, decreases by 2 each unit.” Which has a positive slope?

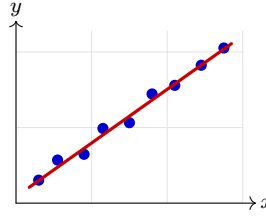


- ☐ A. Only p ☐ C. Both p and q
☐ B. Only q ☐ D. Neither p nor q
- 6) Two parallel lines are cut by a transversal. If angle $a = 52^\circ$, and angles a and b are corresponding angles, what is angle c if it is supplementary to angle b ?



- ☐ A. 52° ☐ C. 128°
☐ B. 104° ☐ D. 180°
- 7) A square pyramid has a base edge of 2.5 m and a height of 9.6 m. What is its volume? (Use $2.5^2 = 6.25$.)
- ☐ A. 20 m^3 ☐ C. 40 m^3
☐ B. 30 m^3 ☐ D. 50 m^3





8)

A scatter plot shows the relationship between study time (hours) and quiz performance (percent). Which phrase best completes: “The strength of a linear model depends on...”?

- | | |
|---|--|
| ☐ A. How close data points cluster to the trend line | ☐ C. The total number of data points |
| ☐ B. Whether the line has a positive slope | ☐ D. The starting value of the y -intercept |

9) Solve: $\frac{2x}{3} \geq -4$

- | | |
|---|--|
| ☐ A. $x \geq -6$ | ☐ C. $x \geq -12$ |
| ☐ B. $x \leq -6$ | ☐ D. $x \leq -12$ |

10) For a dashed boundary line, the inequality must use which symbol(s)?

- | | |
|---|--|
| ☐ A. $\leq$ only | ☐ C. $<$ or $>$ |
| ☐ B. $\geq$ only | ☐ D. $\leq$ or $\geq$ |

11) Which equation is NONLINEAR?

- | | |
|---|--|
| ☐ A. $y = -7x$ | ☐ C. $y = x^4 - 3$ |
| ☐ B. $y = 4 - x$ | ☐ D. $y = \frac{1}{3}x + 2$ |



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1) Which expression is equivalent to $\frac{5^6}{5^2}$?

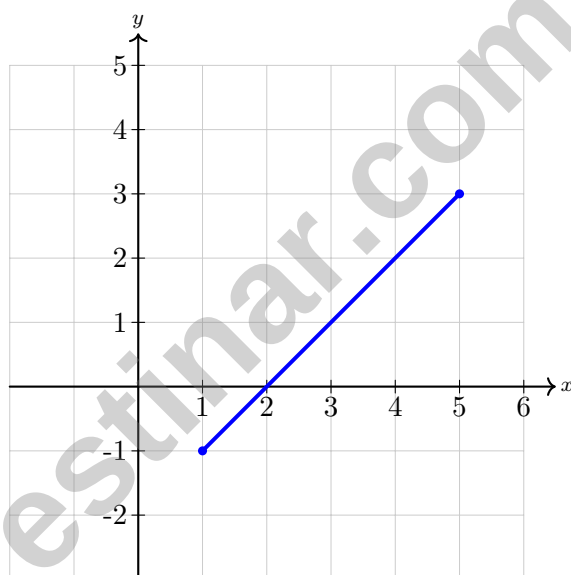
Expression	Value
A. 5^4	625
B. 5^3	125
C. 5^8	390,625
D. 5^{12}	244,140,625

☐ A. Option D

☐ C. Option C

☐ B. Option B

☐ D. Option A



2)

What is the slope of the line shown?

☐ A. 1

☐ C. 3

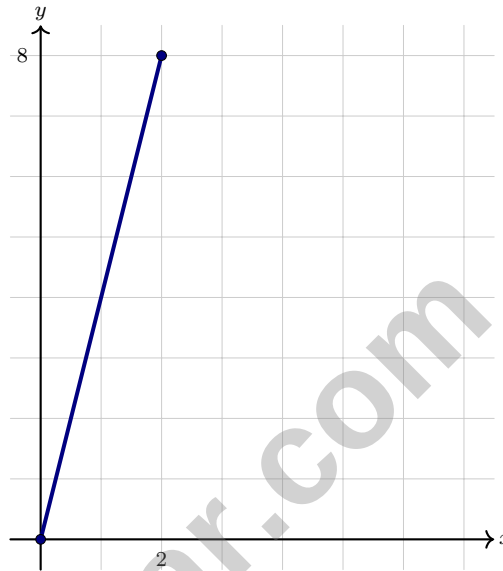
☐ B. 2

☐ D. 4



3) $F(c) = c + 273$ and G through $(0, 273)$ and $(100, 373)$. Which has greater slope?

