6 Full-Length MISSOURI ALGEBRA II PRACTICE TESTS



Clear practice, student-friendly explanations, and a steady path through Algebra 2.

6 FULL-LENGTH TESTS
Realistic practice to build confidence

STUDENT-FRIENDLY EXPLANATIONS
Clear, step-by-step solutions

BUILD SKILLS
Strengthen concepts and problem-solving

A STEADY PATH
Focused practice to help you reach your goal

6

FULL-LENGTH TESTS

ALGEBRA II PRACTICE PATH

- Plan
- Practice
- Review
- Grow

SIX-TEST ALGEBRA II WORKBOOK

Missouri Algebra II Practice Tests

Clear practice, student-friendly explanations, and a steady path through Algebra 2.

1 Start — 2 Build — 3 Check — 4 Improve

Six complete tests
Full-length sets for pacing and stamina.

Warm explanations
Step-by-step answer support after every test.

Missouri aligned
Standards references placed before the tests.

Ready to use
Organized for review, tutoring, and independent study.

Practice with purpose. Review with care. Build Algebra II confidence.

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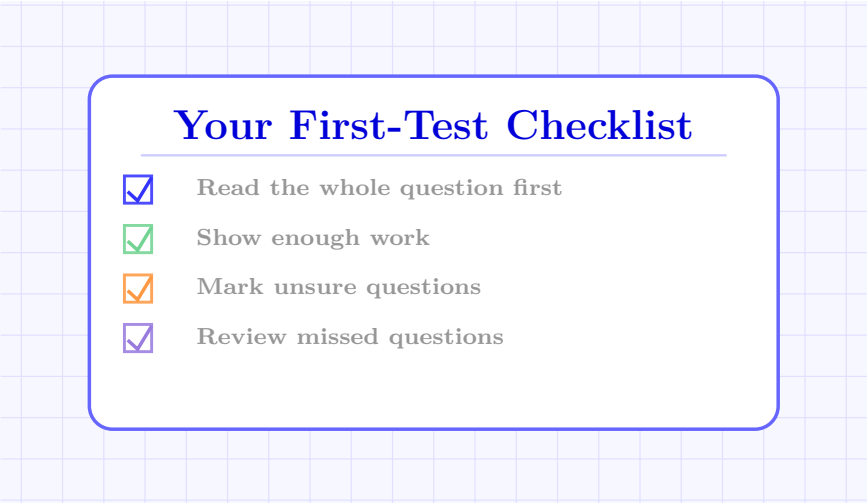
Pacing rule

Make a first pass through the test for questions you can solve cleanly. Mark the heavy ones, then return with the time you protected. Good pacing is not rushing; it is choosing where your attention goes.

Final check before moving on: Did you answer the exact thing asked? Algebra II problems often ask for one feature of a larger situation. Give the requested feature, not extra work.

Before You Begin Test 1

Let the first test be useful, not perfect



You do not need to feel completely ready before you start. The purpose of a practice test is to show you what is already strong and what still needs attention.

As you work, pay attention to your habits. Do you read graphs carefully? Do you check restrictions? Do you keep signs and exponents organized? Do you return to difficult questions with a calmer mind? These habits are part of the score, even though they do not look like formulas.

Six tests give you room to grow. Use the first one to learn where to begin.

Work carefully. Review honestly. Let each test make the next one stronger.

1. FUNCTIONS, TRANSFORMATIONS, AND INVERSES

Composition: $(f \circ g)(x) = f(g(x))$

Inverse relationship: $f(g(x)) = x$ and $g(f(x)) = x$

Vertical shift: $f(x) + k$ moves up/down

Horizontal shift: $f(x - h)$ moves right by h

Average rate of change: $\dfrac{f(b) - f(a)}{b - a}$

Domain: allowed inputs

Range: possible outputs

2. QUADRATICS, POLYNOMIALS, AND COMPLEX NUMBERS

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

Vertex: $x = -\dfrac{b}{2a}$

Discriminant: $b^2 - 4ac$

Remainder theorem: remainder is $f(a)$ after division by $x - a$

Complex numbers: $i^2 = -1$

Conjugates: $(a + bi)(a - bi) = a^2 + b^2$

3. EXPONENTIALS, LOGARITHMS, AND SEQUENCES

Exponential model: $y = ab^x$

Log definition: $\log_b a = c \Leftrightarrow b^c = a$

Change of base: $\log_b a = \dfrac{\log a}{\log b}$

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

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

Finite geometric sum: $S_n = a_1 \dfrac{1 - r^n}{1 - r}$

4. TRIGONOMETRY, CONICS, AND STATISTICS

Identity: $\sin^2\theta + \cos^2\theta = 1$

Law of sines: $\dfrac{a}{\sin A} = \dfrac{b}{\sin B}$

Law of cosines: $c^2 = a^2 + b^2 - 2ab\cos C$

Circle: $(x - h)^2 + (y - k)^2 = r^2$

Mean: $\bar{x} = \dfrac{\sum x_i}{n}$

Standard deviation: spread around the mean

Normal curve: about $68\%, 95\%, 99.7\%$

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Algebra II Reference Materials

