

# Prioritized Curriculum Standards

## Math

Algebra 1
Content/Measurement Topic
Rational Numbers <ul style="list-style-type: none"><li>• <b>RNE1</b> - Explain the properties of rational numbers</li></ul>
Components of an Expression <ul style="list-style-type: none"><li>• <b>CPE1</b> - Compare the functions of terms, coefficients, and variables in an algebraic expression</li></ul>
Context of an Expression <ul style="list-style-type: none"><li>• <b>CTE1</b> - Write an algebraic expression to represent the information presented in a real-world problem</li><li>• <b>CTE2</b> - Convert measurement units to evaluate expressions</li><li>• <b>CTE3</b> - Interpret expressions by identifying the dependent and independent variables</li></ul>
Equations and Inequalities <ul style="list-style-type: none"><li>• <b>E11</b> - Explain why the same amount or value can be added to or subtracted from both sides of an equation or inequality without changing the relationship it represents</li><li>• <b>E12</b> - Solve equations and inequalities in one variable</li><li>• <b>E13</b> - Express solutions to equations and inequalities in one variable algebraically and visually</li><li>• <b>E14</b> - Determine if equations and inequalities in one variable have one solution, no solutions, a defined range of solutions, or infinite solutions</li></ul>
Generating Equations and Inequalities <ul style="list-style-type: none"><li>• <b>GEI1</b> - Generate equations in two or more variables to represent situations involving relationships between quantities</li><li>• <b>GEI2</b> - Generate inequalities in two or more variables to represent situations involving relationships between quantities</li></ul>
Functional Relationships and Function Notation <ul style="list-style-type: none"><li>• <b>FRFN1</b> - Determine whether a functional relationship exists between two variables</li><li>• <b>FRFN2</b> - Interpret function notation and graphs that describe various types of functional relationships</li><li>• <b>FRFN3</b> - Evaluate functions expressed using function notation to solve real-world problems</li></ul>
Domain and Range of Functions <ul style="list-style-type: none"><li>• <b>DRF1</b> - Explain the concepts of domain and range in relation to functional relationships</li><li>• <b>DRF2</b> - Determine the domain and range for a functional relationship</li><li>• <b>DRF3</b> - Express the domain and range of a functional relationship using appropriate notation</li></ul>
Linear Equations and Inequalities <ul style="list-style-type: none"><li>• <b>LEI1</b> - Describe the defining characteristics of linear equations and their graphs in the coordinate plane</li><li>• <b>LEI2</b> - Graph linear equations on a coordinate plane</li></ul>

- **LEI3** - Describe the defining characteristics of linear inequalities and their graphs in the coordinate plane
- **LEI4** - Graph linear inequalities on a coordinate plane

#### Systems of Equations and Inequalities

- **SEI1** - Generate systems of equations and/or inequalities to model real-world situations
- **SEI2** - Solve systems of linear equations
- **SEI3** - Solve systems of linear inequalities graphically
- **SEI4** - Determine whether system of linear equations has no solutions, infinite solutions, one solution, or multiple solutions by using a system of equations or inequalities to model it

#### Rational Exponents and Radicals

- **RER1** - Explain how the definition of fractional exponents is consistent with the properties of integer exponents
- **RER2** - Manipulate expressions involving positive and negative rational exponents (including fractional exponents) and radicals using exponent properties

#### Adding and Subtracting Polynomial Expressions

- **ASPE1** - Simplify polynomials with more than one variable
- **ASPE2** - Add and subtract polynomials

#### Multiplying Polynomial Expressions

- **MDPE1** - Multiply polynomials

#### Factoring Expressions

- **FE1** - Factor out a greatest common factor from an expression
- **FE2** - Factor second-degree expressions with a leading coefficient of 1
- **FE3** - Factor second-degree expressions with non-1 leading coefficients
- **FE4** - Factor expressions by recognizing a difference of squares or the square of a binomial

#### Quadratic Equations and Functions

- **QEF1** - Solve quadratic equations in one variable with any leading coefficient
- **QEF3** - Graph quadratic equations and functions on a coordinate plane
- **QEF4** - Solve quadratic equations to determine the solutions to real-world problems

#### Graphing Functions

- **GRF1** - Graph various types of functions
- **GRF2** - Interpret key features of functions
- **GRF3** - Explain the relationship between changes in the equation for a function and its graph

#### Comparing Functions

- **CPF1** - Compare properties of two functions expressed differently (algebraically, graphically, numerically in a table of values, or by verbal description)
- **CPF2** - Compare the average rates of change for two functions
- **CPF3** - Compare the types of growth represented by linear and quadratic functions

### Generating Functions

- **GNF1** - Generate linear and quadratic
- **GNF2** - Generate functions to model real-world situations

### Algebraic Data Representation and Interpretation

- **ADRI1** - Fit a function to data represented in a scatterplot
- **ADRI2** - Assess the fit of a function to a set of data represented in a scatterplot
- **ADRI3** - Use a function fitted to a set of data to solve problems in a real-world context

### Arithmetic and Geometric Sequences

- **AGS1** - Define an arithmetic or geometric sequence explicitly
- **AGS2** - Solve real-world problems involving arithmetic or geometric sequences by composing functions

