Pre-Cal Semester 1 Concepts to Know

- Slope
- Distance Formula
- Writing equation of a line (slope-intercept, standard forms)
- Parallel, perpendicular lines
- Piecewise functions (Be able to graph as well)
- Characteristics of graphs (domain, range, increasing/decreasing, positive/negative, relative extrema)
- Domain given a function
- Determining if a function is even/odd
- Finding the inverse function (relationships between a function and its inverse)
- Transformations (translation, dilations (stretch/compression), and reflection)
- Function operations (g o f, f o g, f+g, etc.)
- Difference quotient (f(x+h)-f(x))/h
- Factoring
- Finding the vertex from standard form (-b/2a)
- Putting in vertex form by completing the square
- Graphing parabola's from standard form and vertex form
- Writing the equation of a parabola given the vertex and point
- Leading Coefficient Test to describe end behavior
- Sketching polynomials given factors
- Writing polynomials given zeros/roots (radical and imaginary numbers come in conjugate pairs)
- Synthetic division
- Long division
- Remainder Theorem / Factor Theorem
- Rational Root Theorem (p/q method)
- Powers of i and simplifying square root of a negative number
- Complex numbers (adding, subtracting, multiplying, and dividing – multiplying by the conjugate)
- Asymptotes – Vertical, Horizontal, Slant
- Points of Removable Discontinuity (holes)
- Graphing Rational Functions
- Log form to exponential form/exponential form to log form
- Properties of Logs
- Log expansion
- Write as a single log
- Solving exponential equations/ solving log and ln equations
- Graphs of exponential and log functions
- Finding complement and supplement
- Converting between radians to degrees and degrees to radians
- Coterminal angles
- Reference angle
- Special Right Triangles
- Finding exact values of trig ratios using the unit circle
- All Students Take Calculus
- Using right triangles to find trig ratios (along with ASTC to get the signs correct)
- Solving for theta (e.g sin theta = ½; find theta)
- Simplifying/proving trig identities
- Graphing Trig functions
- Writing equations given graphs