

10 South Carolina SC EOCEP Grade 9 Math Practice Tests

The Ultimate Test Prep Collection with Answer Explanations

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10 Practice Tests

🏆 Algebra 1 🏆

10 tests × full coverage

Welcome!

This book contains **10 full-length practice tests** — the most comprehensive preparation you can get for your Algebra 1 assessment. Each test covers all nine chapters:

- 📖 Foundations & Exponents 📖 Linear Equations & Inequalities
- 📖 Functions 📖 Linear Functions & Graphing
- 📖 Systems of Equations 📖 Polynomials & Factoring
- 📖 Quadratic Functions 📖 Exponential Functions
- 📖 Data & Statistics

Ten tests give you the practice needed to walk into the real test feeling fully prepared.

Thorough preparation leads to outstanding results.

4



“ Ten full tests! By the time you finish, there won't be any surprises on test day. ”

1

How to Use This Book

A complete 10-test preparation program

What's Inside

- **10 Full-Length Practice Tests** — each covers all 9 chapters of Algebra 1: foundations & exponents, linear equations & inequalities, functions, linear functions & graphing, systems of equations, polynomials & factoring, quadratics, exponential functions, and data & statistics.
- **Detailed Answer Explanations** — every question includes a step-by-step solution so you learn from every mistake.
- **Formula Reference Sheet** — all the key Algebra 1 formulas you need, organized and ready for quick review.
- **Test Tracker** — log your scores across all 10 tests and monitor your progress from start to finish.

Your 10-Test Training Plan

★ PHASE 1: Foundation (Tests 1–3)

Untimed or soft-timed. Focus on understanding the format, identifying strengths and weaknesses, and building good study habits.

★★ PHASE 2: Building Skills (Tests 4–7)


Timed (120 minutes each). Work on pacing, accuracy, and showing complete solutions. Review weak chapters between tests.

★★★ PHASE 3: Test-Day Ready (Tests 8–10)

Full test conditions: strict timing, quiet space, no notes. Compare scores with your early tests to see your growth.

Schedule: Take one test every 3–4 days, or one per week. Use study days between tests to review.

 **Types of Questions**

 **Multiple Choice:** Four options — work the problem first, then match. Eliminate obviously wrong answers to narrow your choices.

 **Short Answer & Constructed Response:** Show every step: equations, substitutions, simplifications. Partial credit rewards correct reasoning even if the final answer is off.

 **Graphing & Data Analysis:** Plot points, draw lines, interpret graphs and data displays. Label axes clearly.



Tip: Ten tests is a full preparation program. Don't rush. The key is what you do between tests — study, review, and understand your mistakes before moving forward.



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💡 *Test-Taking Tips* 💡

Your complete test-day toolkit

🕒 *Before the Test*

- *Review your notes from the previous test — focus on your weak chapters*
- *Set up a quiet, clean workspace with all your materials ready*
- *Start with a positive mindset: you've prepared for this*

✎ *During the Test*

- *Read each problem fully before calculating anything*
- *Write the equation or set up the expression first, then substitute values*
- *Show all your work — every step, every operation*
- *If stuck for more than 2 minutes, mark it and move on*
- *Use estimation to check if your answers are reasonable*

📖 *After the Test*

- *Read the full explanation for every question you got wrong*
- *Write down which chapters gave you trouble (not just question numbers)*
- *Study those chapters before taking the next test*
- *Record your score in the Test Tracker*

⚠ Common Mistakes in Algebra 1

⚠ Exponents: $x^2 \cdot x^3 = x^5$, but $x^2 + x^3 \neq x^5$. Only add exponents when multiplying.

⚠ Slope formula: $m = \frac{y_2 - y_1}{x_2 - x_1}$ — keep the order consistent.

⚠ Systems of equations: The solution must satisfy both equations.

⚠ Factoring: Always check by multiplying back out: $(x + 3)(x - 2) = x^2 + x - 6$.

