Expectations	Indicators	Essential Questions	Enduring Understanding
1.1 The student will represent functions and relations numerically,	1.1.A2.7 represent exponential functions, including base <i>e</i> , numerically, algebraically, and graphically.	C 3.4. 3.4.	
graphically, and algebraically.	1.1.A2.8 represent logarithmic functions, including base <i>e</i> , numerically, algebraically, and graphically.		
1.2 The student will	1.2.A2.3 describe the properties of exponential functions including domain and range, increasing, decreasing, continuous, maximum and minimum values, end behaviors, symmetry, asymptotes, and zeros.	How do exponential functions model real-world	
describe and apply properties of functions and relations.	y 1.2.A2.4 describe the properties of logarithmic functions including domain and	problems and their solutions?	
1.3 The student will perform a variety of operations and	1.2.A2.5 describe the inverse relationship between exponential and logarithmic functions numerically, graphically, and algebraically.	How do	The characteristics of exponential and
geometrical transformations on functions and relations	1.3.A2.2 describe the effect of transformations on graphs of exponential functions, $f(x) = a(b)^{x-h} + k$.	logarithmic functions model real-world	logarithmic functions and their representations are
1.4 The student will use numerical, algebraic, and	1.4.A2.2 solve exponential equations using graphs, the laws of exponents, or the inverse relationship with logarithms.	problems and their solutions?	useful in solving real-world problems.
graphical representations of functions and relations	1.4.A2.3 solve logarithmic equations using graphs and the inverse relationship with exponents.		
in order to solve real-world problems.	1.4.A2.12 interpret and solve problems involving exponential functions.	How are expressions involving	
4.1 The student will describe and represent numbers and their	4.1.A2.1 write equivalent forms for exponential and logarithmic expressions and equations.	exponents and logarithms related?	
relationships.	4.2.A2.3 evaluate logarithmic expressions.		
4.2 The student will estimate and compute using mental	1.4.A2.16 make predictions using quadratic, exponential, or logarithmic mathematical models given a set of data.		
strategies, paper and pencil, and technology.	1.4.A2.17 choose appropriate models, quadratic, exponential, or logarithmic, based on an analysis of the patterns of change in data.		