

Arkansas

ATLAS

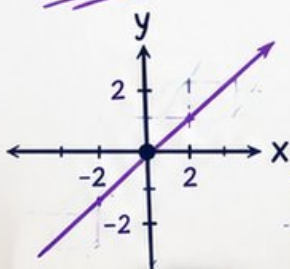
GRADE 8

MATH

PRACTICE TESTS

Standards Aligned Problem Solving
For Comprehensive Assessment Programs

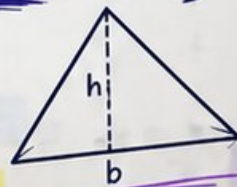
$$y = mx + b$$



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

Practice
Today
Succeed
Tomorrow!

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



7 PRINTED
TESTS



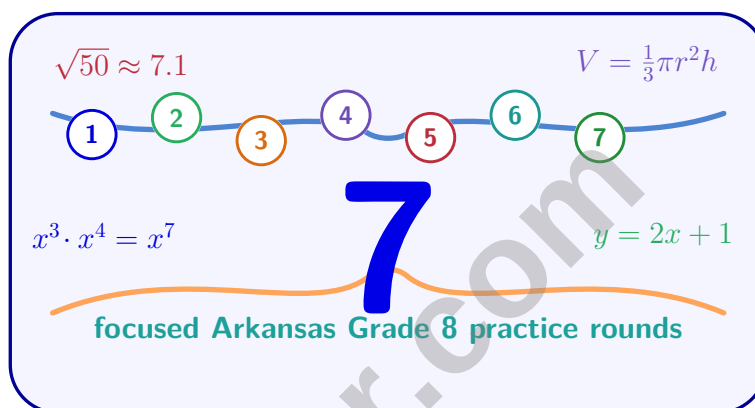
2 ONLINE
TESTS



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

7 Arkansas ATLAS Grade 8 Math Practice Tests

Grade 8 ATLAS Review with Seven Standards-Aligned Math Rounds



Seven complete 40-question Grade 8 ATLAS 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, Arkansas Grade 8 Problem Solver!

Seven focused rounds for sharper ATLAS math thinking

This book gives you seven full Grade 8 ATLAS 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 Arkansas 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.

Arkansas 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 ATLAS 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.

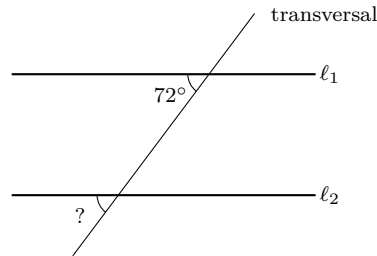


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& answers

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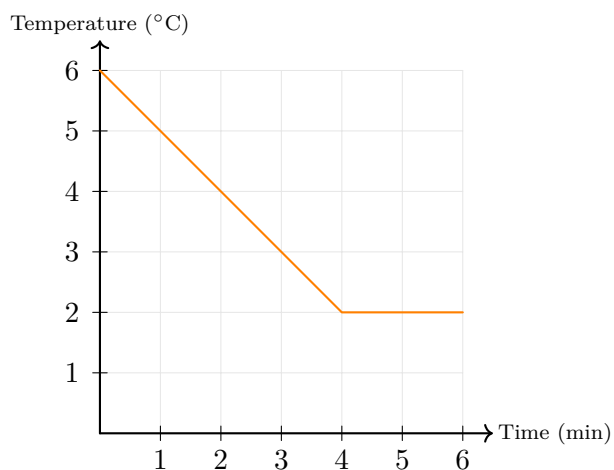
- 1) Two parallel lines are cut by a transversal. If one corresponding angle is 72° , what is the other corresponding angle?



- ☐ A. 72° ☐ C. 118°
☐ B. 108° ☐ D. 144°
- 2) The relationship between Celsius (C) and Fahrenheit (F) is linear. When $C = 0$, $F = 32$; when $C = 100$, $F = 212$. What is the slope of the line?
- ☐ A. 1.8 ☐ C. 0.56
☐ B. $\frac{5}{9}$ ☐ D. $\frac{100}{180}$



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3)

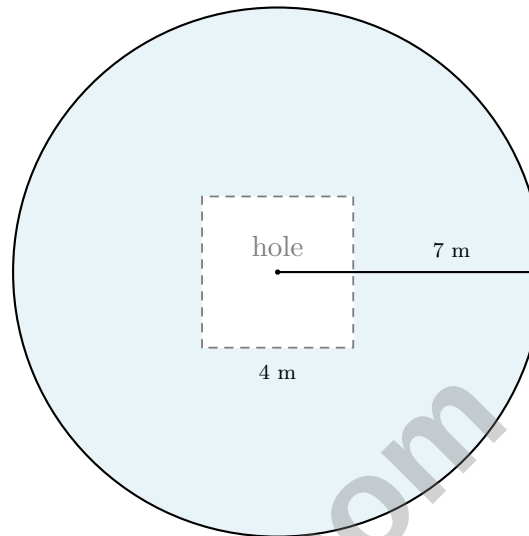
A cup of hot liquid is placed in a freezer. Which statement about the graph is false?

