**Math 306 – List of Topics**

1. Real Numbers

* Notation of sets (N, W, Z, Q, Q’, R)
* Changing from repeating decimals to fractions
* Set-builder notation (symbols)
* Into to scientific notation (changing between decimal form and scientific notation only and comparing its values)
1. Algebraic Expressions
* Laws of Exponents (including negative and fractional exponents, cubes, cube roots, etc)
* Operations with scientific notation
* Review concept of “like terms”
* Intro to polynomials (mono-, bino-, etc)
* Multiplication of polynomials (Monomial × polynomial, binomial × binomial, polynomial × polynomial)
* Division of polynomials (divided by monomial only)
* Greatest common factor (factored form)
* Simplifying more complex polynomial expressions with mixed operations
* Application with geometric shapes and word problems (Examples like fence around pool)

3. Equations/Inequalities

* Solving first degree equations involving simplifying polynomials that includes fractions
* Pythagorean theorem (can use to find distance between two points as well)
* Word applications of equations and Pythagorean
* Concept of inequalities, symbols, interval notation, number line representation
* Solving first degree inequalities
* Word problem applications

4. Relations and Functions

* Independent vs Dependent Variables
* Representations through table of values, graph, or rule
* Linear Relationships – Concept of rate of change in detail
* Constant, direct, partial (a and b parameters)
* System of Equations (Solving by table, graph, or comparison method)

December Exam

* Rational Function

5. Solids

* Views of Solids (nets/blueprints)
* Area of solids –lateral, total, decomposable solids, working backwards (new this year: right cones and spheres)
* Volume – new concept this year for all solids. Decomposables and working backwards.
* Conversions units between the metric system and to measures of capacity
* Mixed application problems

6. Similarity

* Concept of similarity (constant ratio of sides “k”, ratio of area “$k^{2}$” and ratio of volume “$k^{3}$”
* Finding missing measures by using proportions
* Word problem applications using 2d and 3D shapes

7. Probability

* Geometric probability using area and volume

8. Statistics

* Sampling methods (stratified and cluster)
* Discrete vs continuous data
* Measures of central tendency(mean, median, mode)
* Weighted mean
* Classes used for continuous data (modal class, median class, etc)
* Histograms
* Box and Whisker plot, ranges, interquartile range, quartiles..

\*\*Shaded topics are for enriched classes only.