☐ A. F
☐ C. Both same.

☐ B. G
☐ D. Cannot be determined.


4)

What is the slope of the line?

☐ A. 2

☐ C. 8

☐ B. 16

☐ D. 4

5) Solve:
$$\begin{cases} y = 3x + 2 \\ 6x - 2y = 4 \end{cases}$$

☐ A. No solution

☐ C. Infinitely many solutions

☐ B. $(0, 2)$
☐ D. $(1, 5)$


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1) A line has y -intercept -2 and is perpendicular to $y = 4x + 3$. What is its equation?

☐ A. $y = -4x - 2$

☐ C. $y = \frac{1}{4}x - 2$

☐ B. $y = 4x - 2$

☐ D. $y = -\frac{1}{4}x - 2$

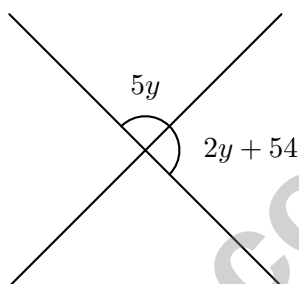
2) Which of the following is NOT a valid interior angle for a regular polygon?

☐ A. 162°

☐ C. 144°

☐ B. 108°

☐ D. 130°



3)

Two lines intersect. Two adjacent angles are labeled $5y$ and $2y + 54$. They form a linear pair. Solve for y .

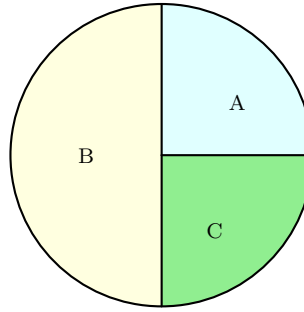
☐ A. 18°

☐ C. 24°

☐ B. 20°

☐ D. 27°





4)

The spinner is divided into three sections. Section A covers 90° , section B covers 180° , and section C covers 90° . What is the probability of landing on section B?

☐ A. $\frac{1}{4}$

☐ B. $\frac{2}{5}$

☐ C. $\frac{1}{3}$

☐ D. $\frac{1}{2}$

5) Which pair of irrational numbers, when multiplied, produces a rational number?

☐ A. $\sqrt{3} \times \sqrt{5}$

☐ B. $\sqrt{7} \times \sqrt{11}$

☐ C. $\sqrt{6} \times \sqrt{10}$

☐ D. $\sqrt{2} \times \sqrt{8}$

6) Convert $0.2\overline{7}$ to a fraction in simplest form.

☐ A. $\frac{27}{100}$

☐ B. $\frac{27}{99}$

☐ C. $\frac{27}{90}$

☐ D. $\frac{5}{18}$

7) A right triangle has legs of length 3 and 5 units. Which integer range contains the hypotenuse length?

