Grade 8 Math - Topics

Term I

PRE-REQUISITES
Order of Operations & Exponents with Natural Numbers, Integers and Fractions
Commutative, Associative and Distributive Properties

1. Algebra Basics
Introduction to Variables
Parts of a Monomial
Adding and Subtracting Monomials
Multiplying monomials
Dividing monomials
The Distributive Property - Multiplying a Monomial by a Polynomial
Substitutions in Algebraic Expressions
Translating Words into Algebraic Expressions
Algebraic Expressions in Geometry Problems

2. Equations
Translating Words into Equations with One Unknown
Properties of Equations
Solving Simple Equations with One Unknown
Solving Simple Equations Using the Distributive Property
Solving Linear Equations
Solving Fractional First Degree Equations
Solving an Equation by Isolating a Variable
Solving First Degree Word Problems

Term II

3. Pattern Rules - Representing a Situation
Defining the Variables of a Function
Identifying Points on the Cartesian Plane
Using a Table of Values
Number Patterns and Sequences
Using a Table of Values to Solve Linear Relations Problems
Graphing Linear Relations to Model Real Life Situations
Linear Relations Word Problems

MIDYEAR EXAM

4. Proportions - Ratios and Rates
Introduction to Proportional Situations
Definition of a Ratio
Definition of a Rate
Comparing Rates and Ratios
Properties of Proportions
Inversely Proportional Situations
Solving for an Unknown Value in a Proportion
Using Unit Rates to Make Buying Decisions
Word Problems for Proportional Situations

5. Percentage
Percent Models
Calculating Percentage
Converting Between Fractions, Decimals and Percents
Percent Discounts and Sales Tax*
Percent Increases and Decreases*

6. Size Transformations
Dilations With a Positive Scale Factor
Introduction to Similar Figures
Ratios and Scale Factors

Term III

PRE-REQUISITES
Properties of triangles/Classifying Triangles and angles
Important Lines for Triangles
Lines segments and rays
Naming and classifying angles

7. Circles and Regular Polygons
Definitions for Regular Polygons
The Perimeter of a Regular Polygon
The Metric System - Two Dimensional Conversions
The Area of a Regular Polygon
Perimeters and Areas of Composite Figures
Word Problems for Regular Polygons
Properties of Circles
The circumference of a circle
Arc length of a circle
The area of a circle
Area of a circular sector
Word problems for circles - putting it all together

8. Solids
Properties of Solids
Surface Area of Prisms
Surface Area of Composite Solids
Surface Area of Cylinders
Surface Area of Pyramids
Surface Area of Composite Solids Involving Prisms and Cylinders

9. Probability
Probability Experiments
Representing Probability
Theoretical & Experimental Probability
Tree Diagrams
Tree Diagrams and consecutive events
Calculating the Probability of Complementary Events
Using Probability to Make Predictions