

Missouri End-of-Course Assessment Achievement Level Descriptors

Algebra II

Achievement Levels

Advanced: Students performing at the Advanced level on the Missouri Algebra II End-of-Course Assessment demonstrate a thorough understanding of the course-level expectations for Algebra II. They demonstrate these skills in numbers and operations, algebraic relationships, and data and probability. In addition to understanding and applying the skills at the Proficient level, students scoring at the Advanced level use a wide range of strategies to solve problems and demonstrate a thorough understanding of important mathematical content and concepts.

Scale Score: 225-250

Proficient: Students performing at the Proficient level on the Missouri Algebra II End-of-Course Assessment demonstrate an understanding of most of the course-level expectations for Algebra II. They demonstrate these skills in numbers and operations, algebraic relationships, and data and probability. In addition to understanding and applying the skills at the Basic level, students scoring at the Proficient level use a range of strategies to solve problems and demonstrate an understanding of important mathematical content and concepts.

Scale Score: 200-224

Basic: Students performing at the Basic level on the Missouri Algebra II End-of-Course Assessment demonstrate some understanding of the course-level expectations for Algebra II. They demonstrate these skills in numbers and operations, algebraic relationships, and data and probability. In addition to understanding and applying the skills at the Below Basic level, students scoring at the Basic level use some strategies to solve problems and demonstrate some understanding of important mathematical content and concepts.

Scale Score: 182-199

Below Basic: Students performing at the Below Basic level on the Missouri Algebra II End-of-Course Assessment demonstrate a limited understanding of the course-level expectations for Algebra II. They demonstrate these skills in numbers and operations, algebraic relationships, and data and probability. In addition to demonstrating these skills, students scoring at the Below Basic level use very few strategies to solve problems and demonstrate a limited understanding of important mathematical content and concepts.

Scale Score: 100-181

Achievement Descriptors

Advanced

Scale Score: 225-250

Algebraic Relationships—Using algebraic relationships, a student can

- ✓ Describe the effect of parameter changes on logarithmic and rational functions
- ✓ Compare and contrast properties of rational functions
- ✓ Use symbolic algebra to represent and solve problems that involve logarithmic relationships
- ✓ Describe and use algebraic manipulations, inverse, or composition of functions
- ✓ Use and solve equivalent forms of logarithmic, radical, and rational equations
- ✓ Use and solve systems of quadratic equations or inequalities with 2 variables
- ✓ Identify quantitative relationships and determine type(s) of functions that might model the situation to solve a problem, including logarithmic and rational functions
- ✓ Analyze logarithmic functions by investigating intercepts, domain and range, and asymptotes

Data and Probability—Using data and probability, a student can

- ✓ Describe the concept of probability distribution
- ✓ Compute the probability of compound events

Proficient**Scale Score:** 200-224***Algebraic Relationships***—Using algebraic relationships, a student can

- ✓ Compare and contrast various forms of representations of patterns
- ✓ Describe the effect of parameter changes on quadratic, cubic, absolute value, and square root functions
- ✓ Compare and contrast the properties of exponential and logarithmic functions
- ✓ Use symbolic algebra to represent and solve problems that involve exponential or quadratic relationships
- ✓ Describe and use algebraic manipulations, including factoring or imaginary numbers, to simplify expressions
- ✓ Use and solve equivalent forms of quadratic and exponential equations
- ✓ Use and solve systems of linear inequalities with two variables
- ✓ Identify quantitative relationships and determine type(s) of functions that might model the situation to solve a problem, including quadratic and exponential growth/decay
- ✓ Analyze exponential functions by investigating rates of change, intercepts, domain and range, and asymptotes

Data and Probability—Using data and probability, a student can

- ✓ Given a scatterplot, determine a type of function that models the data
- ✓ Given one-variable quantitative data, calculate summary statistics
- ✓ Use and describe the concepts of conditional probability

Basic**Scale Score:** 182-199***Numbers and Operations***—Using numbers and operations, a student can

- ✓ Compare and order irrational numbers, including finding their approximate location on a number line
- ✓ Use real numbers and various models, drawings, etc. to solve problems

Algebraic Relationships—Using algebraic relationships, a student can

- ✓ Generalize patterns using explicitly or recursively defined linear or exponential functions
- ✓ Describe the effect of parameter changes on exponential functions
- ✓ Compare and contrast the properties of linear and exponential functions
- ✓ Use symbolic algebra to represent and solve problems that involve linear relationships
- ✓ Describe and use algebraic manipulations, including rules of exponents, to simplify expressions
- ✓ Use and solve equivalent forms of absolute value and linear equations
- ✓ Use and solve systems of linear equations with two variables
- ✓ Identify quantitative relationships that can be modeled by linear functions to solve a problem

Data and Probability—Using data and probability, a student can

- ✓ Given a scatterplot, determine an equation for a line of best fit
- ✓ Given one-variable quantitative data, display the distribution and describe its shape
- ✓ Apply statistical measures of center to solve problems

Below Basic

Scale Score: 100-181

Numbers and Operations—Using numbers and operations, a student can

- ✓ Compare and order rational numbers, including finding approximate locations on a number line

Algebraic Relationships—Using algebraic relationships, a student can

- ✓ Generalize patterns using explicitly or recursively defined single operation functions
- ✓ Describe the effects of parameter changes on linear functions
- ✓ Compare the properties of linear functions
- ✓ Describe and use algebraic manipulations, including order of operations, to simplify expressions
- ✓ Use and solve equivalent forms of linear equations

Data and Probability—Using data and probability, a student can

- ✓ Use appropriate graphical representations of data
- ✓ Describe the concept of sample space
- ✓ Determine the probability of two independent events