☐ A. Between 8 and 9

☐ B. Between 6 and 7

☐ C. Between 7 and 8

☐ D. Between 5 and 6



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& answers

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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Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice D is correct.** (8.30) Total installment cost: $250 + 150 \times 12 = 250 + 1800 = \$2,050$. Finance charge: $2050 - 1500 = \$550$.
- 2) **Choice D is correct.** (8.8) Check ratio: $(2, 6) \rightarrow 6/2 = 3$ and $(4, 12) \rightarrow 12/4 = 3$. Same ratio means proportional. Choice D has $k = 3$.
- 3) **The correct answer is 4.** (8.22) Reflections preserve side lengths. The reflected side has the same length as the original, which is 4 units.
- 4) **Choice D is correct.** (8.12) Substitute $x = 2y + 1$ into $3x - y = 8$: $3(2y + 1) - y = 8$, so $6y + 3 - y = 8$, giving $5y = 5$ and $y = 1$. Then $x = 2(1) + 1 = 3$. Solution: $(3, 1)$.
- 5) **Choice A is correct.** (8.15) Slope of p : $(9 - 3)/(4 - 1) = 6/3 = 2 > 0$. Slope of q : $-2 < 0$ (decreases). Only p is positive.
- 6) **Choice C is correct.** (8.25) Since a and b are corresponding angles with parallel lines, $b = a = 52^\circ$. If c is supplementary to b , then $c = 180 - 52 = 128^\circ$.
- 7) **Choice A is correct.** (8.29) $V = \frac{1}{3} \times 6.25 \times 9.6 = \frac{60}{3} = 20 \text{ m}^3$.
- 8) **Choice A is correct.** (8.19) A strong linear model has points tightly clustered around the line, reflected in small residuals.
- 9) **Choice A is correct.** (8.11) Multiply by $\frac{3}{2}$: $x \geq -6$.
- 10) **Choice C is correct.** (8.12) Dashed lines correspond to STRICT inequalities ($<$ and $>$), which do not include the boundary. The symbols $\leq$ and $\geq$ use solid lines.
- 11) **Choice C is correct.** (8.15) $y = x^4 - 3$ contains an exponent of 4, making it nonlinear. Options A, B, and D all have the form $y = mx + b$, so they are linear.
- 12) **The correct answer is 3.** (8.30) $h = \frac{942}{3.14 \times 10^2} = \frac{942}{3.14 \times 100} = \frac{942}{314} = 3 \text{ m}$.
- 13) **Choice A is correct.** (8.18) A correlation of 0.68 shows a moderate positive trend, but it is not deterministic. Some years with above-average rain may have below-average yields due to other factors (pests, soil quality, temperature). The relationship is probabilistic, not absolute.
- 14) **The correct answer is 96.** (8.30) $SA = 6(4)^2 = 6 \times 16 = 96 \text{ cm}^2$.
- 15) **Choice A is correct.** (8.21) Joint relative frequency of flowering and fertilizer: $\frac{98}{200} = 0.49 = 49\%$.
- 16) **Choice B is correct.** (8.11) Each position is independent: $26 \times 10 \times 26 \times 10 = 26^2 \times 10^2 = 676,000$.
- 17) **Choice A is correct.** (8.11) FOIL: $(2x + 5)(3x - 1) = 6x^2 - 2x + 15x - 5 = 6x^2 + 13x - 5$.
- 18) **Choice B is correct.** (8.16) In $h = mt + b$, the slope $m = 2$ represents the rate of change: 2 cm per week. The number 15 is the initial height (intercept).
- 19) **The correct answer is A,B.** (8.9) Options A and B both have slope 4, making them parallel. Option C has slope -4 , option D has slope $\frac{1}{4}$, and option E has slope 2, so none of these match.
- 20) **Choice C is correct.** (8.22) Congruent rectangles have the same dimensions. M'N'O'P' must have dimensions 15 cm and 8 cm (possibly rotated). A rectangle with dimensions 16 cm and 8 cm is NOT congruent.
- 21) **Choice A is correct.** (8.23) The points $(0, 2) \rightarrow (0, -2)$ and $(2, 4) \rightarrow (2, -4)$. This is the reflection rule $(x, y) \rightarrow (x, -y)$.
- 22) **The correct answer is 8.** (8.20) Substitute $x = 10$: $y = \frac{1}{2}(10) + 3 = 5 + 3 = 8$.
- 23) **Choice B is correct.** (8.28) From $(\sqrt{24})^2 + 1^2 = c^2$, we get $24 + 1 = 25$, so $c = \sqrt{25} = 5$.
- 24) **Choice B is correct.** (8.27) $d = \sqrt{(15 - 3)^2 + (19 - 4)^2} = \sqrt{12^2 + 15^2} = \sqrt{144 + 225} = \sqrt{369} \approx 19.2$ units. (Rounds to 19.)
- 25) **Choice B is correct.** (8.25) Corresponding angles are congruent when a transversal cuts parallel lines. So $v = 68^\circ$.
- 26) **Choice D is correct.** (8.30) Rectangle = $14 \times 9 = 126 \text{ ft}^2$. Trapezoid = $\frac{1}{2}(14 + 10) \times 3 = 36 \text{ ft}^2$. Total = $126 + 36 = 162 \text{ ft}^2$.
- 27) **Choice B is correct.** (8.25) The sum of interior angles in a quadrilateral is 360° . So $D = 360 - 85 - 95 - 100 = 80^\circ$.



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Hi, Thoughtful Reader!

◇ A strong Grade 8 test taker is also a strong reader. You practiced turning words, tables, graphs, and diagrams into math decisions. ◇

★ **Remember this:** That skill grows each time you slow down enough to ask what the problem is really telling you and what it is really asking for. This version gave you 7 opportunities to rehearse test-day habits. ★

Reader-to-Solver Skills

- **Circle the Ask:** Make the target visible.
- **Sort Information:** Separate useful facts from extra words.
- **Match Units:** Keep quantities connected.
- **Answer Fully:** Include the value and what it means.

Grade 8 test-day tip: After solving, reread only the final question. Make sure your answer matches it exactly.

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

Jay Daie

Your Reading-and-Math Helper

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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BUILD CONFIDENCE. SHARPEN SKILLS. ACE YOUR EXAM!