Algebra 2 Mathematics Content Standards

Students will…

1.0 Solve equations and inequalities involving absolute value.

2.0 Solve systems of linear equations and inequalities (in two or three variables) by substitution, with graphs, or with matrices.

3.0 Add, subtract, multiply and divide polynomials.

4.0 Factor polynomials including sum and difference of two cubes.

5.0 Demonstrate knowledge of how real and complex numbers are related both arithmetically and graphically.

6.0 Add, subtract, multiply, and divide complex numbers.

7.0 Add, subtract, multiply, divide, reduce, and evaluate rational polynomial expressions, including those with negative exponents.

8.0 Solve and graph quadratic equations over the complex number system, including word problems.

9.0 Determine how the graph of a parabola changes as *a*, *b*, and *c* vary in the equation.

10.0 Graph quadratic functions and determine the maxima, minima, and zeros of the function. Find a polynomial function given the zeros.

11.0 Prove and apply simple laws of logarithms. Understand and use the relationship between exponents and logarithms to solve problems.

12.0 Know the laws of fractional exponents, understand exponential functions, and use these functions in problems involving exponential growth and decay.

13.0 Use logarithmic properties to change base.

14.0 Use the properties of logarithms to simplify logarithmic numeric expressions and use the definition of logs to approximate values.

15.0 Determine whether specific algebraic statements are always, sometimes or never true.

16.0 Describe the graph of a conic section using the coefficients of the quadratic equation representing it. Identify foci, asymptotes and eccentricity from the equation.

17.0 Complete the square on $ax^2 + by^2 + cx + dy + e = 0$ to put in standard form and graph.

18.0 Use fundamental counting principles to compute combinations and permutations.

19.0 Use combinations and permutations to compute probabilities.

20.0 Use the binomial theorem to expand expressions that are raised to positive integer powers.

21.0 Use mathematical induction to prove general statements about the positive integers.

22.0 Find the general term and the sums of arithmetic series and of both finite and infinite geometric series.

23.0 Derive the summation formulas for arithmetic series and for both finite and infinite geometric series.

24.0 Solve problems involving composition of functions, inverse functions and arithmetic operations of functions.

25.0 Use properties from number systems to justify steps in combining and simplifying functions.