- ☐ A. Temperature increases from 0 to 2 minutes
- ☐ B. Temperature decreases from 2 to 4 minutes
- ☐ C. The function is linear from 4 to 6 minutes
- ☐ D. The initial temperature is 6 degrees

C



- 4) A composite figure has a circular disk (radius 7 m) with a square hole (side 4 m) cut from the center. Find the remaining area. Use $\pi \approx 3.14$.



- ☐ A. 137.86 m² ☐ C. 153.86 m²
☐ B. 149.86 m² ☐ D. 169.86 m²
- 5) A triangle is dilated by a scale factor of 4. Which statement is true?
- ☐ A. Each angle is multiplied by 4 ☐ D. The shape becomes a different type of polygon
☐ B. The angles remain the same
☐ C. Each angle is divided by 4
- 6) A student expands $(x + 2)(x + 3)$ and writes $x^2 + 5x + 6$. Is this correct?
- ☐ A. Yes, it is correct. ☐ C. No; the middle term is wrong.
☐ B. No; the constant term is wrong. ☐ D. No; all terms are wrong.



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1) A square field has an area of 256 square meters. What is its perimeter?

☐ A. 32 meters

☐ C. 64 meters

☐ B. 48 meters

☐ D. 96 meters

2) The energy released by a small explosion is about 2×10^{12} joules. A TNT equivalent is often measured where 1 kiloton TNT $\approx 4 \times 10^{12}$ joules. How many kilotons is the explosion?

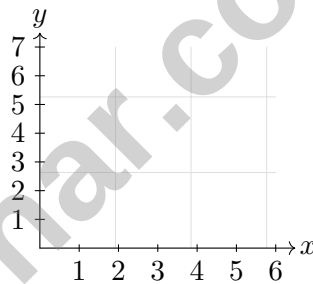
☐ A. 2 kilotons

☐ C. 0.5 kilotons

☐ B. 5×10^1 kilotons

☐ D. 8×10^{23} kilotons

3) Graph the proportional relationship $y = \frac{3}{2}x$ by finding three points and identifying the slope. What is the slope?



4) 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. $y = -\frac{1}{4}x - 2$



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5) Solve for x : $3(x - 4) = 2x + 5$

☐ A. $x = -7$

☐ C. $x = 17$

☐ B. $x = 7$

☐ D. $x = 9$

6) In triangle ABC , the angle at A is twice the angle at B . The angle at C is 20° greater than the angle at B . Find angle A .

☐ A. 60°

☐ C. 100°

☐ B. 80°

☐ D. 120°

7) Which function is NOT proportional (i.e., does not pass through the origin)?

☐ A. $y = 3x$

☐ C. $y = 2x + 1$

☐ B. $y = 5x$

☐ D. $y = \frac{1}{2}x$

8) A car's fuel consumption shows: rapid decrease at first, then slowing. Which behavior does this match?

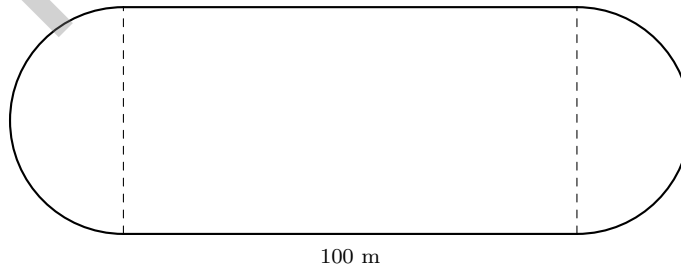
☐ A. Draining a pool with a pump

☐ C. Linear fuel burn

☐ B. Radioactive decay (initial sharp drop, then levels off)

☐ D. Exponential growth

9) A running track is composed of a rectangle (100 m by 50 m) with two semicircles on the short ends (diameter 50 m each). Find the total perimeter of the track.



