Semester Exam Review: Pre-Calculus

Unit 1: Sequences, Series, Exponential and Logarithmic Functions

1) Arithmetic Sequences

Be able to

a) Understand notation, read a sequence, and write the implicit and explicit formulas.

b) Understand the difference between a sequence and a series.

c) Understand and use sigma notation.

d) Be able to use the explicit formula to find any term in the sequence

e) Be able to calculate the total of a series or the number of terms given a total

2) Geometric Sequences

Be able to

a) Identify a geometric sequence and series, write the equations and find terms in the sequence

b) Be able to find the sum of a finite and infinite sequence and series

c) Understand converging vs diverging

3) Exponential Functions

Be able to

a) Write exponential functions

b) Calculate compound interest and continuously compounded interest

c) Calculate the amount of time an investment is compounded given a total amount

4) Logarithms

Be able to

a) Translate a log to an exponential and an exponential into a log

b) Change the base of a log to get a numeric answer

c) Use the properties of logs to expand or condense logarithms

d) Solve exponential equations using logarithms

5) Functions

Be able to

a) Identify parent functions

b) Identify the transformations of parent functions

c) Know when and how a parent function gets moved, stretched or shrunk, flips

d) Know how to use the composition of functions

6) Graphs of Polynomial functions

a) Know and be able to use the key features of a graph

b) Understand how to read a polynomial functions for key information

c) Be able to sketch the graph of a polynomial function by finding the roots of a polynomial function

d) Use the rational root theorem, synthetic division, quadratic formula, etc.