High School Math – First Marking Period

WHAT STUDENTS NEED TO KNOW AND BE ABLE TO DO IN ALGEBRA II

Algebra

I can identify parts of a polynomial or rational expression including leading coefficient, degree, type, and standard form.

I can interpret a complicated product in simpler parts.

I can rewrite an expression in simpler form using the structure.

I can write expressions in equivalent forms to solve them in an easier way.

I can add rational expressions.

I can subtract rational expressions.

I can multiply rational expressions.

I can divide rational expressions.

I can create linear and quadratic equations in one variable to solve problems.

I can use a graphing calculator to find the intersection of functions.

I can make a table of values to estimate where functions intersect.

Functions

I can model the relationship between quantities on a graph.

I can relate the domain (x-values) of a function to its graph and what those values represent.

I can find the approximate rate of change (slope) over an interval from a graph.

I can find the approximate rate or change (slope) between the intervals on a table.

I can graph square and cube root functions.

I can graph piecewise and step functions.

I can graph absolute value functions.

I can compare properties of two functions algebraically.

I can compare properties of two functions graphically.

I can compare properties of two functions numerically.

I can compare properties of two functions verbally.

I can build a function that models a relationship between two quantities.

I can show how changes in specific values can affect a graph using a graphing calculator.

Continued. . .

Algebra II – First Marking Period

Statistics & Probability
I can take a random sample of a population. **I can** use the results of a random sample to make a prediction about a larger population. **I can** judge whether a given model is reasonably consistent with the results of a set of data. **I can** relate randomization to sample surveys. **I can** relate randomization to experiments. **I can** relate randomization to observational studies. **I can** use data from a sample survey to estimate a population mean or proportion. **I can** find the margin of error using simulation models for random sampling. **I can** use data from a randomized experiment to compare two treatments. **I can** use simulations to decide if differences between parameters are significant. **I can** evaluate reports using a given set of data.
Number and Quantity

High School Math – Second Marking Period

WHAT STUDENTS NEED TO KNOW AND BE ABLE TO DO IN ALGEBRA II

Number and Quantity

I can simplify a complex number problem using the conjugate.

I can correctly plot complex numbers on a complex plane.

I can correctly plot complex numbers in polar form.

I can show that rectangular and polar forms of a complex number represent the same number.

I can graph the addition, subtraction, multiplication and conjugation of complex numbers on the complex plane.

I can use the properties of complex numbers to find the modulus and the argument.

I can find the distance between numbers in the complex plane as the modulus of the difference.

I can find the midpoint of a segment as the average of the numbers at its endpoints.

Algebra

I can correctly add and subtract polynomials by combining like terms.

I can correctly multiply polynomials, combining like terms.

I can divide using the integer that makes the divisor equal zero.

I can identify the zeros of a polynomial by correctly factoring when possible.

I can construct a rough graph from the zeros of the polynomial.

I can create equations of simple rational and exponential functions to solve problems.

I can solve rational and radical equations in one variable.

I can identify solutions that are extraneous.

I can use a graphing calculator to find the intersection of functions.

I can make a table of values to estimate where functions intersect.

Continued. . .

Algebra II – Second Marking Period

Functions

I can model the relationship between quantities on a graph.

I can interpret key features of graphs and tables including x- and y intercepts, relative maximum and minimum points, symmetries, end behaviors and periodicity.

I can identify intervals from a graph or table where a function is increasing or decreasing, positive or negative.

I can relate the domain (x-values) of a function to its graph and what those values represent.

I can graph square and cube root functions.

I can compare properties of two functions algebraically.

I can compare properties of two functions graphically.

I can compare properties of two functions numerically.

I can compare properties of two functions verbally.

I can build a function that models a relationship between two quantities.

I can show how changes in specific values can affect a graph using a graphing calculator.

Statistics and Probability

I can find the mean and the standard deviation of a set of data using a calculator.

I can find the mean in a normal distribution using a calculator.

I can find the standard deviations in a normal distribution using a calculator.

I can use the mean and standard deviation to estimate population percentages.

I can use a calculator, spreadsheet, or a table to estimate areas under the normal curve.

High School Math – Third Marking Period

WHAT STUDENTS NEED TO KNOW AND BE ABLE TO DO IN ALGEBRA II

Functions

I can model the relationship between quantities on a graph.

I can interpret key features of graphs and tables including x- and y-intercepts, relative maximum and minimum points, symmetries, end behaviors, and periodicity.

I can identify intervals from a graph or table where a function is increasing or decreasing, positive or negative.

I can relate the domain (x-values) of a function to its graph and what those values represent.

I can graph square and cube root functions.