⚠ Quadratic formula: Use $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ — the denominator is $2a$, not just 2.



“ The students who improve the most aren't the ones who take the most tests — they're the ones who carefully review every mistake. Make that your priority. ”



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What You'll Need

Gather these materials before you begin

Materials Checklist

- ✓ **Sharpened Pencils** — #2 pencils, at least two
- ✓ **Good Eraser** — for clean corrections
- ✓ **Scratch Paper** — for working out problems
- ✓ **Graphing Calculator** — if allowed by your state test
- ✓ **Ruler / Straightedge** — for graphing lines
- ✓ **Quiet Space** — no distractions
- ✓ **Focused Mind** — ready to do your best

Allowed Materials

- ✓ Pencils and eraser
- ✓ Scratch paper (provided on official test day)
- ✓ Graphing calculator (most Algebra 1 state tests allow calculators — check your state's policy)
- ✓ Ruler or straightedge

Not Allowed

- ✗ Cell phone or any electronic device
- ✗ Notes, textbooks, or reference sheets (unless provided by the test)
- ✗ Help from others during the test
- ✗ Calculator apps or internet access

 **A Note for Parents & Guardians**

Ten tests is a comprehensive program. Plan **one test every 3–4 days** (or one per week) with study sessions between each test.

How to help:

- Tests 1–3 should be untimed — build understanding before adding pressure.
- After each test, review the answer explanations together. Ask: “Which chapters were hardest? Let’s study those before the next one.”
- Use the Test Tracker to celebrate progress over time.
- For chapter-specific help, pair this book with our **Algebra 1 Study Guide** or **Algebra 1 Workbook**.

PREVIEW



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Algebra 1 Reference Sheet

Key formulas and facts you may use during each practice test

★ Properties & Exponents

Commutative: $a + b = b + a$; $ab = ba$

Associative: $(a + b) + c = a + (b + c)$

Distributive: $a(b + c) = ab + ac$

$a^m \cdot a^n = a^{m+n}$ $(a^m)^n = a^{mn}$

$\frac{a^m}{a^n} = a^{m-n}$ $a^0 = 1$

$a^{-n} = \frac{1}{a^n}$ $(ab)^n = a^n b^n$

★ Linear Equations & Inequalities

Slope-intercept: $y = mx + b$

Point-slope: $y - y_1 = m(x - x_1)$

Standard form: $Ax + By = C$

Slope: $m = \frac{y_2 - y_1}{x_2 - x_1}$

Parallel lines: same slope

Perpendicular: $m_1 \cdot m_2 = -1$

★ Functions

A function maps each input to exactly one output.

Vertical line test: passes through at most one point.

Domain: set of all inputs (x -values)

Range: set of all outputs (y -values)

$f(x)$ notation: $f(3)$ means substitute $x = 3$

★ Systems of Equations

Solve by graphing, substitution, or elimination

One solution: lines intersect (consistent)

No solution: lines are parallel

Infinitely many: same line (dependent)

★ Polynomials & Factoring

$(a + b)^2 = a^2 + 2ab + b^2$

$(a - b)^2 = a^2 - 2ab + b^2$

$a^2 - b^2 = (a + b)(a - b)$

To factor $ax^2 + bx + c$: find two numbers that multiply to ac and add to b

★ Quadratic Functions

Standard form: $y = ax^2 + bx + c$

Vertex form: $y = a(x - h)^2 + k$

Vertex: (h, k) ; axis of symmetry: $x = h$

Quadratic formula: $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Discriminant: $b^2 - 4ac$

