**Overview for Algebra 2**

**Semester 1**

In the first semester of Saxon Algebra 2 at Pioneer Family Academy, we complete in order lessons 1 through 60 along with the respective tests for those lessons. The book is written in a spiral review method. Covered in this semester are the following topics:

**Number sense**

Simplifying Radicals | Scientific Notation | Complex Fractions | Operations and fractions.| Rationalizing the Denominator | Square root of a quotient | Square root of a product | Fractional Exponents | Percents | Power of a sum | Units and Unit Multipliers | Rate Unit Conversions | Imaginary Numbers | Complex Numbers | Metric Numbers and Conversions | English to Metric| Conversions | Weight Combination by Percent | Polar Coordinates | Rectangular Form to Polar Form

**Algebraic Expressions and Equations**

Two equations and two unknowns substitution and elimination methods of solving | Negative Exponents and properties of Products of Powers and Power of Powers | Adding like terms to simplify algebraic expressions | Distributive property and solving equations | The addition and multiplication property of equality | Fractional parts of a number | Equations with decimal numbers and with fractions | Consecutive integer problems | Polynomials | Multiplying and Dividing polynomials | Subscripted variables | Monomial and Trinomial Factoring | Cancellation | Rational Expressions | Major Rules of Algebra | Multiplication and Division of Rational Expressions | Solving by factoring and the zero product property | Difference of two squares |

Abstract Fractional Equations | Equations with Radicals | Direct and Inverse Variation |

Simultaneous Equations with Fractions and Decimals | Graphs of linear equations | The slope intercept form | Write the equation of a line | Graphical solutions | Slope relations of perpendicular and parallel lines | The Quadratic Equation | Completing the Square

**Geometry (topics briefly covered- not comprehensive)**

Polygons | Transversals and proportional segments | Line parallel to a given line | Circle relationships | Equations from Geometry | The Pythagorean Theorem | Area a Triangle | Inscribed angles | Angle relations | Similar Triangles and Proportion | Triangle Sum Theorem | Third angles theorem for triangles | Overlapping Triangles and Right Triangles | Deductive Reasoning | Vertical Angles | Relations of angles with Parallel Lines and a Transversal | Congruency in segments, angles, triangles and polygons | Exterior Angles theorem | Angles in Polygons | Inscribed Quadrilaterals | Parallelogram properties and special parallelograms | Right triangle Trigonometry and Inverse Trigonometric Functions | Solving Right Triangles | Angles in Circles

**Word Problems**

Value Problems | Percent problems | Ratio problems | Uniform Motion Problems and variations | Chemical Compounds and Mixture problems | Estimation with Scientific Notation | Ideal Gas Laws | Experimental Data and line of best fit