

## Algebra 2 Proficiency Level Descriptors

### Minimal

Students performing at the minimal level are beginning to apply their algebra 2 mathematics skills. They simplify basic algebraic expressions including whole number, but not yet negative exponents. Students are learning to solve absolute value, radical and rational equations. They have a limited understanding of how to model and compute values of functions at a particular point. They inaccurately recognize the parent functions of absolute value, quadratic, radical, sine, cosine, exponential and logarithmic equations. Students identify domain and range of functions, and are beginning to understand the differences between relations and functions. Students inconsistently model and solve quadratic equations and inequalities. They attempt to simplify exponential and logarithmic expressions. Students have difficulty computing percentiles, range, standard deviation and interquartile range. They attempt to calculate probabilities using a few of the following methods: permutations, combinations, definitions, the general multiplication rule, and probability trees. Students determine approximate values of sine and cosine for acute angles using radians and degrees.

### Partial

Students performing at the partial level inconsistently apply their algebra 2 mathematics skills. They occasionally simplify algebraic expressions including negative exponents and imaginary numbers. Students solve and graph some absolute value, radical, and rational equations, and inequalities. They may be able to model and compute values of functions at a particular point. They recognize and are learning to graph the parent functions of absolute value, quadratic, radical, sine, cosine, exponential and logarithmic equations, and sometimes recognize their transformations. Students identify domain and range of functions, and occasionally recognize differences between relations and functions. Students solve and are beginning to write quadratic equations and inequalities. They define, simplify, and inconsistently solve and graph exponential and logarithmic functions and equations. Students compute and are beginning to compare and use percentiles, range, standard deviation and interquartile range. They calculate probabilities using some of the following methods: permutations, combinations, definitions, the general multiplication rule, and probability trees. Students determine a few trigonometric measures including sine, cosine, and tangent using radians and degrees.

## Algebra 2 Proficiency Level Descriptors

### **Sufficient**

Students performing at the sufficient level apply algebra 2 mathematics skills appropriately. They simplify algebraic expressions including negative and rational exponents and complex numbers. Students solve and graph absolute value, radical and rational equations, inequalities and systems of linear, absolute value, and quadratic equations. They describe, model, and compute values of functions at a particular point. They recognize and graph the parent functions of absolute value, quadratic, radical, sine, cosine, exponential and logarithmic equations and their transformations. Students identify and work with compositions, domain, range, and inverses of functions, and recognize differences between relations and functions. Students model and solve quadratic equations and inequalities. They define, simplify, and solve and graph exponential and logarithmic functions and equations. Students compare, and use histograms, percentiles and different measures of spread including range, standard deviation, and interquartile range to summarize data distribution. They calculate probabilities using permutations, combinations, definitions, the general multiplication rule, and probability trees. Students determine trigonometric measures including sine, cosine, and tangent using radians and degrees.

### **Substantial**

Students performing at the substantial level consistently apply algebra 2 mathematics skills appropriately. They simplify algebraic expressions including negative and rational exponents and complex numbers with ease. Students fluently solve and graph absolute value, radical and rational equations, inequalities and multi-variable systems. They effectively describe, model, and compute values of functions at a particular point. They accurately graph the parent functions of absolute value, quadratic, radical, sine, cosine, exponential and logarithmic equations and their transformations. Students consistently evaluate and work with compositions, domain, range, and inverses of functions, and describe the differences between relations and functions. They apply quadratic equations and inequalities, as well as exponential and logarithmic equations to word problems. Students analyze histograms, percentiles and different measures of spread including range, standard deviation, and interquartile range to summarize data and make inferences. They effectively calculate and analyze probabilities using permutations, combinations, definitions, the general multiplication rule, and probability trees. Students accurately determine trigonometric measures and inverses of sine, cosine, and tangent using radians and degrees.