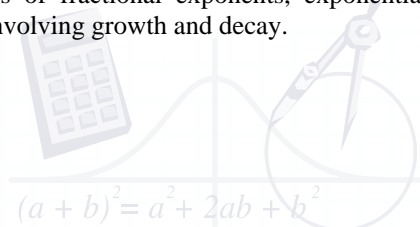


ALGEBRA II

CONTENT STANDARDS

1 of 2

- 1.0 Students solve equations and inequalities involving absolute value.
- 2.0 Students solve 2 or 3 (a system) equations and inequalities simultaneously (in two or three variables) by using substitution, graphing, or using matrices.
- 3.0 Students are able to perform operations on polynomials, including long division.
- 4.0 Students factor polynomials by using special patterns.
- 5.0 Students demonstrate knowledge of how real and complex (imaginary) numbers are related and know how to graph complex numbers.
- 6.0 Students can add, subtract, multiply and divide complex numbers.
- 7.0 Students add, subtract, multiply, divide, reduce, and evaluate rational expressions involving denominators with monomial and polynomials, including those that have negative exponents.
- 8.0 Students find the solutions and graph quadratic equations by factoring, completing the square, and/or using the quadratic formula. Students use these techniques with word problems. They solve quadratic equations using complex numbers.
- 9.0 Students show and explain what happens to the graph when the coefficients change in a quadratic equation. Students know how the graph of a parabola changes when varying a , b , and c in the equation $y = a(x - b)^2 + c$.
- 10.0 Students graph a function of the form $y = ax^2 + bx + c$ and find the maximum, minimum and x -intercepts (zeros) of the parabola.
- 11.0 Students prove basic laws of Logarithms.
 - 11.1 Students understand the inverse relationship between exponents and logarithms and use this to solve equations involving logarithms and exponents.
 - 11.2 Students determine if problems involving real numbers, exponents, and logarithms have been simplified correctly.
- 12.0 Students know the laws of fractional exponents, exponential functions and use properties of exponents in problems involving growth and decay.





ALGEBRA II

CONTENT STANDARDS

2 of 2

- 13.0 Students use the definition of logarithms to translate between logarithms in any base.
- 14.0 Students understand and use the product, quotient, and power properties of logarithms to simplify logarithmic expressions and find their approximate values.
- 15.0 Students determine if an algebraic statement involving rational expressions, radical expressions, logarithmic functions, and exponential functions is sometimes true, always true or never true.
- 16.0 Students demonstrate how to graph parabolas, circles, ellipses and hyperbolas (i.e. conic sections). Students know how the coefficients of the quadratic equation modify the graph.
- 17.0 Students can change the quadratic equation $ax^2 + by^2 + cx + dy + e = 0$ to standard form by completing the square. Students can recognize if the graph of the equation is a circle, ellipse, parabola or hyperbola. Student can then graph the function.
- 18.0 Students find the number of combinations and permutations using the fundamental counting principles.
- 19.0 Students can determine the likelihood that an event will occur by using combinations and permutations.
- 20.0 Students know and use the binomial theorem to expand binomial expressions that are raised to positive integer exponents.
- 21.0 Students use mathematical induction to show if general statements involving positive integers are true.
- 22.0 Students find the general term and the sums of arithmetic series and for both finite and infinite geometric series.
- 23.0 Students derive the summation formula for arithmetic series and for both finite and infinite geometric series.
- 24.0 Students can define new functions using the basic operations (addition, subtraction, multiplication and division) on functions. Students define the inverse function and know how to find the composition of functions.
- 25.0 Students use properties from number systems to justify steps in combining and simplifying functions.

