Math 105 Topics for Test 3

Next to each topic are problems from the Chapter 2 Test on page 237, Chapter 3 Test on page 319, and Chapter 4 Test on page 385 of the Textbook. Also study the homework problems. A complete list of the homework problems is on the course webpage.

- Modeling with functions (Ch 2 Test: 8)
  - Write the equation to model a problem and find the maximum or minimum.

- Combining functions \( f + g, f - g, f \cdot g, \frac{f}{g}, f \circ g \) (Ch 2 Test: 9a-d)
  - Find values
  - Find an expression for the function
  - Determine the domain and range of the function

- One-to-one functions and their inverses (Ch 2 Test: 10, 11 a,b)
  - Find the inverse of a given function
  - Find the domain and range of the inverse function
  - Graph the inverse of a function

- Polynomial Functions (Ch 3 Test: 1)
  - Find the zeros
  - Determine the end behavior
  - Make a table of values and sketch the graph

- Rational Functions (Ch 3 Test: 9a, c, d)
  - Find the Domain
  - Find the vertical asymptotes (if any exist)
  - Find the x-intercepts and y-intercepts (if any exist)
  - Determine the end behavior and find any horizontal asymptotes
  - Examine the sign of the function near the vertical asymptotes
  - Sketch the graph

- Exponential and Log functions
  - Graph an exponential or log function (Ch 4 Test: 1, 2)
  - Evaluate log expressions (Ch 4 Test: 3)
  - Use the laws of Logarithms (Ch 4 Test: 4, 5)