### Data Comparisons

- **DC1** - Compare data sets involving a single count or measurement variable according to measures of center and spread while accounting for the effects of extreme data points (outliers)

## Algebra 2

### Content/Measurement Topic

#### Systems of Equations

- **SEI1** - Generate systems of equations to model real-world situations
- **SEI2** - Solve systems of equations
- **SEI4** - Determine whether a system of equations has no solutions, infinite solutions, one solution, or multiple solutions by using a system of equations to model it

#### Matrix Operations

- **MO1** - Represent data using matrices to solve problems
- **MO2** - Add and subtract matrices
- **MO3** - Perform scalar and matrix multiplication

#### Matrix Determinants and Inverses

- **MDI1** - Find the determinants of matrices
- **MDI2** - Find the inverses of matrices
- **MDI3** - Use the inverse of a matrix to solve systems of linear equations in two variables

#### Graphing Functions

- **GRF1** - Graph various types of functions
- **GRF2** - Interpret key features of functions
- **GRF3** - Explain the relationship between changes in the equation for a function and its graph

#### Domain and Range of Functions

- **DRF1** - Explain the concepts of domain and range in relation to functional relationships
- **DRF2** - Determine the domain and range for a functional relationship
- **DRF3** - Express the domain and range of a functional relationship using appropriate notation

#### Generating Functions

- **GNF1** - Generate linear, quadratic, and exponential functions
- **GNF2** - Generate functions to model real-world situations

#### Comparing Functions

- **CPF3** - Compare the types of growth represented by linear, quadratic, and exponential functions

#### Inverse Functions

- **IF1** - Express the inverse of an invertible function algebraically and graphically
- **IF2** - Produce an invertible function from a noninvertible function by restricting the domain

#### Combining Functions

- **CBF1** - Evaluate the outputs of combined functions
- **CBF2** - Use the graphs of functions to find solutions to systems of equations and inequalities

#### Quadratic Equations and Functions

- **QEF1** - Graph quadratic equations and functions on a coordinate plane
- **QEF2** - Derive the quadratic formula by completing the square for the standard quadratic equation
- **QEF3** - Solve quadratic equations in one variable with any leading coefficient
- **QEF4** - Solve quadratic equations to determine the solutions to real-world problems

#### Complex Numbers

- **CN1** - Find the conjugates of complex numbers
- **CN2** - Manipulate complex numbers
- **CN3** - Solve second-degree polynomial equations that have complex roots

#### Multiplying and Dividing Polynomial Expressions

- **MDPE1** - Multiply polynomials
- **MDPE2** - Divide polynomials
- **MDPE3** - Apply the Polynomial Remainder Theorem

#### Evaluating Polynomials

- **EP1** - Prove polynomial identities
- **EP2** - Simplify higher-degree binomial expansions
- **EP3** - Solve factorable higher-degree polynomial equations

#### Rational Exponents and Radicals

- **RER1** - Explain how the definition of fractional exponents is consistent with the properties of integer exponents
- **RER2** - Manipulate expressions involving positive and negative rational exponents (including fractional exponents) and radicals using exponent properties

#### Rational Expressions and Equations

- **RNE1** - Perform operations on rational expressions
- **RNE2** - Solve rational equations.

Polynomial, Radical, and Rational Functions

- **PRRF1** - Graph polynomial functions
- **PRRF2** - Graph simple radical functions
- **PRRF3** - Graph rational functions

Exponential and Logarithmic Functions

- **ELF1** - Use exponents and logarithms to solve equations
- **ELF2** - Graph exponential and logarithmic functions

Arithmetic and Geometric Sequences

- **AGS1** - Define an arithmetic or geometric sequence explicitly and recursively
- **AGS2** - Solve real-world problems involving arithmetic or geometric sequences by composing functions

Finite Geometric Sequences

- **FGS1** - Derive the formula for the sum of a finite geometric sequence
- **FGS2** - Use the formula for the sum of a geometric sequence to solve problems

Trigonometric Ratios

- **TR1** - Use triangle similarity to derive the trigonometric ratios for acute angles

Trigonometric Functions on the Unit Circle

- **TFC1** - Explain how the unit circle can be used to extend the definitions of the trigonometric functions to angles greater than  $90^\circ$
- **TFC2** - Use the unit circle to determine the values of the trigonometric functions for the angles of special triangles
- **TFC3** - Use the unit circle to determine the values of the trigonometric functions for any given angle.

