**Math Analysis Honors Unit 12**

**Can You . . .**

* Divide polynomials using long or synthetic division
* Given a polynomial function $f(x)$ and a divisor $h\left(x\right)$, rewrite $f(x)$ as $h\left(x\right)q\left(x\right)+r\left(x\right)$
* Given a polynomial function $f(x)$ and a linear divisor $h\left(x\right)$, find the remainder without dividing
* Given a polynomial function $f(x)$ determine possible rational zeros and which to test
* Use division to test for zeros and find factors
* Find irrational factors of a quadratic function in exact form
* Determine when to use the Bounds Test
* Determine if a given value is a lower or upper bound of the zeros of a polynomial function
* Draw a graph given the factors of a polynomial function
* Write a possible polynomial function given its graph
* Find all zeros, including complex zeros
* Write a possible equation for a polynomial function given its zeros, including complex zeros
* Use derivatives to find critical points of polynomial functions.
* State intervals of increasing and decreasing.
* State intervals on concave down and concave up.
* Given a rational function find. . .
	+ Domain
	+ x and y intercepts
	+ Vertical asymptotes
	+ Holes
	+ Horizontal asymptotes
	+ Slant asymptotes