MATH ANALYSIS 1

MIDTERM REVIEW

**Chapter 1**

* Distance and midpoint formulas
* Intersection of lines
* Slopes – parallel and perpendicular
* Finding Equations of a line
* Complex numbers
* Operations with complex numbers
* Solving quadratic equations (factoring, completing the square, quadratic formula)
* Gaining and Losing Roots
* Graphing parabolas in general form and vertex form
* Finding vertex, axis of symmetry, x-intercept, y-intercept for a parabola
* Discriminant of a quadratic
* Intersection of a parabola and a line.
* Quadratic Modelling

**Chapter 2**

* Polynomials with Long division and Synthetic division
* Finding an equation for a polynomial function based on the graph
* Finding minimum and maximum of a quadratic function
* Finding the roots of a polynomial function (quadratic form, grouping, rational root theorem)
* Graphing polynomials of degree higher than two
* Intersection of a cubic and a line
* Finding the equation for a polynomial based on an explanation
* Finding the sum or product of the roots given the equation
* Properties of polynomial graphs and roots.
* Graphing Calculator: Finding zeros, values, minimums, maximums, y-intercept, positive intervals, negative intervals, increasing intervals, decreasing intervals, end behavior of a graph, points of intersection

**Chapter 3**

* Absolute Value Graphs
* Linear Inequalities
* Inequalities with absolute value
* Polynomial and Rational Inequalities
* Graphing Inequalities
* Determining equations of inequalities based on a graph
* Linear Programming

**Chapter 4**

* Function notation
* Properties of functions
* Finding the domain, range, and zeros of a function
* Piecewise Functions
* Greatest Integer Functions
* Operations on functions
* Finding composites of functions
* Reflecting graphs
* Periodic functions – amplitude & period
* Finding the inverse of a function
* Determining if a function has an inverse
* Difference Quotient

**Chapter 5**

* Simplifying Complex fractions
* Integral exponents
* Negative exponents
* Fractional exponents