

Missouri End-of-Course Assessment Achievement Level Descriptors

Algebra I

Achievement Levels

Advanced: Students performing at the Advanced level on the Missouri Algebra I End-of-Course Assessment demonstrate a thorough understanding of the course-level expectations for Algebra I. They demonstrate these skills in number 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 Cut: 225-250

Proficient: Students performing at the Proficient level on the Missouri Algebra I End-of-Course Assessment demonstrate an understanding of most course-level expectations for Algebra I. They demonstrate these skills in number 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 Cut: 200-224

Basic: Students performing at the Basic level on the Missouri Algebra I End-of-Course Assessment demonstrate some understanding of the course-level expectations for Algebra I. They demonstrate these skills in number 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 Cut: 177-199

Below Basic: Students performing at the Below Basic level on the Missouri Algebra I End-of-Course Assessment demonstrate a limited understanding of the course-level expectations for Algebra I. They demonstrate these skills in number and operations, algebraic relationships, and data and probability. In addition, 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 Cut: 100-176

Achievement Descriptors

Advanced

Scale Score Cut: 225-250

Algebraic Relationships — Using algebraic relationships, a student can

- ✓ Generalize patterns using explicitly or recursively defined functions
- ✓ Describe the effects of parameter changes on exponential growth/decay and quadratic functions, including intercepts
- ✓ Use symbolic algebra to represent and solve problems that involve quadratic relationships, including equations and inequalities
- ✓ Describe and use algebraic manipulations, including factoring, and apply properties of exponents to simplify expressions
- ✓ Use and solve equivalent forms of quadratic and absolute value equations
- ✓ Identify quantitative relationships and determine type(s) of functions that might model the situation to solve a problem, including quadratic and exponential growth/decay
- ✓ Use and solve systems of linear inequalities with two variables
- ✓ Analyze quadratic functions by investigating rates of change, intercepts, and zeros

Proficient

Scale Score Cut: 200-224

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

- ✓ Compare and order rational and irrational numbers, including finding their approximate locations 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 functions
- ✓ Compare and contrast various forms of representations of patterns
- ✓ Compare and contrast the properties of linear and nonlinear functions
- ✓ Describe the effects of parameter changes on linear functions, including intercepts
- ✓ Use symbolic algebra to represent problems that involve linear relationships, including equations and inequalities
- ✓ Describe and use algebraic manipulations, including rules of integer 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
- ✓ Analyze linear functions by investigating rates of change, intercepts, and zeros

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

- ✓ Use appropriate graphical representations of data
- ✓ Given one-variable quantitative data, display the distribution and describe its shape
- ✓ Apply statistical methods to measures of center to solve problems
- ✓ Given a scatter plot, determine an equation for a line of best fit
- ✓ Make conjectures about possible relationships between two characteristics of a sample on the basis of scatter plots of the data

Basic

Scale Score Cut: 177-199

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

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

Algebraic Relationships Using algebraic relationships, a student can

- ✓ Generalize patterns using recursively defined single-operation functions
- ✓ Compare the properties of linear functions
- ✓ Use symbolic algebra to solve problems that involve linear relationships, including equations and inequalities
- ✓ Describe and use algebraic manipulations, including order of operations, to simplify expressions
- ✓ Use equivalent forms of linear equations

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

- ✓ Determine the sample space of an experiment
- ✓ Formulate questions about a characteristic which include sample spaces and distributions

Below Basic

Scale Score Cut: 100-176

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

- ✓ Compare and order rational numbers

Algebraic Relationships — Using algebraic relationships, a student can

- ✓ Identify a function as linear or nonlinear
- ✓ Use symbolic algebra to solve problems that involve two-step linear equations

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

- ✓ Identify the sample space of an experiment
- ✓ Select appropriate graphical representations of data
- ✓ Determine measures of center