

## Algebra II

### Proficient Performance Level Descriptors

A student who is **Proficient** in Algebra II **consistently exhibits abilities** (including those involving technology) to engage in mathematical reasoning, create and manipulate multiple representations of algebraic expressions and equations, problem solve, communicate using academic vocabulary, and make connections and apply quantitative skills in real world phenomena in the following areas:

#### Functions

- Interprets the key features of graphs and tables (intercepts, decreasing and increasing intervals, maxima and minima)
- Describes end behavior, asymptotes, and symmetry
- Finds the rate of change on an interval using multiple representations (graph, tables of values, etc.)
- Applies operations to functions using function notation
- Solves/simplifies systems of equations in two variables (linear, polynomial, rational, absolute value, exponential, and logarithmic functions)

#### Polynomials (Linear, Quadratic, Cubic, etc.)

- Applies the Remainder Theorem (synthetic/long division)
- Determines zeroes of a function and predicts a possible graph
- Utilizes multiple factoring strategies (difference of squares, grouping, sums and differences of cubes, GCF, perfect square trinomials) in the solutions of equations and inequalities

#### Exponential and Logarithmic

- Rewrites equivalent representations of radical and rational exponents, logarithmic and exponential expressions, and equations
- Simplifies expressions using properties of exponents
- Applies the properties of logarithms
- Solves exponential and logarithmic equations (simple and higher level)

#### Radical and Rational

- Solves multistep radical and rational equations
- Recognizes and investigates extraneous solutions

#### Data Analysis and Statistics

- Recognizes and utilizes margin of error
- Makes predictions from data
- Distinguishes between different techniques of sampling (stratified, cluster, simple random, systematic, etc.)
- Evaluates the validity of reports from data, charts, and/or graphs

A student who is **Borderline Proficient** in Algebra II **exhibits** only **partial abilities** (including those involving technology) to engage in mathematical reasoning, create and manipulate multiple representations of algebraic expressions and equations, problem solve, communicate using academic vocabulary, and make connections and apply quantitative skills in real world phenomena in the following areas:

### Functions

- Identifies the key features of graphs and tables (intercepts, decreasing and increasing intervals, maxima and minima)
- Identifies end behavior, asymptotes, and symmetry from a graph
- Estimates rate of change on an interval using multiple representations (graph, tables of values, etc.)
- Recognizes function notation
- Recognizes solutions to systems of equations in two variables (linear, polynomial, rational, absolute value, exponential, and logarithmic functions)

### Polynomials (Linear, Quadratic, Cubic, etc.)

- Applies the Remainder Theorem
- Identifies zeroes of a polynomial from a graph
- Factors completely using difference of squares, GCF, and perfect square trinomials

### Exponential and Logarithmic

- Identifies equivalent representations of radical and rational exponents, logarithmic and exponential, equations and expressions
- Recognizes the properties of integer exponents
- Identifies the properties of logarithms
- Solves simple exponential and logarithmic equations

### Radical and Rational

- Solves simple rational and radical equations
- Identifies extraneous solutions

### Data Analysis and Statistics

- Recognizes margin of error
- Organizes and display data
- Identifies different techniques of sampling (stratified, cluster, simple random, systematic, etc.)
- Compares data reports represented in charts and graphs