Math 422 Fall 2023 Exam #2 Study Guide

Chapter 4: Sections 1 and 2 (4 questions)

Quadratic Functions (3 questions)

Quiz from Week 5

MyOpenMath Practice Problems (work through them again)

Notes and Powerpoints

Major Ideas:

1. Be able to identify and interpret features of a quadratic function and its graph, including vertex, x-intercepts, y-intercept
2. Be able to write the revenue function
3. Be able to write the profit function given revenue and cost, where
4. Whenever we see supply, demand, cost, revenue, and profit we will consistently use “x” to represent of a good that is produced/sold
5. Be able to write the equation of a quadratic function from a graph in vertex form
6. Be able to use and apply the quadratic function equation to solve problems, whether in standard form or vertex form

Polynomial Functions (1 question on this topic)

MyOpenMath Practice Problems (work through them again)

Notes and Powerpoints

Major Ideas:

1. Polynomial Functions involve powers of x added/subtracted
2. We can create new polynomials by multiplying (for example) a linear function times a quadratic function, or just by multiplying two polynomial functions
3. Polynomial functions have graphs that are shaped like M or W, or lightning bolt
4. Recognize a turning point on a graph
5. Be able to use the fact that between any two x-intercepts there must be a turning point.

Chapter 5: Sections 1-3 (4 questions)

Quiz from Week 6

MyOpenMath Practice Problems

Notes and Powerpoints

Major Ideas:

1. Be able to graph an exponential function, or graph points and determine the nature of the graph (quadratic, polynomial, exponential, linear)
2. Be able to solve application problems involving exponential growth or decay (also appreciation/depreciation)
3. Be able to use logarithms to solve for the exponent in a problem
4. Be able to recognize the graph of a logarithm function as well as an exponential function

Chapter 6 (Sections 1 and 2) (4 questions)

Quiz from Week 7

MyOpenMath Practice Problems (work through them again)

Notes from 10/10 (we did 8 problems using the formula sheet)

Major Ideas

1. Be able to solve any problem involving simple interest
   1. solve for amount of interest on simple interest loan
   2. figure out the monthly payment on a loan by adding the principle + interest and dividing by the number of months to pay it off
2. Be able to solve problems involving compound interest
   1. recognize when to use the regular compound interest formula versus the formula when number of compounding periods is not = 1
   2. be able to solve either for A or P
   3. be able to solve for the amount of time it takes to reach a financial goal
   4. be able to solve for the APY (annual percentage yield) when dealing with compound interest
3. Be able to solve an annuity problem. Given the monthly payment, interest rate, and time, calculate the future value of an annuity