

Algebra 1

Number Sense and Operations

- 1 Extend previous understanding of the Laws of Exponents to include rational exponents. Apply the Laws of Exponents to evaluate numerical expressions and generate equivalent numerical expressions involving rational exponents. [MA.912.NSO.1.1](#)
- 2 Generate equivalent algebraic expressions using the properties of exponents. [MA.912.NSO.1.2](#)
- 3 Apply previous understanding of operations with rational numbers to add, subtract, multiply and divide numerical radicals. [MA.912.NSO.1.4](#)

Algebraic Reasoning

- 1 Identify and interpret parts of an equation or expression that represent a quantity in terms of a mathematical or real-world context, including viewing one or more of its parts as a single entity. [MA.912.AR.1.1](#)
- 2 Rearrange equations or formulas to isolate a quantity of interest. [MA.912.AR.1.2](#)
- 3 Add, subtract and multiply polynomial expressions with rational number coefficients. [MA.912.AR.1.3](#)
- 4 Divide a polynomial expression by a monomial expression with rational number coefficients. [MA.912.AR.1.4](#)
- 5 Rewrite a polynomial expression as a product of polynomials over the real number system. [MA.912.AR.1.7](#)
- 6 Given a real-world context, write and solve one-variable multi-step linear equations. [MA.912.AR.2.1](#)
- 7 Write a linear two-variable equation to represent relationships between quantities from a graph, a written description or a table of values within a mathematical or real-world context. [MA.912.AR.2.2](#)
- 8 Write a linear two-variable equation for a line that is parallel or perpendicular to a given line and goes through a given point. [MA.912.AR.2.3](#)
- 9 Given a table, equation or written description of a linear function, graph that function, and determine and interpret its key features. [MA.912.AR.2.4](#)
- 10 Solve and graph mathematical and real-world problems that are modeled with linear functions. Interpret key features and determine constraints in terms of the

context. MA.912.AR.2.5

11 Given a mathematical or real-world context, write and solve one-variable linear inequalities, including compound inequalities. Represent solutions algebraically or graphically. MA.912.AR.2.6

12 Write two-variable linear inequalities to represent relationships between quantities from a graph or a written description within a mathematical or real-world context. MA.912.AR.2.7

13 Given a mathematical or real-world context, graph the solution set to a two-variable linear inequality. MA.912.AR.2.8

14 Given a mathematical or real-world context, write and solve one-variable quadratic equations over the real number system. MA.912.AR.3.1

15 Write a quadratic function to represent the relationship between two quantities from a graph, a written description or a table of values within a mathematical or real-world context. MA.912.AR.3.4

16 Given the x -intercepts and another point on the graph of a quadratic function, write the equation for the function. MA.912.AR.3.5

17 Given an expression or equation representing a quadratic function, determine the vertex and zeros and interpret them in terms of a real-world context. MA.912.AR.3.6

18 Given a table, equation or written description of a quadratic function, graph that function, and determine and interpret its key features. MA.912.AR.3.7

19 Solve and graph mathematical and real-world problems that are modeled with quadratic functions. Interpret key features and determine constraints in terms of the context. MA.912.AR.3.8

20 Given a mathematical or real-world context, write and solve one-variable absolute value equations. MA.912.AR.4.1

21 Given a table, equation or written description of an absolute value function, graph that function and determine its key features. MA.912.AR.4.3

22 Given a mathematical or real-world context, classify an exponential function as representing growth or decay. MA.912.AR.5.3

23 Write an exponential function to represent a relationship between two quantities from a graph, a written description or a table of values within a mathematical or real-world context. MA.912.AR.5.4

24 Given a table, equation or written description of an exponential function, graph that function and determine its key features. MA.912.AR.5.6

25 Given a mathematical or real-world context, write and solve a system of two-variable linear equations algebraically or graphically. [MA.912.AR.9.1](#)

26 Graph the solution set of a system of two-variable linear inequalities. [MA.912.AR.9.4](#)

27 Given a real-world context, represent constraints as systems of linear equations or inequalities. Interpret solutions to problems as viable or nonviable options. [MA.912.AR.9.6](#)

Functions

1 Given an equation or graph that defines a function, classify the function type. Given an input-output table, determine a function type that could represent it. [MA.912.F.1.1](#)

2 Given a function represented in function notation, evaluate the function for an input in its domain. For a real-world context, interpret the output. [MA.912.F.1.2](#)

3 Calculate and interpret the average rate of change of a real-world situation represented graphically, algebraically or in a table over a specified interval. [MA.912.F.1.3](#)

4 Compare key features of linear functions each represented algebraically, graphically, in tables or written descriptions. [MA.912.F.1.5](#)

5 Compare key features of linear and nonlinear functions each represented algebraically, graphically, in tables or written descriptions. [MA.912.F.1.6](#)

6 Determine whether a linear, quadratic or exponential function best models a given real-world situation. [MA.912.F.1.8](#)

7 Identify the effect on the graph or table of a given function after replacing $f(x)$ by $f(x) + k$, $kf(x)$, $f(kx)$ and $f(x + k)$ for specific values of k . [MA.912.F.2.1](#)

Financial Literacy

1 Solve real-world problems involving simple, compound and continuously compounded interest. [MA.912.FL.3.2](#)

2 Explain the relationship between simple interest and linear growth. Explain the relationship between compound interest and exponential growth and the relationship between continuously compounded interest and exponential growth. [MA.912.FL.3.4](#)

Data Analysis and Probability

1 Given a set of data, select an appropriate method to represent the data, depending on whether it is numerical or categorical data and on whether it is univariate or bivariate. [MA.912.DP.1.1](#)

2 Interpret data distributions represented in various ways. State whether the data is numerical or categorical, whether it is univariate or bivariate and interpret the different components and quantities in the display. [MA.912.DP.1.2](#)

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- 3** Explain the difference between correlation and causation in the contexts of both numerical and categorical data. [MA.912.DP.1.3](#)
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- 4** Estimate a population total, mean or percentage using data from a sample survey; develop a margin of error through the use of simulation. [MA.912.DP.1.4](#)
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- 5** Fit a linear function to bivariate numerical data that suggests a linear association and interpret the slope and y -intercept of the model. Use the model to solve real-world problems in terms of the context of the data. [MA.912.DP.2.4](#)
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- 6** Given a scatter plot with a line of fit and residuals, determine the strength and direction of the correlation. Interpret strength and direction within a real-world context. [MA.912.DP.2.6](#)
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- 7** Construct a two-way frequency table summarizing bivariate categorical data. Interpret joint and marginal frequencies and determine possible associations in terms of a real-world context. [MA.912.DP.3.1](#)