☐ A. 300 m

☐ C. 378.5 m

☐ B. 357 m

☐ D. 400 m

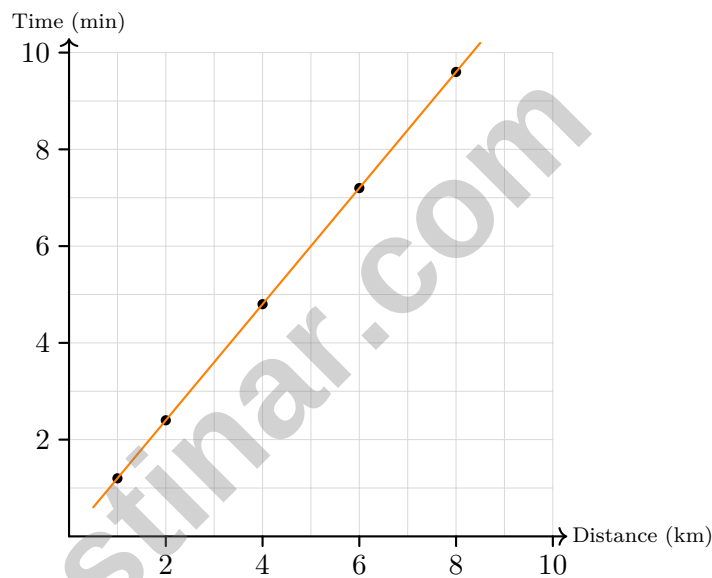


1) A town's population P (in thousands) at year t (years since 2010) follows this data:

Year since 2010 (t)	0	3	6	9
Population (P , thousands)	45	51	57	63

What is the rate of change of the population per year?

- ☐ A. 2 thousand per year ☐ C. 6 thousand per year
☐ B. 3 thousand per year ☐ D. 9 thousand per year



2)

A delivery company tracks distance versus delivery time. The trend line shows an almost perfect fit with points nearly aligned. What can you conclude?

- ☐ A. Distance and time are unrelated ☐ C. The trend line should not be trusted
☐ B. There is a strong linear relationship with very small residuals ☐ D. The data contains measurement errors



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& answers

- 3) A schedule allows you to pick a morning activity and an afternoon activity from the list below. Morning: hiking or swimming. Afternoon: painting, music, or reading. How many different schedules are possible?

☐ A. $2 + 3 = 5$

☐ C. $3^2 = 9$

☐ B. $2 \times 3 = 6$

☐ D. $(2 + 3)^2 = 25$

- 4) A jar has 8 buttons: 3 white and 5 black. Two buttons are drawn without replacement. What is the probability that the first is white and the second is black?

☐ A. $\frac{3}{8}$

☐ C. $\frac{15}{56}$

☐ B. $\frac{8}{56}$

☐ D. $\frac{5}{16}$

1.2 34 3434...

34 repeats

5)

The decimal $1.2\overline{34}$ (where 34 repeats) is:

☐ A. Irrational

☐ C. Neither rational nor irrational

☐ B. Equal to π
☐ D. Rational

- 6) The diameter of an atom is about 2×10^{-10} m. What is this in decimal form?

☐ A. 0.0000002 m

☐ C. 0.000000002 m

☐ B. 0.00000002 m

☐ D. 0.0000000002 m



Arkansas ATLAS 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 Arkansas ATLAS practice test.