> 0 : two real solutions $= 0$: one < 0 : none

★ Exponential Functions & Sequences

Growth: $y = a \cdot b^x$ where $b > 1$

Decay: $y = a \cdot b^x$ where $0 < b < 1$

Arithmetic sequence: $a_n = a_1 + (n - 1)d$

Geometric sequence: $a_n = a_1 \cdot r^{n-1}$

★ Data & Statistics

Line of best fit: approximates scatter plot trend

Correlation: positive, negative, or none

Correlation \neq causation

Residual = actual - predicted

Good fit: residuals small, randomly scattered

★ Square Roots & Radicals

Perfect squares: 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144

$\sqrt{ab} = \sqrt{a} \cdot \sqrt{b}$ $\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$

Simplify: $\sqrt{50} = \sqrt{25 \cdot 2} = 5\sqrt{2}$

My Test Tracker

Record every test and watch your scores improve

Name: _____

Start Date: _____

GETTING STARTED (Tests 1-3)

Test 1 — Untimed

Date: _____ Score: _____ / _____ %: _____ Chapters to review: _____

Test 2 — Untimed

Date: _____ Score: _____ / _____ %: _____ Chapters to review: _____

Test 3 — Soft Timer

Date: _____ Score: _____ / _____ %: _____ Chapters to review: _____

BUILDING SKILLS (Tests 4-7)

Test 4 — Timed (120 min)

Date: _____ Score: _____ / _____ %: _____ Focus area: _____

Test 5 — Timed (120 min)

Date: _____ Score: _____ / _____ %: _____ Focus area: _____

Test 6 — Timed (120 min)

Date: _____ Score: _____ / _____ %: _____ Focus area: _____

Test 7 — Timed (120 min)

Date: _____ Score: _____ / _____ %: _____ Focus area: _____

TEST-DAY READY (Tests 8-10)

Test 8 — Full Test Conditions

Date: _____ Score: _____ / _____ %: _____ Growth since Test 1: _____

Test 9 — Full Test Conditions

Date: _____ Score: _____ / _____ %: _____ Growth since Test 1: _____

Test 10 — Full Test Conditions

Date: _____ Score: _____ / _____ %: _____ Growth since Test 1: _____

Score Progress


Shade each bar after every test. Watch your improvement!

Final Reflection

The most important thing I learned: _____

The topic where I improved the most: _____

My advice for other students: _____



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PRACTICE TEST

1

Practice Test 1

 10 Questions

Before You Start

- ✓ *Read each question carefully before choosing your answer.*
- ✓ *Show your work on scratch paper when you need to.*
- ✓ *Skip hard questions and come back to them later.*
- ✓ *Check your answers when you're done.*
- ✓ *Take your time — there's no rush!*

★ *You've Got This!* ★

Do your best and show what you know!



1. Which expression is equivalent to $(a^2b^3)^{-1}$?

- (A) $-a^2b^3$ (B) $\frac{1}{a^2b^3}$
(C) $a^{-2} + b^{-3}$ (D) $\frac{a^2}{b^3}$

2. Which system of equations has no solution?

- (A) $y = x + 5$ and $y = -x + 5$ (B) $y = 3x + 4$ and $y = 3x - 2$
(C) $y = 2x$ and $y = -2x$ (D) $2x + y = 6$ and $4x + 2y = 12$

3. What is the quotient of $(2x^2 + 5x - 3) \div (x + 3)$?

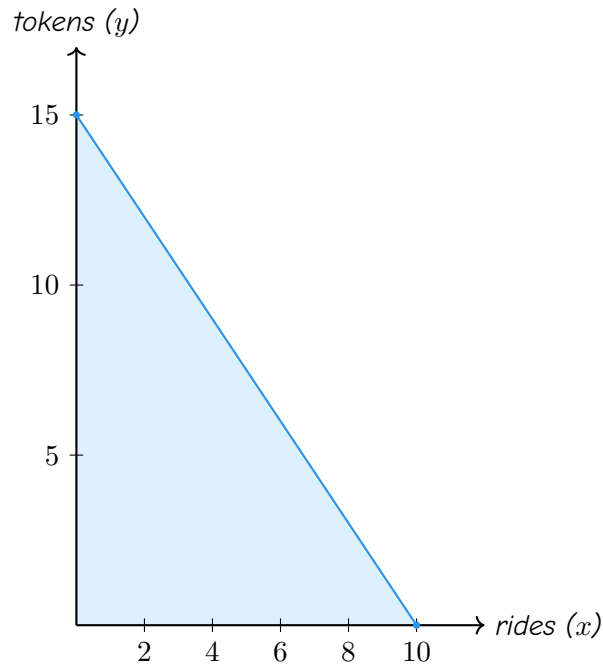
- (A) $2x + 1$ (B) $2x - 1$
(C) $2x + 3$ (D) $2x - 3$