I can graph a polynomial function.

I can identify the zeros of a polynomial function using factoring when possible.

I can describe the end behaviors of a function.

I can graph exponential functions showing intercepts and end behaviors.

I can graph logarithmic functions showing intercepts and end behaviors.

I can factor to find the zeros of a function.

I can use the Quadratic Formula to find the zeros of a function.

I can complete the square to find the zeros of a function.

I can graph a function to find the extreme values and the symmetry.

I can interpret key features of graphs including x- and y-intercepts, relative maximum and minimum points, and symmetries in terms of a given context.

I can classify exponential growth or decay using the properties of exponents

I can compare properties of two functions algebraically.

I can compare properties of two functions graphically.

I can compare properties of two functions numerically.

I can compare properties of two functions verbally.

I can build a function that models a relationship between two quantities.

I can show how changes in specific values can affect a graph using a graphing calculator.

Continued. . .

Algebra II – Third Marking Period

Algebra

I can prove polynomial identities and use them to solve problems.

I can expand a polynomial using the Binomial Theorem.

I can use Pascal's Triangle to find the value of the combinations in each term in the Binomial Theorem.

I can rewrite rational expressions using long division.

I can rewrite rational expressions in simplified form after factoring the numerator and the denominator.

I can rewrite rational expressions using a computer algebra system on a calculator.

I can create equations in two or more variables.

I can graph equations on a coordinate plane with labels and scales.

I can represent constraints by equations or inequalities.

I can interpret solutions as being viable or non-viable based on the constraints of a situation.

I can solve for any variable in a formula.

I can solve rational and radical equations in one variable.

I can identify solutions that are extraneous.

I can show that functions meet where the x-coordinates are equal.

I can use a graphing calculator to find the intersection of functions.

I can make a table of values to estimate where functions intersect.

Statistics & Probability

I can find the mean and the standard deviation of a set of data using a calculator.

I can find the mean in a normal distribution using a calculator.

I can find the standard deviations in a normal distribution using a calculator.

I can use the mean and standard deviation to estimate population percentages.

I can use a calculator, spreadsheet, or a table to estimate areas under the normal curve.

Number and Quantity

High School Math – Fourth Marking Period

WHAT STUDENTS NEED TO KNOW AND BE ABLE TO DO IN ALGEBRA II

Functions

I can model the relationship between quantities on a graph.

I can interpret key features of graphs and tables including x- and y-intercepts, relative maximum and minimum points, symmetries, end behaviors, and periodicity.

I can identify intervals from a graph or table where a function is increasing or decreasing, positive or negative.

I can graph square and cube root functions.

I can graph a polynomial function.

I can identify the zeros of a polynomial function using factoring when possible.

I can describe the end behaviors of a function.

I can graph exponential functions showing intercepts and end behaviors.

I can graph logarithmic functions showing intercepts, and end behaviors.

I can graph trigonometric functions showing period, mid-line, and amplitude.

I can compare properties of two functions algebraically.

I can compare properties of two functions graphically.

I can compare properties of two functions numerically.

I can compare properties of two functions verbally.

I can build a function that models a relationship between two quantities.

I can show how changes in specific values can affect a graph using a graphing calculator.

I can identify even and odd function from their graphs.

I can identify even and odd functions algebraically.

I can find the inverse of a simple function like $f(x) = 2x^3$.

I can use the length of the arc on the unit circle subtended by the angle to find the radian measure of an angle.

I can show how the unit circle extends trig functions to all real numbers.

I can show how the unit circle can be interpreted as radian measures of angles.

I can model periodic frequency using a trigonometric function.

I can model periodic amplitude using a trigonometric function.

I can find mid-line using a trigonometric unction.

I can show how to find a trigonometric function's inverse by graphing it only where it is always increasing or decreasing.

I can prove the Pythagorean Identity $(\sin A)^2 + (\cos A)^2 = 1$.

I can use the Pythagorean Identity to calculate trigonometric ratios.

Continued. . .

Algebra II – Fourth Marking Period

Algebra

I can expand a polynomial using the Binomial Theorem.

I can use Pascal's Triangle to find the value of the combinations in each term in the Binomial Theorem.

I can rewrite rational expressions using long division.

I can rewrite rational expressions in simplified form after factoring the numerator and the denominator.

I can rewrite rational expressions using a computer algebra system on a calculator.

I can solve for any variable in a formula.

I can show that functions meet where the x-coordinates are equal.

I can use a graphing calculator to find the intersection of functions.

I can make a table of values to estimate where functions intersect.

Statistics & Probability

I can use probabilities to make fair decisions that make sense.

I can analyze decisions using probability.

Numbers and Quantity