Performance Level Descriptors – Algebra 2

PLD	Domain	Below Basic	Basic	Proficient	Advanced
Reporting		**Below Basic do not yet demonstrate proficiency in the knowledge and skills** necessary at this grade level/course of learning, as specified in content expectations. The students need substantial academic support to be prepared for the next grade level or course and to be on track for *college and career readiness.*	**Basic demonstrate partial proficiency in the knowledge and skills** necessary at this grade level/course of learning, as specified in content expectations. The students need additional academic support to ensure success in the next grade level or course and to be on track for *college and career readiness.*	**Proficient demonstrate proficiency in the knowledge and skills** necessary at this grade level/course of learning, as specified in content expectations, and uses clear and precise language when communicating mathematical understanding. The students are prepared for the next grade level or course and are on track for *college and career readiness.*	**Advanced demonstrate advanced proficiency in the knowledge and skills** necessary at this grade level/course of learning, as specified in content expectations. The students are well prepared for the next grade level or course and are well prepared for *college and career readiness.*
		A student who performs at the **Below Basic** level demonstrates minimal command of the grade-level expectations.	A student who performs at the **Basic** level demonstrates partial command of the grade-level expectations.	A student who performs at the **Proficient** level demonstrates proficiency of the grade-level expectations.	A student who performs at the **Advanced** level demonstrates advanced proficiency of the grade-level expectations.
Range	NUMBER & QUANTITY	Know the definition of a complex number	Add, subtract, multiply and divide radical expressions; solve problems involving the addition and subtraction of complex numbers; uses powers and roots to include rational exponents; translate between radical and exponential forms of expressions.	Simplify expressions & solve equations involving rational exponents and/or radicals and identify extraneous solutions; solves problems requiring computing with complex numbers; knows the Fundamental Theorem of Algebra	Analyzes where extraneous solutions may occur; applies the Fundamental Theorem of Algebra

	SEEING STRUCTURE IN EXPRESSIONS	Knows the definition of logarithms based on properties of exponents.	Translates between exponential & logarithmic forms; evaluates logarithms.	Simplify logarithmic expressions; solves logarithmic & exponential equations; uses logarithmic scales to solve problems	Analyze logarithmic scales in the context of the situation by examining the constraints and relationship to make conjectures about the meaning of the solution.
	REASONING WITH EQUATIONS & INEQUALITIES	Solves linear system of equations; Solve linear inequalities; solves exponential equations that do not require logarithms.	Solves equations & inequalities, including absolute value; solves rational equations; solves systems that include nonlinear equations and inequalities (linear to quadratic); solves quadratic equations in one variable that results in a pure imaginary solution.	Creates & solve non-linear equations & inequalities, including absolute value); creates & solves systems that include nonlinear equations and inequalities.	Using quantitative reasoning students analyze the situation by (breaking them into cases): recognize and use counterexamples to justify conclusions when solving equations and inequalities; constructs a viable argument to justify the advantages of one particular method over another.
	ARITHMETIC WITH POLYNOMIALS AND RATIONAL EXPRESSIONS	Identifies the zeros of a polynomial in a completely factored polynomial.	Sketches the graph of a polynomial in completely factored form; finds the least common multiple of polynomials in factored form.	Add, subtract, multiply, & divide rational expressions; completely factor polynomials; solves general polynomial equations using various methods that could include complex solutions; finds the least common multiple of two or more polynomials.	Creates the algebraic form of a polynomial that could fit a graph of a polynomial function; analyzes characteristics of polynomial functions using the Remainder Theorem.

	INTERPRETING, BUILDING AND MODELING FUNCTIONS	Graph functions; identifies a single transformation performed on various functions; identifies which model (linear, quadratic, and exponential) would represent a given situation graphically.	Create new functions using the operations of addition, subtraction, and multiplication; identifies the effects of single transformations in various functions; identifies which model would represent a given situation; identifies key characteristics of polynomial functions; shows whether two linear functions are inverses of each other	Interprets key characteristics of functions from multiple representations; Translate between different but equivalent forms of functions; creates new functions using the four arithmetic operations, including composition and inverses of functions considering the effects on the domain and range; shows whether two non-linear functions are inverses of each other; describes the effects of multiple transformations on functions both algebraically and graphically; creates functions and use them to solve applications of quadratic and exponential function modeling problems.	Analyzes the mathematical relationships of functions to make a connection from real-world situations to the model and explain the choice of the function used.
	DATA AND STATISTICAL ANALYSIS	Distinguish between normal distributions and other types of distributions; define what a margin of error is.	Determine whether a model fits a data set; recognize how the relative size of a sample affects the margin of error; evaluates if the data set is normally distributed; recognize the meaning of margin of error (given a margin of error) in the estimates.	Make inferences and justify conclusions from sample surveys and experiments; justifies the importance of randomization in survey studies; analyzes whether a given data set fits a normal distribution using its mean and standard deviation; analyze situations to determine if random sampling was used.	Analyze decisions and strategies using data & probability concepts; applies concepts of normal distributions to predict and justify what percentage of the data will be above or below a given value; evaluates a report by analyzing the statistics, including bias and validity of resources, to construct an argument.