Missouri Mathematics

Algebra 2

Number and Quantity NQ

A Extend and use the relationship between rational exponents and radicals. NQ.A

1. Extend the system of powers and roots to include rational exponents. NQ.A.1
2. Create and recognize equivalent expressions involving radical and exponential forms of expressions. NQ.A.2
3. Add, subtract, multiply and divide radical expressions. NQ.A.3
4. Solve equations involving rational exponents and/or radicals and identify situations where extraneous solutions may result. NQ.A.4

B Use complex numbers. NQ.B

1. Represent complex numbers. NQ.B.1
2. Add, subtract, multiply and divide complex numbers. NQ.B.2
3. Know and apply the Fundamental Theorem of Algebra. NQ.B.3

Seeing Structure in Expressions SSE

A Define and use logarithms. SSE.A

1. Develop the definition of logarithms based on properties of exponents. SSE.A.1
2. Use the inverse relationship between exponents and logarithms to solve exponential and logarithmic equations. SSE.A.2
3. Use properties of logarithms to solve equations or find equivalent expressions. SSE.A.3
4. Understand why logarithmic scales are used, and use them to solve problems. SSE.A.4

Reasoning with Equations and Inequalities REI

A Solve equations and inequalities. REI.A

1. Create and solve equations and inequalities, including those that involve absolute value. REI.A.1
2. Solve rational equations where numerators and denominators are polynomials and where extraneous solutions may result. REI.A.2

B Solve general systems of equations and inequalities. REI.B

1. Create and solve systems of equations that may include non-linear equations and inequalities. REI.B.1

Arithmetic with Polynomials and Rational Expressions APRE

A Perform operations on polynomials and rational expressions. APRE.A

1. Extend the knowledge of factoring to include factors with complex coefficients. APRE.A.1
2. Understand the Remainder Theorem and use it to solve problems. APRE.A.2
3. Find the least common multiple of two or more polynomials. APRE.A.3
4. Add, subtract, multiply and divide rational expressions. APRE.A.4
5. Identify zeros of polynomials when suitable factorizations are available, and use the zeros to sketch the function defined by the polynomial. APRE.A.5

Interpreting Functions IF

A Use and interpret functions. IF.A

1. Identify and interpret key characteristics of functions represented graphically, with tables and with algebraic symbolism to solve problems. IF.A.1
2. Translate between equivalent forms of functions. IF.A.2

Building Functions BF

A Create new functions from existing functions. BF.A

1. Create new functions by applying the four arithmetic operations and composition of functions (modifying the domain and range as necessary). BF.A.1
2. Derive inverses of functions, and compose the inverse with the original function to show that the functions are inverses. BF.A.2
3. Describe the effects of transformations algebraically and graphically, creating vertical and horizontal translations, vertical and horizontal reflections and dilations (expansions/compressions) for linear, quadratic, cubic, square and cube root, absolute value, exponential and logarithmic functions. BF.A.3

Modeling M

A Use functions to model real-world problems. M.A

1. Create functions and use them to solve applications of quadratic and exponential function model problems. M.A.1

Data and Statistical Analysis DSA

A Make inferences and justify conclusions. DSA.A

1. Analyze how random sampling could be used to make inferences about population parameters. DSA.A.1
2. Determine whether a specified model is consistent with a given data set. DSA.A.2
3. Describe and explain the purposes, relationship to randomization and differences among sample surveys, experiments and observational studies. DSA.A.3
4. Use data from a sample to estimate characteristics of the population and recognize the meaning of the margin of error in these estimates. DSA.A.4
5. Describe and explain how the relative sizes of a sample and the population affect the margin of error of predictions. DSA.A.5
6. Analyze decisions and strategies using probability concepts. DSA.A.6
7. Evaluate reports based on data. DSA.A.7

B Fit a data set to a normal distribution. DSA.B

1. Know and use the characteristics of normally distributed data sets; predict what percentage of the data will be above or below a given value that is a multiple of standard deviations above or below the mean. DSA.B.1
2. Fit a data set to a distribution using its mean and standard deviation to determine whether the data is approximately normally distributed. DSA.B.2