QUADRATICS AND POLYNOMIALS

Quadratic formula	$x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
Discriminant	$\Delta = b^2 - 4ac$
Vertex of $ax^2 + bx + c$	$x = -\dfrac{b}{2a}$
Remainder theorem	$f(a)$ is the remainder after division by $x - a$
Difference of squares	$a^2 - b^2 = (a - b)(a + b)$

EXPONENTIALS AND LOGARITHMS

Product rule	$\log_b(MN) = \log_b M + \log_b N$
Quotient rule	$\log_b(M/N) = \log_b M - \log_b N$
Power rule	$\log_b(M^p) = p \log_b M$
Change of base	$\log_b a = \dfrac{\log a}{\log b}$
Compound interest	$A = P(1 + r)^t$

SEQUENCES, SERIES, AND COMPLEX NUMBERS

Arithmetic sequence	$a_n = a_1 + (n - 1)d$
Arithmetic series	$S_n = \dfrac{n}{2}(a_1 + a_n)$
Geometric sequence	$a_n = a_1 r^{n-1}$
Geometric series	$S_n = a_1 \dfrac{1 - r^n}{1 - r}$
Imaginary unit	$i^2 = -1$

TRIGONOMETRY AND CONICS

Pythagorean identity	$\sin^2\theta + \cos^2\theta = 1$
Law of sines	$\dfrac{a}{\sin A} = \dfrac{b}{\sin B} = \dfrac{c}{\sin C}$
Law of cosines	$c^2 = a^2 + b^2 - 2ab\cos C$
Circle	$(x - h)^2 + (y - k)^2 = r^2$
Parabola	$(x - h)^2 = 4p(y - k)$ or $(y - k)^2 = 4p(x - h)$

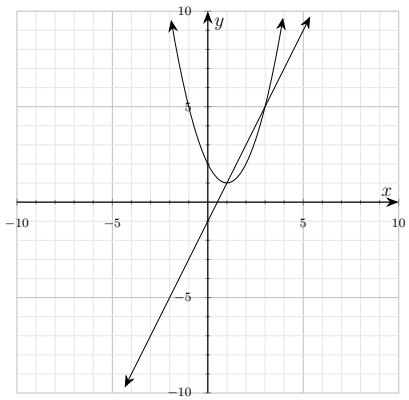
STATISTICS

Mean	$\bar{x} = \dfrac{\sum x_i}{n}$
Standard deviation idea	typical distance from the mean
Margin of error	critical value $\times$ standard error
Empirical rule	about $68\%, 95\%, 99.7\%$ within $1, 2, 3$ SDs

1) A manufactured rod must have a length within 0.05 centimeter of 12 centimeters. If ℓ is the rod's length, which inequality and solution set represent acceptable lengths?

☐ A. $|\ell - 12| \leq 0.05;\ 11.95 \leq \ell \leq 12.05$
☐ B. $|\ell + 12| \leq 0.05;\ -12.05 \leq \ell \leq -11.95$
☐ C. $|\ell - 0.05| \leq 12;\ -11.95 \leq \ell \leq 12.05$
☐ D. $|\ell - 12| < 0.05;\ 11.95 < \ell < 12.05$

2) Which point represents a solution to the system of equations illustrated in the graph below?

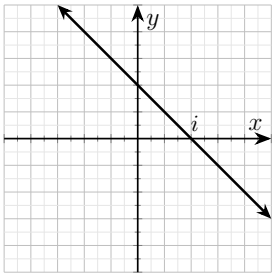


☐ A. $(3, 2)$
☐ B. $(2, 3)$
☐ C. $(1, 1)$
☐ D. $(0, -1)$

3) Which system is best represented by lines h and i?

h

x	0	1	2
y	1	3	5



☐ A. $\begin{cases} y = 3x - 1 \\ y = -x + 4 \end{cases}$

☐ B. $\begin{cases} y = \frac{1}{2}x + 1 \\ y = 2 - x \end{cases}$

☐ C. $\begin{cases} 2x - y = -1 \\ x - y = 4 \end{cases}$

☐ D. $\begin{cases} y = 2x + 1 \\ y = -x + 4 \end{cases}$

4) Simplify $4(2m - 3n) - (5m + 2n) + 3(m - n)$.

Record your answer in the space provided.