



**Honors Math 3 – Midterm Exam Topic List for Units 1 – 4  
Fall 2018**

	Find the values of a piecewise function.
	Graph a piecewise function, given an equation.
	Write the equation of a piecewise function, given a graph.
	Model a story context using a piecewise function.
	Write the equation of an absolute value function in piecewise form, given an equation in the form: $f(x) = a  x - h  + k.$
	Graph the equation of $g(x) =  f(x) $ when $F(x)$ is a quadratic function.
	Write the piecewise equation of $g(x) =  f(x) $ when $g(x)$ is a quadratic function.
	Write the inverse of a function given a story context.
	Write the inverse of a function given a table.
	Write the equation of the inverse of a quadratic or linear function, given the equation.
	Describe the features of a function and its inverse including maximum or minimum, domain, range, intervals of increase and decrease, and intercepts.
	Find the graph of $f^{-1}(x)$ , given the graph of $(x)$ .



	Create an inverse function from a story context by changing the input and output variables.
	Recognize inverse functions in graphical form.
	Determine if a function is invertible.
	Find the domain and range of a function and its inverse.
	Write the equation of the inverse function from the equation of a function.
	Recognize inverse functions in tables, graphs, and equations.
	Understand that inverse functions “undo” each other.
	Produce an invertible function from a noninvertible function by restricting the domain.

	Simplify logarithmic expressions
	Compare and Order logarithmic expressions
	Simplify natural logarithmic expressions
	Graph logarithmic functions and transformations
	Solve exponential and logarithmic equations – like bases
	Solve exponential and logarithmic equations – unlike bases
	Solving compound interest application problems
	Solving compound continuously problems
	Solve exponential growth and decay problems
	Solve problems using e and ln.
	Solve systems of equations involving exponential and logarithmic equations
	Solve systems of equations involving linear equations



	Identify a cubic function from the rate of change.
	Describe the features of $f(x) = x^3$ .
	Graph cubic functions in the form: $f(x) = a(x - h)^3 + k$
	Describe the similarities and differences between cubic functions and quadratic functions.
	Add polynomials both algebraically and graphically.
	Subtract polynomials both algebraically and graphically.
	Multiply polynomials using the distributive property.
	Use Pascal's Triangle to raise a binomial to a power.
	Use the Fundamental Theorem of Algebra to determine how many roots a polynomial has.
	Write a polynomial in factored form, given the roots of the polynomial.
	Find the other roots of a polynomial given a factor or root.
	Describe pairs of irrational or imaginary roots of polynomials.
	Determine the end behavior of a polynomial of a given degree.