4. A vertical line drawn at $x = 3$ on a graph passes through two points, $(3, 1)$ and $(3, 5)$. What does this tell you about the relation?

- (A) The relation is a function because 1 and 5 are both positive. (B) The relation is not a function because input 3 has two different outputs.
(C) The relation is a function because the points are different. (D) The relation is not a function because $x = 3$ is positive.



5. A student has \$30 to spend at a fair. Ride tickets (x) cost \$3 each and game tokens (y) cost \$2 each. The graph below shows the boundary line $3x + 2y = 30$.



Which combination can the student afford?

- (A) 8 rides and 4 tokens (B) 6 rides and 5 tokens
(C) 7 rides and 5 tokens (D) 10 rides and 1 token

6. Solve $3(2x - 4) = 18$.

- (A) $x = 11$ (B) $x = 3$
(C) $x = 5$ (D) $x = -5$



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7. A student writes $f(x) = 500(0.15)^x$ to model a laptop that loses 15% of its value each year. What is the student's error?

- (A) The initial value should be 0.15. (B) The base should be 0.85, not 0.15.
 (C) The function should use addition, not exponents. (D) The exponent should be negative.

8. A student's work for simplifying $\sqrt{75}$ is shown below. Which step has an error?

Step	Work
Step 1	$\sqrt{75} = \sqrt{9 \times 8}$
Step 2	$= \sqrt{9} \cdot \sqrt{8}$
Step 3	$= 3\sqrt{8}$

- (A) Step 1 (B) Step 2
 (C) Step 3 (D) No error — the work is correct.

9. What are the solutions of $x^2 + 2x - 8 = 0$?

- (A) $x = 4$ and $x = -2$ (B) $x = -4$ and $x = 2$
 (C) $x = 4$ and $x = 2$ (D) $x = -4$ and $x = -2$

10. A student says $|x| < -2$ has the solution $-2 < x < 2$. Which statement is correct?

- (A) The student should have flipped the inequality sign. (B) The correct solution is $x < -2$ or $x > 2$.
 (C) The inequality has no solution because absolute value is always non-negative. (D) The student forgot to split into two cases.



Answer Key & Explanations



Answer Key

First try each test on your own, then check your work here.

Practice Test 1 – Answer Key

- 1 B 2 B 3 B 4 B 5 B 6 C 7 B 8 A 9 B
10 C

Time to Learn!

Review the explanations below, *especially for the questions you missed.*

Understanding why each answer is correct builds stronger problem-solving skills.

Tip: Circle any questions you got wrong, then read their explanation carefully.

Practice Test 1 – Detailed Explanations

1 A negative exponent means reciprocal: $(a^2b^3)^{-1} = \frac{1}{a^2b^3}$. Choice A confuses a negative exponent with a negative sign in front, and choice C incorrectly splits the expression into a sum.

2 No solution means parallel lines: same slope, different y -intercepts. In choice B, both lines have slope 3 but different intercepts (4 and -2). The other systems have different slopes (A, C) or are the same line (D).



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3 Use polynomial long division: $2x^2 \div x = 2x$, and $2x(x + 3) = 2x^2 + 6x$. Subtract to get $-x - 3$. Then $-x \div x = -1$, and $-1(x + 3) = -x - 3$. Remainder is 0, so the quotient is $2x - 1$.

