Pre-Calculus Honors 1st Semester Final Topics:

Chapter 1:

- finding the inverse of an equation
- composition of functions
- even vs. odd functions
- transformations of functions
- average rate of change
- domain and range of all types of functions in the chapter
- symmetry tests – all
- continuity vs. discontinuity – jump, infinite, removable

Chapter 2:

- finding the equations of polynomials given the roots
- solving rational equations and inequalities
- solving radical equations
- remainder theorem
- graphing polynomials from their equations
- finding the zeros of a polynomial equation
- factoring
- asymptotes – vertical, horizontal, oblique
- holes
- end behavior

Chapter 3:

- simplifying radical expressions
- writing expressions with rational exponents in simplest rational form
- rewriting with radical expressions with rational exponents
- expanding, evaluating and rewriting logarithmic expressions
- solving logarithmic and exponential equations, all types
- solving any form of compounded interest problem in all possible ways

Chapter 4:

- unit circle values for the 6 trig. functions given radian and degree measures including negative and positive co-terminal angles
- using SOH-CAH-TOA to find values for right triangles
- using Law of Sines to find values for scalene triangles
- using Law of Cosines to find values for scalene triangles
- reference angles
- area of a scalene triangle
- area of a sector of a circle
- word problems involving arclength on a circle or length of intercepted arcs
- finding the modified period of a trig. function
- finding the phase shift of a trig. function
- domain & range of inverse trig. functions
- solving expressions with inverse trig. functions

Chapter 5 + Chapter 7 (Old Book):

- solving trig. equations
- using sum & difference identities to find non-unit circle values for trig. functions
- using half-angle identities to find non-unit circle values for trig. functions
- using double-angle identities to find non-unit circle values for trig. functions
- using quotient identities to find non-unit circle values for trig. functions
- using Pythagorean identities to find non-unit circle values for trig. functions
- simplifying or rewriting expressions using trig. identities
- distance between lines
- converting linear equations to normal form
- finding the length of the normal (p) and the angle measure (ϕ) between the normal and the positive x-axis

Chapter 6:

- solving systems of equations in 2 variables and 3 variables
- inverse matrix
- calculating determinants – 2x2 and 3x3
- inconsistent vs. consistent
- dependent vs. independent
- solving equal matrices and matrix equations
- graphing linear inequalities to find feasible region, min and max
- multiplying matrices
- writing partial fractions from rational expressions