Precalculus (MATH 2412) – Objectives for Test 1

After studying Chapters 1 and 2 and doing your homework, you should be able to:

Chapter 1:
• Define a function
• Determine whether a given equation or graph represents a function
• Find the average rate of change for a function over a specified interval
• Use the average rate of change to determine if a function is increasing or decreasing
• Determine whether a function is linear
• Find the formula for a linear function
• Interpret the slope and intercepts of a linear function
• Fit a regression line to a data set
• Interpolate and Extrapolate using the linear regression equation
• Interpret the meaning of the correlation coefficient

Chapter 2:
• Evaluate a function for a given input
• Find the input(s) that produce a given output
• Determine the domain and range of a function (from the formula or the graph)
• Graph a piecewise function
• Find the formula for a piecewise function
• If \( y = f(x) \), find \( f^{-1}(b) \)
• Find a formula for \( f^{-1}(y) \), given \( y = f(x) \)
• Identify and interpret the concavity of a given function
• Graph a quadratic function using the intercepts
• Find the formula for a quadratic function
• Find the zeros of a quadratic equation by factoring or using the Quadratic Formula

Suggested Review Problems: These problems will not be collected, but several problems on the test will be very similar (perhaps identical) to these. It is also a good idea to study problems when they are removed from the context of a section of the text – this way, you really find out if you know how to solve different types of problems.

Ch. 1 Review (p. 48): 1,4,5,6,7,9,11,13,15,16,21,23,25,29,31,33,35,37,39,41,49,52,53

Ch.1 “Check Your Understanding” (p.52) – All

Ch. 2 Review (p. 90): 1,3,5,7,9,12,13,15,16,17,19,21,22-25,28,29,31,32,33,35,36

Ch.2 “Check Your Understanding” (p. 93) - All