**ALGEBRA 2 –SPRING FINAL STUDY TOPICS**

* Solve an absolute value inequality
* From a situation, write a system of equations and solve for both variables
* Solve a given system of equations for x and y
* From a graph of a system of inequalities, identify the equations that represent the system
* Multiply and simplify polynomials
* Simplify an expression with the imaginary number *“I”*
* Add, Subtract and Multiply complex numbers (*a + bi)*
* Simplify expressions with negative exponents.
* Add and Subtract Rational Expressions with like and unlike denominators being sure to simplify
* Multiply and Divide Rational Expressions being sure to simplify
* Expand binomials raised to a power using the Binomial Theorem and / or Pascal’s Triangle
* Identify an Arithmetic Series and write the rule for the Series
* Identify a Geometric Series, find its common ratio and find the next term
* Identify Permutations and Combinations and find the total number of possibilities
* Know the Properties for Logs (Power Property, Product Property, Quotient Property and Change of Base)
* Given a situation write the exponential function that models the scenario and evaluate for a given time
* Solve a Quadratic equation by factoring or the quadratic formula
* Completely factor expressions
* Evaluate functions and composite functions for both numeric values and expressions: for example: f(g(x))
* Given a quadratic function, identify the vertex and its translation from the parent function
* Given a quadratic function, identify its graph
* Find the x intercepts and vertex of a quadratic function
* Evaluate logarithmic expressions
* Convert an exponential expression to a logarithmic expression
* Rewrite a given expression to solve for a particular variable
* Given a scenario regarding interest, write the formula that models the situation and evaluate for a given time
* Find the coordinates of a given angle in the unit circle in radical form (Remember the Hand!)
* Be familiar with the sine, cosine and tan functions and for which values the tan is undefined
* Identify and exponential decay function and its initial value
* Know the equation for a circle and how the ordered pairs for the center of the circle translate its graph
* Be able to put a quadratic equation in the vertex form
* Write a series from one given in Sigma Form
* Find the sum of Arithmetic and Geometric Series
* Find the inverse of a given function
* Be able to graph an exponential function
* Find the common difference of an Arithmetic Sequence and identify the first term
* Convert degrees to radians and radians to degrees
* Given a right triangle, identify the sine, cosine and tangent of an angle
* Find the reference angle in the unit circle given an angle of rotation
* Be able to fully investigate a polynomial to the 3rd Degree including all x and y intercepts, a table, graph, domain and range and asymptotes)
* Solve an exponential functions using both change of base and logs
* Be able to fully complete the unit circle and define a radian completely
* Know the relationship between the graph of a function and its inverse and tell if the inverse is also a function.
* Given three points, be able to write the equation of the quadratic function that represents these points.