Trigonometric Identities and Formulas

- **TIF1** - Prove the Pythagorean identity  $\sin^2\theta + \cos^2\theta = 1$
- **TIF3** - Find the unknown values of trigonometric functions

Modeling with Trigonometric Functions

- **MTF1** - Use the inverse trigonometric functions to find the angle for a given trigonometric function
- **MTF2** - Graph trigonometric functions

Algebraic Data Representation and Interpretation

- **ADRI1** - Fit a function to data represented in a scatterplot
- **ADRI2** - Assess the fit of a function to a set of data represented in a scatterplot
- **ADRI3** - Use a function fitted to a set of data to solve problems in a real-world context

Data Comparisons

- **DC2** - Compare different types of statistical studies and inferences

Probability

- **P1** - Use two-way tables to model the probabilities of real-world situations
- **P2** - Calculate the probabilities of independent events
- **P3** - Calculate the probabilities of dependent events

### Probability and Combinatorics

- **PC1** - Calculate combinations and permutations
- **PC2** - Use combinations and permutations in probability calculations

### Discrete Probability Distributions

- **DPD1** - Calculate the expected value of a random variable and use it to make decisions
- **DPD2** - Create a probability distribution for the values of a random variable

### Probability Density Functions

- **PDF1** - Calculate the z-score of a given data point on a normal distribution
- **PDF2** - Find the probability that a random data point will occur within a given interval on a normal distribution

## Geometry

### Content/Measurement Topic

#### Transformations, Similarity, and Congruence

- **TSC1** - Predict the outcome of rigid transformations on geometric figures
- **TSC2** - Prove that two figures are similar or congruent using a sequence of transformations
- **TSC3** - Determine the change in coordinate location of a point under a given rigid transformation

#### Non-Rigid Transformations

- **NT1** - Compare the effects of rigid transformations versus non-rigid transformations on a given geometric figure
- **NT2** - Compare the results of dilations with varying centers and scale factors performed on the same geometric figure

#### Line and Angle Constructions

- **LAC1** - Explain a construction of a perpendicular bisector
- **LAC2** - Explain a construction of an angle bisector
- **LAC3** - Explain a construction of parallel lines

#### Parallel and Perpendicular Lines

- **PPL1** - Prove that the slopes of parallel lines are equal
- **PPL2** - Prove that the slopes of perpendicular lines are negative reciprocals of each other
- **PPL3** - Prove that a perpendicular bisector of a line segment includes all the points that are equidistant from the endpoints of the line segment

#### Angles and Transversals of Parallel Lines

- **ATPL1** - Prove that opposite angles of intersecting lines are congruent
- **ATPL2** - Prove that alternate interior angles are congruent

#### Partitions of Line Segments

- **PLS1** - Partition line segments in a given ratio
- **PLS2** - Determine the location of the point which bisects a line segment

### Triangle Properties

- **TP1** - Prove that a line passing through a triangle that is parallel to one side of the triangle forms two overlapping triangles with proportional side lengths
- **TP2** - Prove that the sum of the interior angles of a triangle is  $180^\circ$
- **TP3** - Prove that the base angles of an isosceles triangle are congruent

### Similarity in Triangles

- **ST1** - Use rigid transformations to verify properties of triangle congruence
- **ST2** - Use transformations to verify properties of triangle similarity
- **ST3** - Use the properties of similar triangles to prove the Pythagorean Theorem

### Properties of Parallelograms

- **PP1** - Prove properties of the sides, angles, and diagonals of parallelograms
- **PP2** - Prove that the diagonals of rectangles are congruent

### Polygons on the Coordinate Plane

- **PCP1** - Compute the perimeter of polygons on the coordinate plane
- **PCP2** - Compute the areas of triangles and rectangles on the coordinate plane
- **PCP3** - Verify the properties of polygons from their coordinates

### Trigonometric Ratios

- **TR1** - Use triangle similarity to derive and use the trigonometric ratios for acute angles
- **TR2** - Use the inverse trigonometric functions to find the angle for a given trigonometric function
- **TR3** - Solve right triangles using the trigonometric ratios.

### Trigonometric Ratios in Non-Right Triangles

- **TRNT1** - Derive the trigonometric formula for the area of a triangle
- **TRNT2** - Solve non-right triangles using the trigonometric ratios

### Components of a Circle

- **CC1** - Describe the relationships between the chords, radii, diameters, tangents, and secants of a circle
- **CC2** - Construct a line tangent to a circle from a point outside the circle
- **CC3** - Prove that all circles are similar

### Angles of a Circle

- **AC1** - Identify the relationships between inscribed angles, central angles, circumscribed angles, and arcs of a circle
- **AC2** - Prove the properties of the angles of quadrilaterals inscribed within a circle

### Proportions of a Circle

- **PPC1** - Give an informal argument for the formula of the circumference of a circle

### Circle Area Measurements

- **CAM1** - Give an informal argument for the area of a circle
- **CAM2** - Derive the formula for the area of a sector

Circumscribed and Inscribed Circles of Triangles

- **CICT1** - Construct the circumscribed circle of a triangle
- **CICT2** - Construct the inscribed circle of a triangle

Circle Polygon Constructions

- **CPC1** - Construct a square inscribed within a circle
- **CPC2** - Construct an equilateral triangle inscribed within a circle
- **CPC3** - Construct a regular hexagon inscribed within a circle

Analyzing Geometric Figures

- **AGF1** - Identify the relationship between three-dimensional figures and their two-dimensional cross sections
- **AGF2** - Use geometric figures to describe the properties of real-world objects

Probability

- **P1** - Use two-way tables to model the probabilities of real-world situations
- **P2** - Calculate the probabilities of independent events
- **P3** - Calculate the probabilities of dependent events