**Calculus – Chapter 1 Exam Study Guide**

Concepts we have covered:

1. (1.1) Lines

* Be able to find slope from a graph, or given two points
* Be able to identify two lines as being parallel, perpendicular, or neither
* Write the equation of a line given either 2 points, a point and slope, a point and a parallel line, or a point and a perpendicular line
* Be able to write the equation of a line in point-slope form, slope-intercept form, or standard form
* Be able to use your calculator to find a linear regression equation, graph the equation, and use the graph or the equation to answer questions

2. (1.2) Functions

* Be able to identify a function
* Be able to find the domain of a function algebraically and from a graph, and write it using interval notation (know the difference between open and closed intervals)
* Be able to find the range of a function algebraically and from a graph, and write it using interval notation
* Be able to graph common functions by hand
	+ Know your parent functions
	+ Know your transformations
* Be able to show algebraically that a function is even or odd
* Be able to graph a piecewise defined function
* Be able to write the formula for a piecewise defined function from a graph
* Be able to find the composite of two functions, and the domain of the composite function
* Be able to decompose a function (write it as the composition of two functions)

3. (1.3) Exponential Functions

* Be able to model exponential growth and decay
* Know rules for exponents
* Know how to write an equation for interest compounded annually, monthly, daily, and continuously
* Be able to use your calculator to find an exponential regression equation to model data.
* Be able to graph exponential equations by hand

4. (1.5) Functions and Logarithms

* Be able to determine if a function is one-to-one
* Be able to restrict the domain of a function to make it one-to-one
* Be able to find the inverse of a one-to-one function
* Be able to find the inverse of a one-to-one function, and identify its domain and range
* Be able to show that the composite of a function and its inverse yields the identity function (show the composition both ways)
* Know the properties of logarithms
* Know how to solve equations containing logs or exponents
* Know how to graph logarithmic functions by hand

5. (1.6) Trigonometric Functions

* Be able to convert from degrees to radians and vice versa
* Know the 6 trig functions (Soh Cah Toa)
* KNOW THE UNIT CIRCLE!
* Be able to graph sine, cosine, tangent, cosecant, secant, and cotangent functions by hand