

**USD 368
Curriculum Guide**

***KS Assessment**

**Curricular Area: Math
Grade/Course: Algebra**

**Standard 1: Linear Equations and Inequalities in Two Variables
Benchmark 1**

Indicator

1. Rectangular coordinate system: Define axes, quadrants, plotting and ordered pairs.
2. Graphing linear equations: Define slope, x-intercept, y-intercept, forms of linear equations and midpoints.
3. Graphing linear inequalities: Determine the region of solutions.

**Standard 2: Linear Equations and Inequalities in Two Variables
Benchmark 1**

Indicator

1. Completing the square: Complete the square of quadratic equations and determine the solution set.
2. Quadratic Formula: Derive the Quadratic Formula and use it to determine the solution set.
3. Nonlinear inequalities: Determine regions of solutions using interval notation and graphing.

**Standard 3: Relations and Functions
Benchmark 1**

Indicator

1. Defining functions: Define functions of ordered pairs and graphs (vertical line test).
2. Piecewise functions: Graph piecewise functions from equations and derive equations from piecewise functions.
3. Increasing and decreasing functions: Define the intervals whereby a function is increasing, decreasing, or constant.

Standard 4: Analytic Geometry: Conic Sections
Benchmark 1

Indicator

1. Parabolas: Define and graph parabolas.
2. Ellipses: Define and graph ellipses.
3. Circles: Define and graph circles.
4. Hyperbolas: Define and graph hyperbolas.

Standard 5: Polynomial and Rational Functions
Benchmark 1

Indicator

1. Synthetic division/zeros and roots: Use synthetic division to divide polynomials by linear factors.
2. The Remainder Theorem: Use synthetic division to determine the value of a polynomial and to determine the zeros of a polynomial.
3. The Rational Root Theorem: Determine all of the possible rational roots of a polynomial.
4. Factored polynomials: Graph factored polynomials.
5. Descartes' Rule of Signs: Determine the possible positive, negative, and complex roots of a polynomial.
6. Upper and Lower Bound Theorem: Bound the region of interest.
7. Rational functions: Graphing rational polynomials.

Standard 6: Exponential and Logarithmic Functions
Benchmark 1

Indicator

1. Exponential functions: Recognize and graph exponential functions. Determine the solution of an exponential equation.
2. Logarithmic functions: Recognize and graph logarithmic functions. Determine the solution of a logarithmic equation using the power rule, product rule, and quotient rule.
3. Logarithm change of base: Calculate a logarithm not in base 10.

Standard 7: Systems of Equations and Inequalities
Benchmark 1

Indicator

1. System of three equations: Solve a system of three equations using substitution, elimination, Cramer's rule or matrices.
2. System of three inequalities: Solve a system of three inequalities using substitution, elimination, Cramer's rule, or matrices.

Standard 8: Discrete Algebra and Probability
Benchmark 1

Indicator

1. Binomial Theorem: Expand a binomial using the binomial theorem.
2. Arithmetic sequence/series: Determine arithmetic sequences and series.
3. Geometric sequence/series: Determine geometric sequences and series including convergent geometric series.

Standard 9: Matrices
Benchmark 1

Indicator

1. Matrix addition and multiplication: Add and multiple two matrices. Find the inverse of a matrix.