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& answers

Practice Test Answers and Explanations

Practice Test 1 Answers and Explanations

- 1) **Choice A is correct.** **(8.FN.7)** Corresponding angles formed by parallel lines and a transversal are congruent.
- 2) **Choice A is correct.** **(8.FN.4)** Slope is $m = \frac{212-32}{100-0} = \frac{180}{100} = 1.8$. Be careful to use change in F over change in C .
- 3) **Choice A is correct.** **(8.FN.9)** From 0 to 2 minutes, the graph shows the temperature decreasing from 6°C to 4°C . Option A claims an increase, so it is false.
- 4) **Choice A is correct.** **(8.GM.6)** Circle area $= \pi r^2 = 3.14 \times 7^2 = 153.86 \text{ m}^2$. Square area $= 4 \times 4 = 16 \text{ m}^2$. Remaining $= 153.86 - 16 = 137.86 \text{ m}^2$.
- 5) **Choice B is correct.** **(8.GM.11)** Dilation preserves angles (and shape). Only lengths scale, not angle measures.
- 6) **Choice A is correct.** **(8.ALG.1)** FOIL: $(x+2)(x+3) = x^2 + 3x + 2x + 6 = x^2 + 5x + 6$. The student correctly applied FOIL.
- 7) **Choice A is correct.** **(8.GM.6)** Solid horizontal line at $y = 3$ with shading ABOVE means $y \geq 3$.
- 8) **Choice B is correct.** **(8.FN.4)** A rate: 0.15. B rate: $(80 - 55)/(200 - 100) = 25/100 = 0.25$. Since $0.25 > 0.15$, B is higher.
- 9) **Choice C is correct.** **(8.GM.5)** $d = \sqrt{40^2 + 9^2} = \sqrt{1600 + 81} = \sqrt{1681} = 41 \text{ m}$.
- 10) **The correct answer is** 1×10^{-5} . **(8.NCC.6)** Multiply: $500 \times (2 \times 10^{-8}) = (5 \times 10^2) \times (2 \times 10^{-8}) = (5 \times 2) \times 10^{2+(-8)} = 10 \times 10^{-6} = 1 \times 10^{-5} \text{ kg}$.
- 11) **Choice B is correct.** **(8.GM.1)** $V = \frac{4}{3}\pi r^3 = \frac{4}{3} \times 3.14 \times 27 = \frac{4}{3} \times 84.78 = 113.04 \text{ in}^3$.
- 12) **Choice D is correct.** **(8.SP.6)** Set $P = 0$: $0 = 4.5s - 200 \Rightarrow 4.5s = 200 \Rightarrow s \approx 44.4$ slices.
- 13) **Choice B is correct.** **(8.GM.5)** Absolute deviations are $|5 - 10| = 5$, $|8 - 10| = 2$, $|12 - 10| = 2$, and $|15 - 10| = 5$. The sum is 14, so the MAD is $14 \div 4 = 3.5$.
- 14) **Choice B is correct.** **(8.GM.6)** Both reflection and translation are rigid motions that preserve area. The final shape is congruent to the original, so it has the same area: 24 square units.
- 15) **Choice A is correct.** **(8.GM.10)** 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.
- 16) **Choice A is correct.** **(8.GM.3, 8.GM.4)** The diagonal of a square with side s is $s\sqrt{2}$. Using the Pythagorean Theorem: $10^2 + 10^2 = d^2$ gives $d = 10\sqrt{2}$.
- 17) **Choice C is correct.** **(8.GM.4)** Alternate interior angles are congruent when a transversal cuts parallel lines. So $w = 95^{\circ}$.
- 18) **Choice B is correct.** **(8.GM.1)** $343 = \frac{1}{3} \times s^2 \times 7$, so $s^2 = 147$. Therefore $s = \sqrt{147} = 7\sqrt{3} \text{ cm}$.
- 19) **The correct answer is** $t = 4$ months. **(8.ALG.1)** The equation is $50t = 200$. Divide both sides by 50: $t = 4$ months. Verify: $50(4) = 200$ ✓.
- 20) **Choice C is correct.** **(8.GM.1)** Each interior angle of a regular octagon: $\frac{(8-2) \times 180}{8} = \frac{1080}{8} = 135^{\circ}$.
- 21) **The correct answer is B,E.** **(8.FN.2)** 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 $-\frac{3}{2}$.
- 22) **Choice A is correct.** **(8.SP.1)** An outlier is a data point that deviates significantly from the general trend or pattern shown by the rest of the data. It stands apart and deserves investigation.
- 23) **Choice B is correct.** **(8.SP.2)** Row-conditional frequencies differ: high GPA (0.40 tutored) vs. low GPA (0.53 tutored). Different conditional frequencies within groups suggest an association. Option D uses raw counts instead of relative frequencies, which can be misleading.
- 24) **Choice B is correct.** **(8.SP.5)** $P(C, C, C) = \frac{1}{3} \times \frac{1}{3} \times \frac{1}{3} = \frac{1}{27}$.
- 25) **Choice A is correct.** **(8.SP.4)** Position 1: 7 choices. Position 2: 6 remaining. Position 3: 5 remaining. Position 4: 4 remaining. Total: $7 \times 6 \times 5 \times 4 = 840$.
- 26) **Choice C is correct.** **(8.SP.2)** Residual = actual y - predicted $y = 8 - 7 = 1$.
- 27) **Choice D is correct.** **(8.NCC.5)** Since $4^2 = 16$ and $5^2 = 25$, and $16 < 18 < 25$, we have $4 < \sqrt{18} < 5$. More precisely, $\sqrt{18} \approx 4.24$.



Hi, Progress Maker!

◇ You have done more than complete a set of tests. You have rehearsed the habits that make Grade 8 math feel less surprising. ◇

★ **Remember this:** Progress is not always loud. Sometimes it looks like fewer careless errors, clearer work, better pacing, and more confidence when a problem is unfamiliar. You practiced across 7 full Grade 8 practice tests, and that repeated effort matters. ★

Signs of Growth

- **Clear Work:** Your steps are easier to follow.
- **Better Pacing:** You know when to move on and return.
- **Stronger Checks:** You catch mistakes earlier.
- **Calmer Thinking:** You know what to try next.

Grade 8 test-day tip: Keep one short list of mistakes you often make, then check that list before each practice session.

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

Jay Daie

Your Growth 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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BUILD CONFIDENCE. SHARPEN SKILLS. ACE YOUR EXAM!