4 The vertical line test says that if any vertical line hits more than one point, the relation is not a function. Here $x = 3$ corresponds to two outputs (1 and 5), so the relation fails the test.

5 The constraint is $3x + 2y \leq 30$. Test (6, 5): $3(6) + 2(5) = 18 + 10 = 28 \leq 30 \checkmark$. The other choices give 32, 31, and 32, all exceeding the budget.

6 Use the distributive property: $6x - 12 = 18$. Add 12 to both sides: $6x = 30$. Divide by 6: $x = 5$.

7 To model 15% annual decay, the decay factor should be $b = 1 - 0.15 = 0.85$. The student mistakenly used 0.15 (the rate) instead of 0.85 (the factor). The correct function is $f(x) = 500(0.85)^x$.

8 In Step 1, the factorization is wrong: $9 \times 8 = 72 \neq 75$. The correct factoring is $75 = 25 \times 3$, giving $\sqrt{75} = \sqrt{25} \cdot \sqrt{3} = 5\sqrt{3}$.

9 With $a = 1$, $b = 2$, $c = -8$, the discriminant is $D = 4 + 32 = 36$. Then $x = \frac{-2 \pm 6}{2}$, giving $x = 2$ or $x = -4$.

10 Since $|x| \geq 0$ for all real numbers, $|x|$ can never be less than -2 . The inequality $|x| < -2$ has no solution.



Well done checking your answers!

Keep practicing to strengthen your skills.



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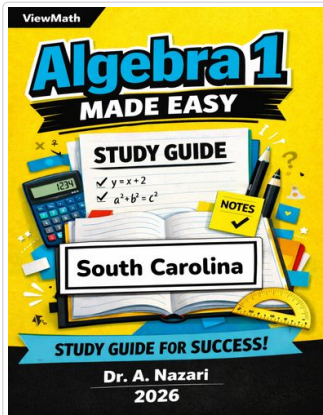


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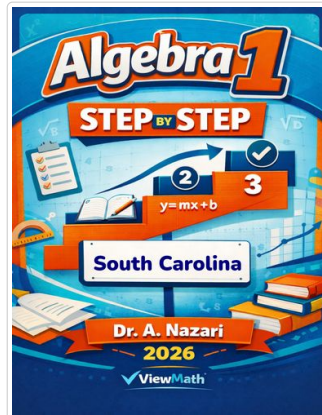
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Study Guide



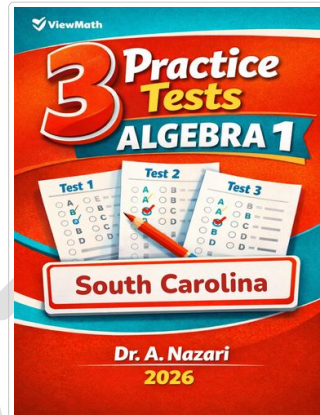
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Step-by-Step



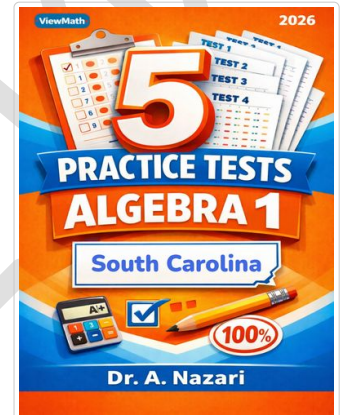
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3 Practice Tests



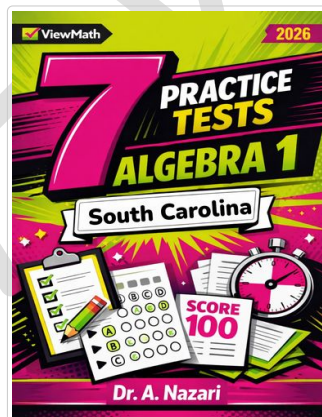
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5 Practice Tests



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7 Practice Tests



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