

## ALGEBRA – PART 2

### Session 17: Complex Numbers

- Proof by Contradiction
- Rational vs Irrational Numbers
- Imaginary Numbers
- Modular Property of Exponents of  $i$
- Complex Numbers
- Complex Conjugate

### Session 18: Completing the Square

- Squares of Binomials
- Creating a Perfect Square

### Session 19: Quadratic Formula

- Discriminant of a Quadratic
- Real and Non-real Roots
- Applications of Quadratics

### Session 20: Graphing Quadratics

- Parabolas
- Transformations
- Circles

### Session 21: Inequalities

- Quadratic Inequalities
- Factored Polynomials
- Fractions
- The Trivial Inequality
- Quadratic Optimization

### Session 22: Functions

- Function as Machine
- Domain
- Combining Functions
- Composition

### Session 23: Functions

- Inverse Functions
- Problem Solving
- Operations

### Session 24: Review

### Session 25: Graphing Functions

- Transformations
- Inverse Functions

### Session 26: Polynomials

- Addition & Subtraction
- Multiplication

### Session 27: Exponential Functions

- Exponential Functions
- Logarithms

### Session 28: Special Functions

- Radicals
- Absolute Value

### Session 29: Special Functions

- Rational Functions
- Piecewise Defined Function

### Session 30: Sequences & Series

- Arithmetic Sequences
- Arithmetic Series
- Geometric Sequences

### Session 31: Sequences & Series and Special Manipulations

- Geometric Series
- Telescoping
- Raising Equations to Powers
- Self-Similarity
- Symmetry

### Session 32: Review